

Wireless

Wireless Switchgear



// CABLE FREE SWITCH CONTROL

Catalogue





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#### 32 Wireless receivers / Wireless repeaters ENOCEAN®

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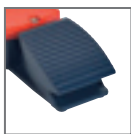
#### 92 Wireless hand controls

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96 Wireless foot switches

96 Series RF GFI EN868

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110 Series RF IS M30



112 Wireless optical sensors

112 Series RF 96 LT EN868



114 Wireless universal transmitters

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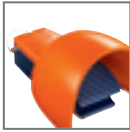
116 Series RF 96 ST SW868/SW915-Vcc extern

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146 Accessories



steute

# // SAFE SWITCHGEAR FOR DEMANDING AND CRITICAL APPLICATIONS

## Wireless



## Automation



## Extreme



## Meditec



»Safe switchgear for demanding and critical applications«. True to this motto, steute has been providing its customers with innovative, practical and durable switchgear solutions – for over 50 years.

When our customers are successful, so are we. Because we always focus on our customers, our company has grown steadily and sustainably over the last decades. Steute is committed to continuing this growth – in close cooperation with our customers.

We are situated in East Westphalia, a key region for machine building and electrical goods manufacturing. It is home to qualified specialists committed to developing and manufacturing innovative products. It is also the location of renowned universities, research and educational institutions to which we maintain healthy contacts.

Markets are no longer restricted by national borders. This is why our products are developed and tested for extreme conditions all over the world. We take care to ensure that our products are always certified according to the latest international standards. In every industrial or emerging nation in the world, steute has access to qualified specialists who can guarantee competent support and a quick service.

As a medium-sized company we are able to react with speed to customer wishes and market trends. We are continually developing innovative products and using new technologies as we consistently open up new fields of application for our switchgear.

steute is currently active in four different business fields, producing switchgear, sensors and control units for use in industry and in medical equipment:

### Wireless

Cable free switchgear and sensors for use in machinery and process plants. These industrial-strength wireless switches communicate with higher level control systems via reliable wireless transmission. »Energy harvesting« can play a major role in these products.

### Automation

Standard and customised switchgear for machinery and process plants. Tried and tested electromechanical and non-contact technologies for classical applications in industrial automation and process control – always with a view to the latest global requirements.

### Extreme

Switchgear and sensors for use in extreme environments or under extreme conditions. Certified products for use in hazardous areas worldwide (e. g. ATEX, IECEx, EAC).

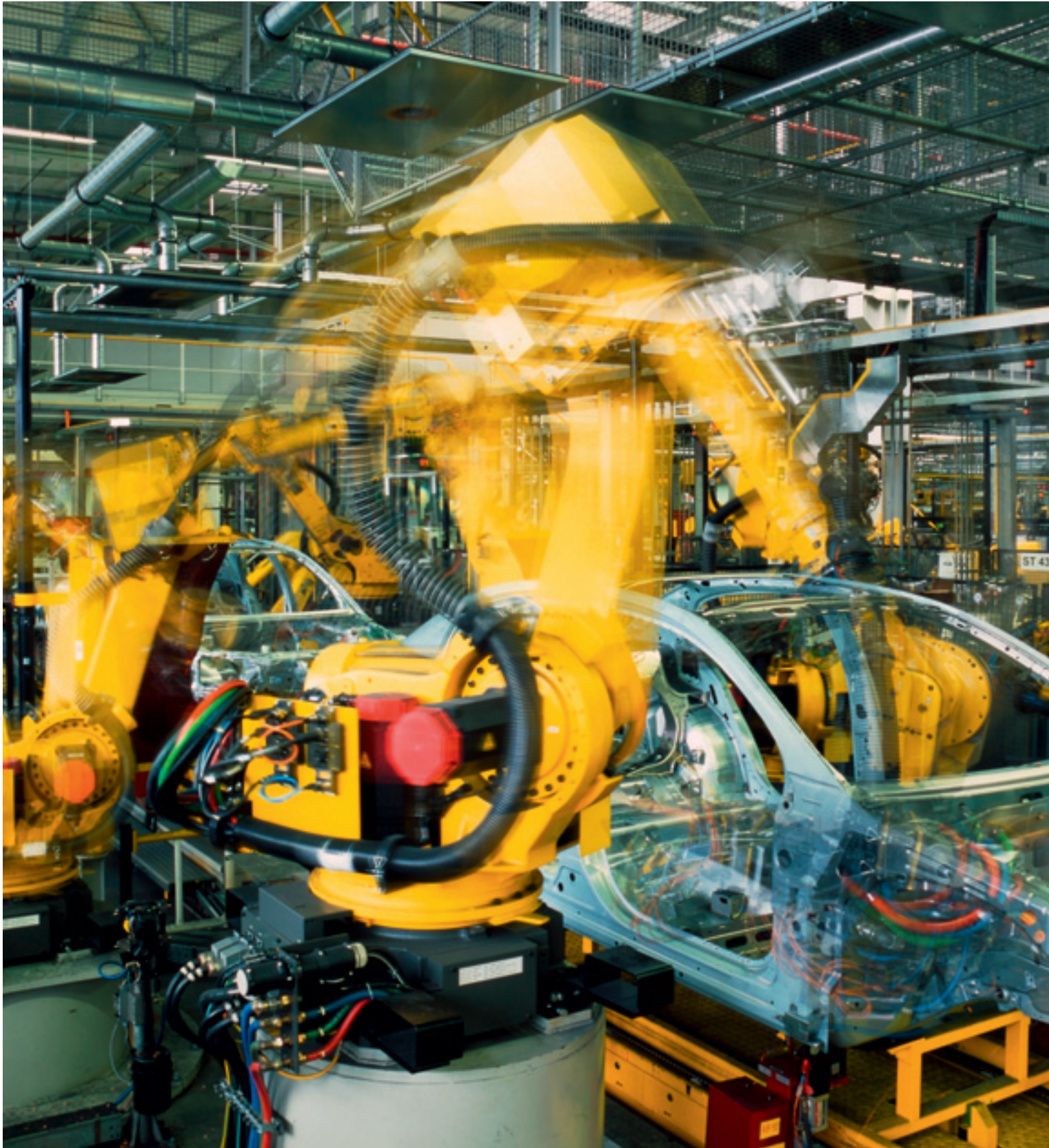
### Meditec

A comprehensive range of standard and customised foot and hand controls for medical devices, meeting the highest ergonomic and availability requirements. Produced in accordance with the certified EN ISO 13485 quality management system for medical products.

The following information provides an overview of our standard range of switchgear for complex and demanding applications. We will be happy to provide you with any additional information you require. If you cannot find the solution for your application: just get in touch. We have already helped numerous customers by developing »tailor-made« switchgear for their individual needs.

**Marc Stanesby**  
Managing Director  
steute Schaltgeräte GmbH & Co. KG

// STEUTE WIRELESS – RELIABLE, MANAGEABLE AND PRACTICE  
ORIENTATED WIRELESS TECHNOLOGY – WORLDWIDE APPLICABLE







#### **A new business field is introduced**

By restructuring its business fields, steute is taking into account the increasingly important share of its product range held by "wireless automation" – and the fact that the enterprise is now in a position to provide a large selection of different wireless technologies for industrial automation and the building services industry. The products included in this new "Wireless" business field are all presented in this brochure.

#### **Industry makes high demands on wireless devices**

Compared to consumer applications, industry and building automation make higher demands on wireless technologies. Wireless interference from other wireless systems affects the wireless links, as do emissions, e.g. from machine enclosures. steute began to tackle this problem early on – first in its business field Medical Technology, where particularly high demands are made on transmission safety. Soon afterwards wireless switchgear began to be developed for industrial automation.

#### **A comprehensive range with different wireless standards**

The rapidly growing demand has led to continual expansion of our range. At the beginning, we used available wireless standards. However, they limited the application of wireless technology in several fields. That is why, in a first step, the steute developers adapted these standards to suit the requirements of its customers. In a second step, steute then developed its own wireless standards, which were fully adapted to the industrial environments and feature profiles of wireless communication in the machinery and process plant industry.

#### **A modular system for wireless switchgear**

The result: today the business field "Wireless" is able to provide the machinery and process plant industry with numerous different designs of wireless switchgear – e.g. position switches, foot switches, pull-wire switches and different types of operating device. Each device can be combined with different wireless technologies. Furthermore, this technology offers a solid platform which meets customer-specific requirements of wireless systems with relatively little effort.

This is why the business field Wireless will continue to expand its range, as well as to open up new applications for wireless switchgear in collaboration with its customers.

// SURFING THE RIGHT WAVE

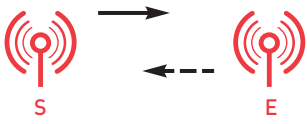
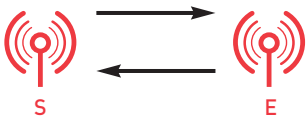








sWave<sup>®</sup>



**sWave® by steute Wireless**

Wireless communication opens up new possibilities e.g. for the design of man-machine interfaces. We recognised this early on and can now look back on nearly ten years' experience in the design of wireless switchgear. Technology platforms and wireless standards have been developed which are perfectly adapted to their application

fields. One development focus is the »Energy Harvesting« principle: the switching devices generate the energy required for the transmission of wireless signals themselves – for example via a solar module or a robust electrodynamic energy generator. For demanding industrial applications different wireless technologies are available:

sWave® 868/915 MHz	sWave® 2.4 GHz	sWave® 2.4 GHz-safe
		
<p>Battery</p> 	<p>Battery LongLife</p> 	<p>Rechargeable Battery</p> 
<p>Energy Generator</p> 	<p>—</p>	<p>—</p>
<p>Europe North-America Australia Asia</p> 	<p>Europe North-America Australia</p> 	<p>Europe North-America Australia</p> 

steute Wireless

sWave® 868/915-e/b



#### sWave® 868 / 915-e MHz self-sufficient, bi-directional

Wherever movable parts of machines and plants need to be positioned, controlled and monitored, cables are undesirable or a hindrance, reducing the viability of the plants. The solution: wireless, self-sufficient command devices which are applied to authorise solenoid interlocks on safety fences and protective guards. Wireless position switches which position, control and monitor machines and plants.

#### sWave® 868 / 915-b MHz battery-operated, bi-directional

##### Application field wireless technology

Industrial sensors, for example wireless inductive sensors, GMR sensors or optical wireless sensors, require additional energy for operation. These sensors draw their energy from a powerful longlife battery integrated in the sensors (e.g. position switches, operating devices, non-contact wireless sensors).

##### Special features:

- Bi-directional self-sufficient wireless path
- High sensing range: up to 60 m inside buildings and 700 m in the free field
- No interference with DECT, WLAN, PMR systems etc.
- Good integration in automation systems
- Short telegrams (small duty cycle) lead to low collision probability
- Also possible with battery operation
- Non-contact wireless sensors possible.

#### LBT – Listen-Before-Talk

With sWave® 868 / 915-e MHz and sWave® 868 / 915-b MHz the switching or sensor information is transmitted directly after a status change at the switching input. If the wireless switch receives no confirmation of the transmission from the receiver, after a short time it will try to resend the information. If this transmission is also unsuccessful, no further attempt will be carried out and the switching information will be »lost«.

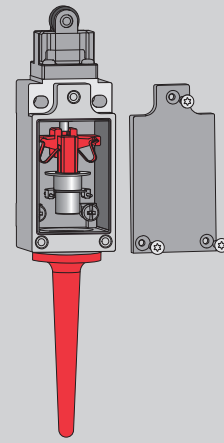
Wireless switches and sensors with battery supply can be additionally operated in the LBT mode. Because a jammer only interferes with the air interface for milliseconds, transmission reliability should be improved by checking the wireless interface before transmission. If the interface is vacant, the signal can be transmitted. If the interface is occupied by another jammer on the same frequency or another transmitter in the same wireless network, the transmission is reattempted as soon as the interface is vacant again.

This check is carried out up to six times, depending on how long the interface is blocked. If after approx. 200 ms transmission is not possible, the wireless telegram is definitely sent.

**Wireless switches and sensors with this technology are marked in our catalogue with - LBT.**



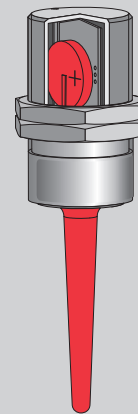
The antenna and wireless module are integrated in the wireless switches or sensors. The special characteristics of the products remain preserved: high degree of protection, low/high temperature durability -25 °C up to +65 °C, corrosion resistance, gas Ex zones 1 and 2, dust Ex zones 21 and 22.



Electrodynamic energy generator, energy from the switching process (keystroke): the wireless modules from steute are based on a miniature energy generator, ultra low-power electronics and reliable wireless technology. Through the combination of miniaturisation, energy harvesting and highly efficient wireless technology, maintenance-free wireless sensor solutions for applications inside buildings and industrial plants are possible.



Bi-directional wireless sensors based on the Hall effect or as inductive sensors have an especially long battery life of several years because of their very low power consumption in stand-by mode.



sWave® 868 and 915 are optimised for ultra-low power consumption. Longlife batteries provide the energy source for non-contact sensors or for periodically transmitted status signals. Battery management is not required for several years.

steute Wireless

sWave® 2.4 GHz



#### sWave® 2.4 GHz

##### Application field wireless technology

Wireless foot switches have many advantages in machine and plant engineering, for different reasons. On the one hand, cables are dangerous tripping hazards; on the other hand, cables restrict ergonomic comfort because the operator cannot position the foot switch freely in front of the machine. This technology, operating on the license-free 2.4 GHz frequency band, offers high reliability and robustness.

##### Wireless Coexistence

Most of the wireless technologies in use today operate on the 2.4 GHz frequency band. Devices using these wireless technologies have become an integral part of the existing infrastructure in offices and production lines. In cases where WLAN, IEEE 802.15.4 (ZigBee) and sWave® 2.4 must be operated in parallel, the 2.4 GHz frequency band is working to full capacity (see Fig. on the right side). Through a special procedure a coexistence with sWave® and other technologies is secured to the greatest possible extent (see picture on the right).

##### Special features:

- Specific wireless system for high reliability
- Energy-saving 2.4 GHz wireless technology
- Short link-up time after »power on« (<200 ms)
- Short data exchange time (20 ms)
- Low power consumption
- Coexistence with WLAN and Bluetooth
- Interference-free parallel operation of several transmission and receiving units through a special »pairing« procedure

##### Technology

- 2.4 GHz ISM band frequency hopping procedure
- Frequency hopping with FSK procedure with 8 channels in 4 frequency groups
- Licensable worldwide
- No legally stipulated limitation of utilisation time with regard to duty cycle.



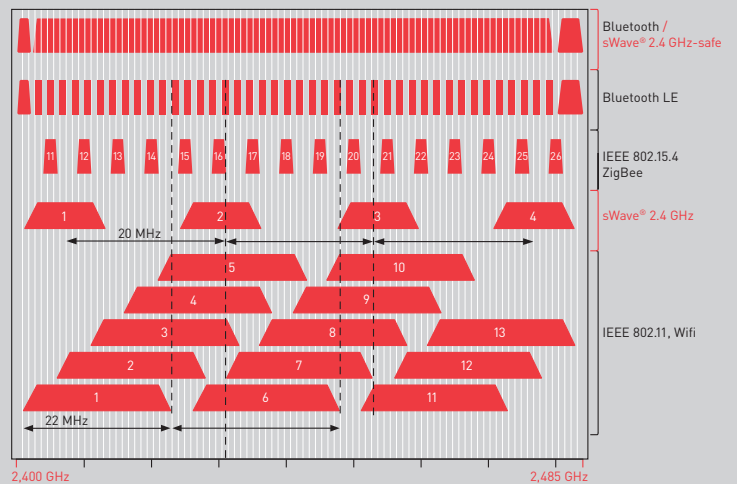
Nearly all industrial foot switches from steute can be optionally equipped with the new steute sWave® 2.4 GHz technology. This is also possible for one and two-pedal foot switches. In these cases, a compact module with an integrated antenna is incorporated instead of the cable connection. This module communicates with the receiving unit inside the device.



The signal evaluation is carried out by a receiver inside the switchgear cabinet of the plant. Thus two transmitters can communicate with one receiver.



In order to offer a reliable, manageable and practicable wireless technology, steute has developed the wireless system »sWave® 2.4 GHz«. On the basis of years of experience with different wireless technologies, a new system has been designed with essential advantages: low energy consumption, fast link connection, low costs, long battery life.



The system works on the 2.4 GHz band available worldwide and is divided into 32 channels. The current power consumption of maximum 25 mA is as much as 60% lower than all other wireless standards. High coexistence and reliability are achieved by 32 channel pseudo-random frequency hopping and fourfold data redundancy within 20 ms.

steute Wireless

sWave® 2.4 GHz-safe



#### sWave® 2.4 GHz-safe

##### A new system with essential advantages

On the basis of years of experience with different wireless technologies, a new system has been designed with essential advantages: low energy consumption, fast link connection, low costs, long battery life.

##### All requirements regarding robust and safe application in an industrial environment are met.

The new wireless standard has been especially designed for the requirements of machine and plant engineering. It meets high safety standards: Performance level PL d according to EN ISO 13849-1 is achieved in terms of the machinery directive; signal transmission is reliable even in adverse environmental conditions.

##### Compact wireless module

sWave® 2.4 GHz-safe uses the physical level of the standard IEEE 802.15.1. Because of its high reliability, achieved amongst other things by the FHSS procedure («Frequency Hopping Spread Spectrum») on 79 channels and the adaptive frequency hopping procedure, and because of its very good interference and coexistence characteristics with regard to other wireless systems, it is especially suitable for application in rough industrial environments.

##### High interference resistance

sWave® 2.4 GHz-safe has been optimised for a sensing range of 15 m, taking into consideration the interference predominating on a production site. Safety-related signals are transmitted wirelessly, without any disturbing cables. The parameters can fall well below or above target, depending on the application.

##### Mobile wireless controls

An sWave® 2.4 GHz-safe Wireless system exists as a complete solution, comprising:

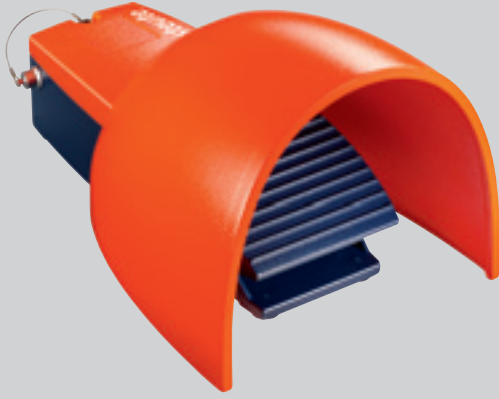
- mobile wireless transmitter, e.g. a wireless foot switch with integrated transmission electronics, including rechargeable battery and transmission antenna
- a wireless receiver that can be parameterised, including evaluation electronics and antenna system.

Safety-related signals are transmitted wirelessly, without any disturbing cables.

##### Special features:

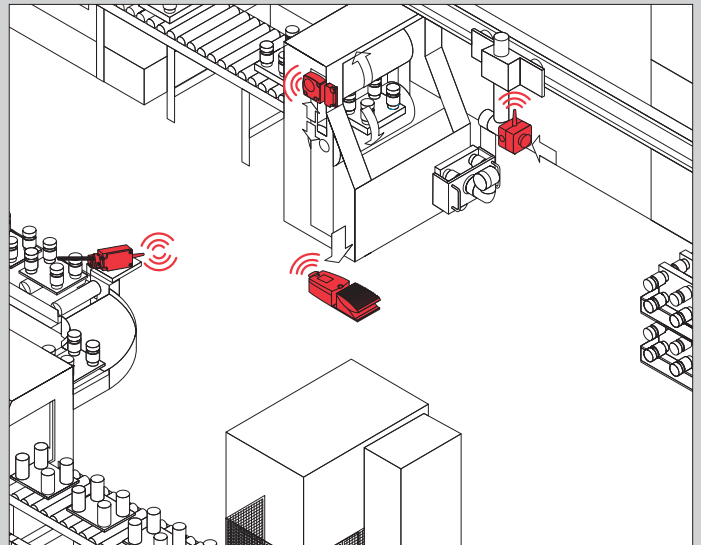
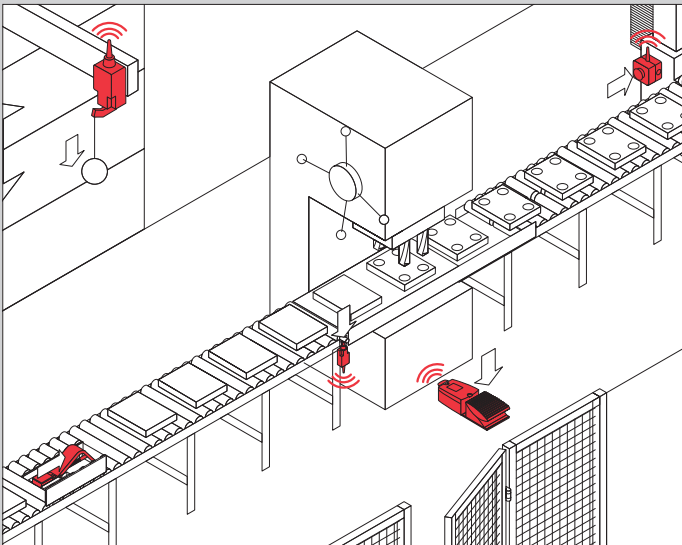
- Operation on the license-free 2.4 GHz ISM frequency band
- For data communication, a master/slave procedure with FHSS («Frequency Hopping Spread Spectrum») is applied
- Interference-free parallel operation with other systems at high system density is possible
- Low transmission power additionally supports this interference-free parallel operation
- High EMC interference resistance in an industrial environment
- Wireless approval for North America (USA/Canada) available.





Wireless safety foot switch  
 Type test approved, sWave® 2.4  
 GHz-safe: safe and reliable,  
 safety level: PL d according to  
 EN ISO 13849-1. Protection  
 shield against unintentional ac-  
 tuation. In order to exclude  
 faulty operation, sensors moni-  
 tor the position of the switch  
 during operation. As soon as it  
 is lifted from the ground, the  
 system falls into a »fail-safe  
 state«.

sWave® safe receiver and eval-  
 uation unit (»master« function, 2  
 channels). The unambiguous  
 assignment of transmitter and  
 receiver is carried out by an in-  
 dividual identifier that must be  
 parameterised during installa-  
 tion of transmitter and receiver.  
 This measurement guarantees  
 that only one transmitter can  
 impact one receiver and vice  
 versa.



#### Typical applications

- Operation of machines with movable parts, for example wire machines, machine tools, presses
- Mobile operating and observing, for example during setting service of robots
- Mobile operating of a simple tool and exchange of appliances
- Service and maintenance on machines.



### EnOcean®

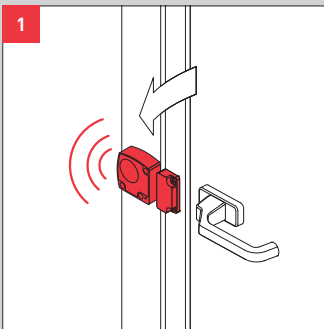
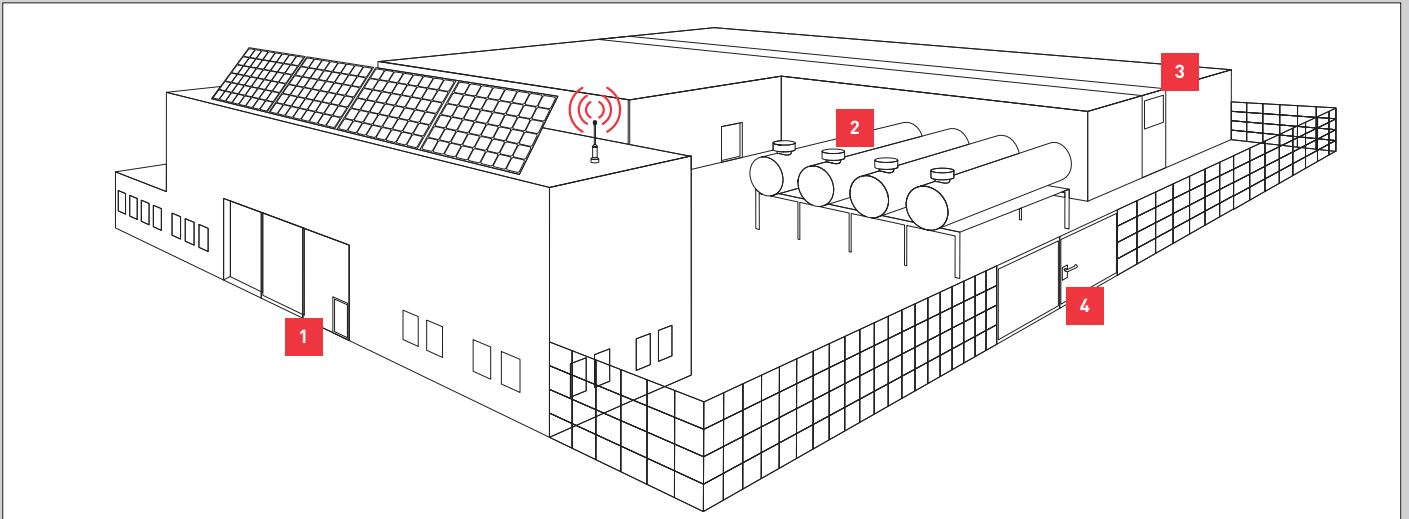
The EnOcean wireless technology has already been established as a technology for green, intelligent buildings and applications. Wherever an interoperability with the EnOcean standard ISO/IEC 14543-3-10 is required for industrial applications, this standard is integrated in our wireless switchgear and sensors. It has been optimised for uni-directional wireless systems, based on an energy harvesting system.

#### EnOcean® – application requirements of this wireless technology

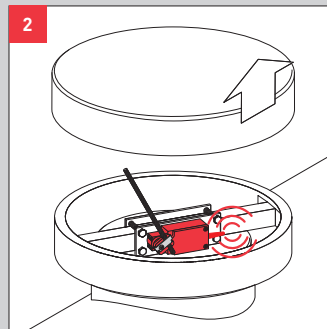
Industrial sensors, for example wireless inductive sensors, GMR sensors or optical wireless sensors, require additional energy for operation. These sensors draw their energy from a powerful longlife battery integrated in the sensor (e.g. position switches, operating devices, non-contact wireless sensors).

#### Special features

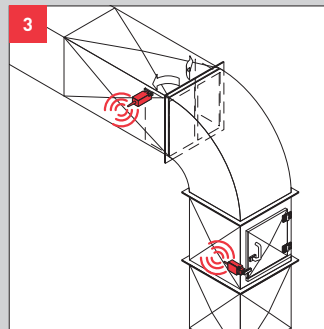
- Self-sufficient wireless path
- High sensing range: up to 20 m inside buildings and 200 m in the free field
- Fail-safe wireless transmission in 868 MHz frequency range
- No interference with DECT, WLAN etc.
- Easy system extension to include products from other manufacturers
- Good integration in automation systems
- Short telegrams (small duty cycle) lead to low collision probability
- Also possible with battery operation
- Non-contact wireless sensors possible.
- Available as Ex version for zones 1 and 21



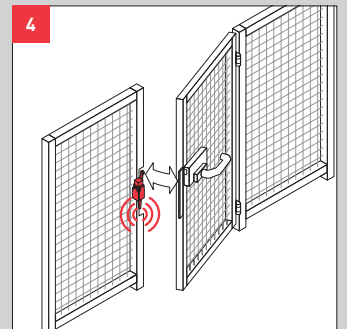
**Sliding door protection**  
Sliding door protection by a non-contact wireless wick door contact



**Tank monitoring**  
Protection of inspection and service accesses with Ex-protected wireless switches



**Position monitoring**  
Position monitoring of fire protection flaps with wireless position switches



**Door protection**  
Door protection at a protective fence by a self-sufficient wireless switch














steute Wireless technologies in comparison

	SW 868-e	SW 868-b	SW 915-e	SW 915-b	SW2.4-b	SW2.4-safe	EN 868-e	EN 868-b
	Energy generator	Long life battery	Energy generator	Long life battery	Long life battery	Long life battery	Energy generator	Long life battery
Frequency	868.3 MHz	868.3 MHz	915 MHz	915 MHz	2.4 GHz	2.4 GHz	868.3 MHz	868.3 MHz
Self-sufficient	yes	no	yes	no	no	yes	yes	no
Transmiss. channels	1	1	1	1	32	79	1	1
Redundancy	single-channel	single-channel	single-channel	single-channel	multi-channel	multi-channel	single-channel	single-channel
Mode of operation	confirmation	bi-directional	confirmation	bi-directional	bi-directional	bi-directional	uni-directional	uni-directional
Data rate	66 kBit/s	66 kBit/s	66 kBit/s	66 kBit/s	250 kBit/s	max. 720 kBit/s	125 kBit/s	125 kBit/s
Telegram length	10 Byte	13 Byte	10 Byte	13 Byte	16 Byte	13 Byte	14 Byte	14 Byte
Modulation	FSK	FSK	FSK	FSK	FSK	FHSS	ASK	ASK
Transmiss. method	1 x redundant	1 x redundant	1 x redundant	1 x redundant	4 x redundant	synchr. Con. Link	3 x redundant	3 x redundant
Range outdoors	max. 700 m	max. 700 m	max. 700 m	max. 700 m	20 m	15 m	max. 200 m	max. 200 m
Range indoors	60 m	60 m	60 m	60 m	20 m	15 m	20 m	20 m
Power consumption in active mode	low / irrelevant	low	low / irrelevant	low	low	low / irrelevant	low / irrelevant	low
Wake-up time	6 ms	4 ms	6 ms	4 ms	< 200 ms	300 ms - 4 s	30 ms	40 ms
Interf. liability	very low	very low	very low	very low	low	low	very low	very low
Trans. path availab.	medium	medium	medium	medium	high	very high	medium	medium
No. of transmissions per receiver	max. 40	max. 40	max. 40	max. 40	2	1	max. 40	max. 40

Approvals

FCC / IC	-	-	●	●	●	●	-	-
NCC 7077/10	●	●	-	-	-	-	●	●
CSA	-	-	●	●	●	●	-	-
EAC	●	●	-	-	●	-	-	-

## Selection chart wireless switchgear

	SW 868-e	SW 868-b	SW 915-e	SW 915-b	SW2.4-b	SW2.4-safe	EN 868-e	EN 868-b
	Energy generator	Long life battery	Energy generator	Long life battery	Long life battery	Long life battery	Energy generator	Long life battery
RF 10 H 	-	●	-	●	-	-	-	●
RF 13 	●	-	●	-	-	-	-	-
RF 95 	●	-	●	-	-	-	●	-
RF 96 	-	●	-	●	-	-	-	●
RF 41 	-	-	-	-	-	-	-	●
RF 98 	●	-	●	-	-	-	●	-
RF GF(S)I 	●	-	●	-	●	●	●	-
RF RC 10 	-	●	-	●	-	-	-	●
RF RC M30 	-	●	-	●	-	-	-	●
RF TGM 	-	●	-	●	-	-	-	●
RF HB 	-	●	-	●	-	-	-	-
RF BF 72 	-	-	-	-	-	-	●	●
RF BF 74 	●	-	●	-	-	-	-	-

● Configuration possible / - Configuration not possible



steute

## Wireless technology 868 MHz / 915 MHz

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Wireless receivers sWave®  
 // Series RF Rx SW868/SW915-1W

Features/options

- sWave® technology
- 1 potential-free relay output
- 1 change-over contact, max. 6 A
- Transmitter/receiver assignment by teaching mode
- LEDs for indication of switching state
- SW868: SMA plug-in connector, SW915: SMA reverse plug-in connector for external antenna

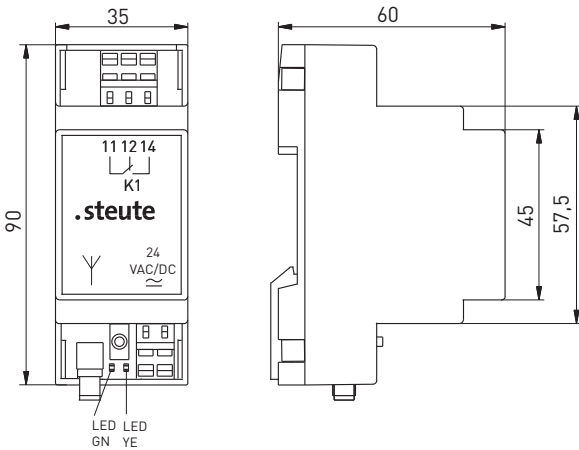
// RF RX SW868/SW915



Technical Data

<b>Standards</b>	EN 60947-5-1; EN 61000-6-2; EN 61000-6-3; EN 60068-2-6; EN 60068-2-27; EN 301 489-1; EN 301 489-3; EN 300 220-1, -2
<b>Number of channels</b>	1
<b>Mounting</b>	DIN rail mounting
<b>Connection</b>	terminals with CAGE CLAMP WAGO Series 236: 0.08 ... 2.5 mm² AWG 28-12, AWG 12: THHN, THWN, stripping length 5 ... 6 mm/ 0.22 in
<b>Degree of protection</b>	IP 20 to IEC/EN 60529
<b>Inputs</b>	1 wireless channel, max. 10 transmitters per channel
<b>Outputs</b>	1 change-over contact (Relay)
<b>Rated operating current I<sub>e</sub></b>	24 VDC: max. 0.03 A; 24 VAC: max. 0.07 A
<b>Rated operating voltage U<sub>e</sub></b>	24 VAC/DC -15% ... +10%
<b>I<sub>e</sub>/U<sub>e</sub> outputs</b>	6 A / 250 VAC; 2 A / 24 VDC
<b>Utilisation category</b>	AC-15; DC-13
<b>U<sub>i</sub></b>	250 VAC
<b>U<sub>imp</sub></b>	2.5 kV
<b>Frequency</b>	868.3 MHz or 915 MHz (USA, Canada and Australia)
<b>Display</b>	green LED for operating state, orange LED for switching conditions
<b>Switching frequency</b>	approx. 12000 telegrams at repetitions/h
<b>Degree of pollution</b>	2 per DIN VDE 0110
<b>Ambient temperature</b>	0 °C ... +55 °C
<b>Note</b>	inductive loads (contactors, relays etc.) are to be suppressed by suitable circuitry.
<b>Approvals</b>	<b>ERAC</b> SW915 <b>cULus</b> <b>FC</b> <b>IC</b>

24



Wireless receiver  
 RF Rx SW868-1W 24 VAC/DC  
 RF Rx SW915-1W 24 VAC/DC

Material Number  
 1190427  
 1190428

<b>Type code</b>	<b>RF Rx SW868-1W</b>
	1 change-over contacts
	868 MHz wireless frequency (SW915 915 MHz)
	sWave®
	Wireless receiver
	Wireless technology

RF magnet antenna with SMA plug-in connector available as accessory, for SW868 material No. 1188958 and for SW915 material No. 1188987 required for optimum sensing range.

Mobile field strength indicator swView 868 or 915 MHz for wireless field planning is available.



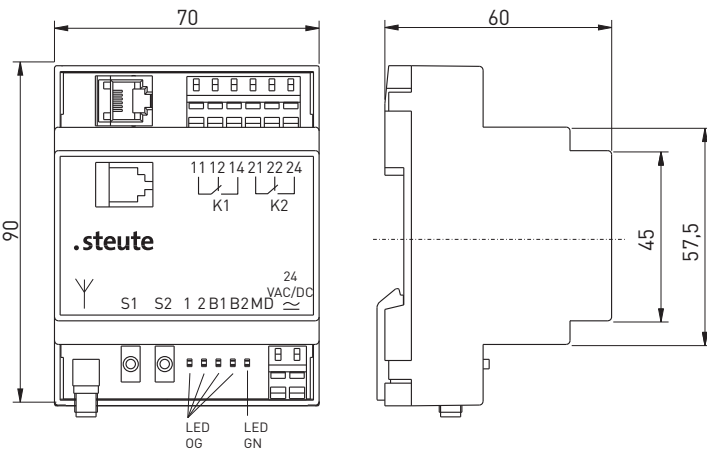
# Wireless receivers sWave®

## // Series RF Rx SW868/SW915-2W-RS232

### Features/options

- sWave® technology
- 2 potential-free relay outputs
- 2 change-over contacts, max. 6 A
- RS 232 interface
- Version with Power-down function available, suffix -s
- Transmitter/receiver assignment by teaching mode
- LEDs for indication of switching state
- SW868: SMA plug-in connector, SW915: SMA reverse plug-in connector for external antenna

## // RF RX SW868/SW915-2W-RS232



### Technical Data

Standards	EN 60947-5-1; EN 61000-6-2; EN 61000-6-3; EN 60068-2-6; EN 60068-2-27; EN 301 489-1; EN 301 489-3; EN 300 220-1, -2
Number of channels	2
Mounting	DIN rail mounting
Connection	terminals with CAGE CLAMP WAGO Series 236: 0.08 ... 2.5 mm <sup>2</sup> / AWG 28-12, AWG 12: THHN, THWN, stripp. length 5 ... 6 mm/0.22 in
Degree of protection	IP 20 to IEC/EN 60529
Inputs	2 wireless channels, max. 10 transmitters per channel
Outputs	2 change-over contacts (relays), RS 232 interface
Rated op. current I <sub>e</sub>	24 VDC: max. 0.1 A; 24 VAC: max. 0.25 A
Rated op. voltage U <sub>e</sub>	24 VAC/DC -15 % ... +10 %
I <sub>e</sub> /U <sub>e</sub> output	6 A/250 VAC; 2 A/24 VDC
Utilisation category	AC-15; DC-13
U <sub>i</sub>	250 VAC
U <sub>imp</sub>	2.5 kV
Frequency	868.3 MHz or 915 MHz (USA, Canada and Australia)
Display	green LED: operating state, orange LEDs: switching conditions and baud rate setting
Switching frequency	approx. 12000 telegrams at repetitions/h
Degree of pollution	2 to DIN VDE 0110
Ambient temperature	0 °C ... +55 °C
Baudrate	9600 Bd to 57600 Bd
Data bits	8
Stop bit	1
Parity	None
Flow control	None
Note	Inductive loads (contactors, relays etc.) are to be suppressed by suitable circuitry.
Approvals	

25

### Wireless receiver

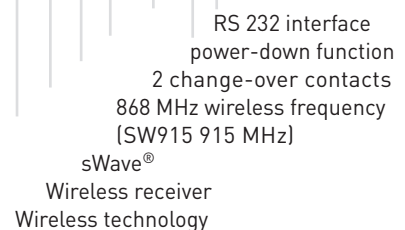
- RF Rx SW868-2W-RS232 24 VAC/DC
- RF Rx SW915-2W-RS232 24 VAC/DC
- RF Rx SW868-2W-s-RS232 24 VAC/DC
- RF Rx SW915-2W-s-RS232 24 VAC/DC

### Material Number

- 1226183
- 1226339

### Type code

RF Rx SW868-2W-s-RS232



RS 232 cable provided with receiver.

RF magnet antenna with SMA plug-in connector available as accessory, for SW868 material No. 1188958 and for SW915 material No. 1188987 required for optimum sensing range.

Mobile field strength indicator swView 868 or 915 MHz for wireless field planning is available.

# Wireless receivers sWave®

// Series RF Rx SW868/SW915-4S

## Features/options

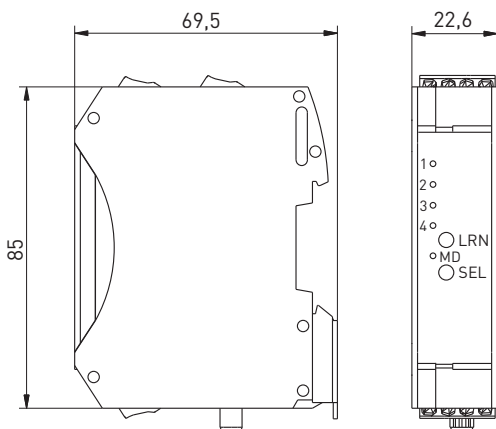
- sWave® technology
- 4 potential-free relay outputs
- 4 NO contacts, max. 3 A
- Transmitter/receiver assignment by teaching mode
- LEDs for indication of switching state
- SW868: SMA plug-in connector, SW915: SMA reverse plug-in connector for external antenna

// RF RX SW868/SW915-4S



## Technical Data

<b>Standards</b>	EN 60947-5-1; EN 61000-6-2; EN 61000-6-3; EN 60068-2-6; EN 60068-2-27; EN 301 489-1; EN 301 489-3; EN 300 220-1, -2
<b>Number of channels</b>	4
<b>Mounting</b>	DIN rail mounting
<b>Connection</b>	screw clamps 0.14 mm <sup>2</sup> - 2.5 mm <sup>2</sup> , stripping length 8 mm
<b>Degree of protection</b>	IP 20 to IEC/EN 60529
<b>Inputs</b>	4 wireless channels, max. 10 transmitters per channel
<b>Outputs</b>	4 NO contacts (Relays)
<b>Rated operating current I<sub>e</sub></b>	24 VDC: max. 0.1 A
<b>Rated operating voltage U<sub>e</sub></b>	24 VDC -15% ... +10%
<b>I<sub>e</sub>/U<sub>e</sub> outputs</b>	3 A / 250 VAC; 3 A / 24 VDC
<b>Utilisation category</b>	AC-15; DC-13
<b>U<sub>i</sub></b>	250 VAC
<b>U<sub>imp</sub></b>	2.5 kV
<b>Frequency</b>	868.3 MHz or 915 MHz (USA, Canada and Australia)
<b>Display</b>	green LED for operating state, orange LED for switching conditions
<b>Switching frequency</b>	approx. 12000 telegrams at repetitions/h
<b>Degree of pollution</b>	2 per DIN VDE 0110
<b>Ambient temperature</b>	0 °C ... +55 °C
<b>Note</b>	inductive loads (contactors, relays etc.) are to be suppressed by suitable circuitry.
<b>Approvals</b>	<b>ERC</b> SW915 c <b>UL</b> <b>us</b> <b>FC</b> <b>IC</b>



### Wireless receiver

RF Rx SW868-4S 24 VDC  
RF Rx SW915-4S 24 VDC

### Material Number

1373201  
1373187

### Wireless receiver with status storage

RF Rx SW868-4S-s 24 VDC  
RF Rx SW915-4S-s 24 VDC

### Material Number

1363011  
on request

### Note for RF Rx SW868-4S-s

The current switching status of the device is stored when the power supply is turned off. When the supply voltage returns, the last switching status is restored. When the device is voltage-free, any switching operations are lost. A maximum of 100,000 memory operations are possible.

### Type code

RF Rx SW868-4S-s

power-down function  
4 NO contacts  
868 MHz wireless frequency  
(SW915 915 MHz)  
sWave®  
Wireless receiver  
Wireless technology

RF stick-on antenna is provided.

Mobile field strength indicator swView 868 or 915 MHz for wireless field planning is available.

# Wireless receivers sWave®

## // Series RF Rx SW868/SW915-TCP/IP

### Features/options

- sWave® technology
- Communication via UDP or TCP/IP (Server or Client - Mode)
- Webserver based Setup
- Transmitter/receiver assignment by teaching mode
- LEDs for indication of switching state
- SW868: SMA plug-in connector, SW915: SMA reverse plug-in connector for external antenna

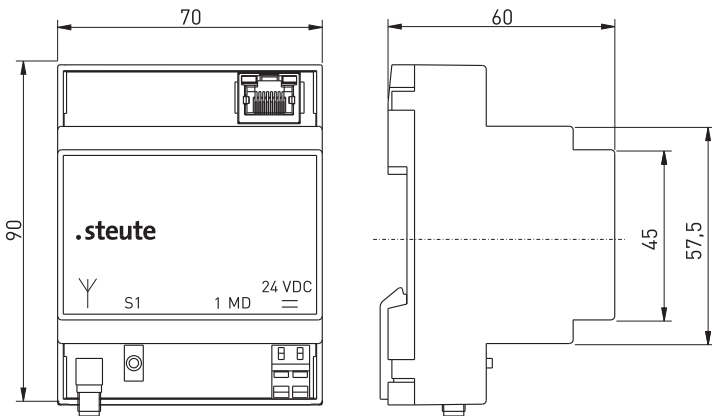
## // RF RX SW868/SW915-TCP/IP



### Technical Data

<b>Standards</b>	EN 60947-5-1; EN 61000-6-2; EN 61000-6-3; EN 60068-2-6; EN 60068-2-27; EN 301 489-1; EN 301 489-3; EN 300 220-1, -2
<b>Mounting</b>	DIN rail mounting
<b>Connection</b>	terminals with CAGE CLAMP WAGO Series 236: 0.08 ... 2.5 mm <sup>2</sup> / AWG 28-12, AWG 12: THHN, THWN, stripping length 5 ... 6 mm / 0.22 in
<b>Network interface</b>	10/100 Base-T Ethernet (Auto detection) via RJ 45
<b>Software interface</b>	TCP (Client, Server) / UDP / IP (DHCP)
<b>Degree of protection</b>	IP 20 to IEC/EN 60529
<b>Rated operating current I<sub>e</sub></b>	24 VDC: max. 0.06 A
<b>Rated operating voltage U<sub>e</sub></b>	24 VDC -15 % ... +10 %
<b>Frequency</b>	868.3 MHz or 915 MHz (USA, Canada and Australia)
<b>Display</b>	green LED: Reset state, orange LED: signalisation of telegram
<b>Degree of pollution</b>	2 to DIN VDE 0110
<b>Ambient temperature</b>	0 °C ... +55 °C
<b>Approvals</b>	SW915 c

27



Wireless receiver  
RF Rx SW868-TCP/IP  
RF Rx SW915-TCP/IP

Material Number  
1266818  
1266820

### Type code

RF Rx SW868-TCP/IP

TCP/IP interface  
868 MHz wireless frequency  
(SW915 915 MHz)  
sWave®  
Wireless receiver  
Wireless technology

RF magnet antenna with SMA plug-in connector available as accessory, for SW868 material No. 1188958 and for SW915 material No. 1188987 required for optimum sensing range.

Mobile field strength indicator swView 868 or 915 MHz for wireless field planning is available.

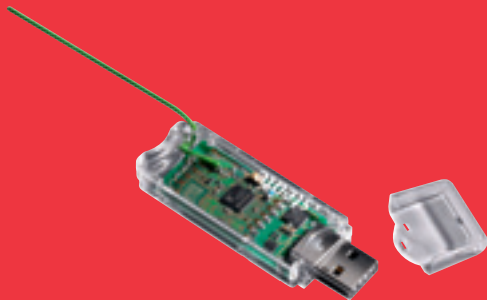
# Wireless receivers / Wireless repeaters sWave®

## // Series RF RxT SW868/SW915-USB

### Features/options

- Thermoplastic enclosure
- Different operating modes
- USB Standard Receiver Mode
- USB Gateway Mode
- Sniffer Mode
- 1-level repeater: for the signal gain between transmitter and receiver
- 2-level repeater: for the signal gain of one 1-level repeater
- Virtual COM Port driver for Microsoft Windows, Linux, Apple Mac

## // RF RXT SW868/SW915-USB



### Technical Data

<b>Standards</b>	EN 60947-5-1; EN 61000-6-2; EN 61000-6-3; EN 60068-2-6; EN 60068-2-27; EN 301 489-1; EN 301 489-3; EN 300 220-1, -2
<b>Connection</b>	USB 2.0
<b>Degree of protection</b>	IP 30 to IEC/EN 60529
<b>Receiver mode</b>	40 sWave transmitters
<b>Gateway mode</b>	indefinite number of transmitters
<b>Power supply</b>	via USB interface
<b>I<sub>e</sub></b>	< 60 mA
<b>U<sub>e</sub></b>	5 VDC (USB interface)
<b>Frequency</b>	868.3 MHz or 915 MHz (USA, Canada and Australia)
<b>Display</b>	green LED: operating state, orange LED: switching conditions
<b>Switching frequency</b>	approx. 12000 telegrams at repetitions/h
<b>Ambient temperature</b>	0 °C ... +55 °C
<b>Dimensions</b>	70 x 23 x 9 mm (incl. transportation cap)
<b>Note</b>	no external antenna required

### Approvals






### Wireless receiver / Wireless repeater

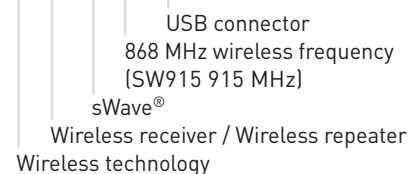
RF RxT SW868-USB  
RF RxT SW915-USB

### Material Number

1278188  
1278205

### Type code

RF RxT SW868-USB



Mobile field strength indicator swView 868 or 915 MHz for wireless field planning is available.

PRODUCTION PROCESS  
SMD ASSEMBLY OF CIRCUIT BOARDS



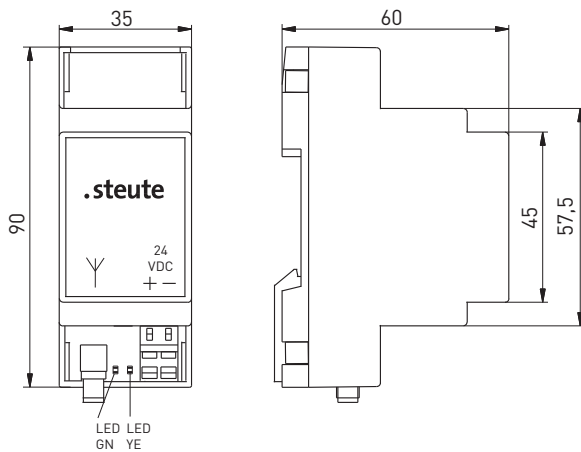
# Wireless repeaters sWave®

## // Series RF RxT SW868/SW915-1K

### Features/options

- sWave® technology
- LEDs for indication of operating state
- 1-level repeater: for the signal gain between transmitter and receiver
- SW868: SMA plug-in connector, SW915: SMA reverse plug-in connector for external antenna

## // RF RXT SW868/SW915-1K



Wireless repeater  
RF RxT SW868-1K  
RF RxT SW915-1K

Material Number  
1253727  
1253729

## Technical Data

<b>Standards</b>	EN 60947-5-1; EN 61000-6-2; EN 61000-6-3; EN 60068-2-6; EN 60068-2-27; EN 301 489-1; EN 301 489-3; EN 300 220-1, -2
<b>Mounting</b>	DIN rail mounting
<b>Connection</b>	terminals with CAGE CLAMP WAGO Series 236: 0.08 ... 2.5 mm <sup>2</sup> / AWG 28-12, AWG 12: THHN, THWN, stripping length 5 ... 6 mm / 0.22 in
<b>Degree of protection</b>	IP 20 to IEC/EN 60529
<b>Rated operating current I<sub>e</sub></b>	24 VDC: max. 0.02 A; 24 VAC: max. 0.03 A
<b>Rated operating voltage U<sub>e</sub></b>	24 VAC/DC -15 % ... +10 %
<b>Utilisation category</b>	AC-15; DC-13
<b>U<sub>i</sub></b>	250 VAC
<b>U<sub>imp</sub></b>	2.5 kV
<b>Frequency</b>	868.3 MHz or 915 MHz (USA, Canada and Australia)
<b>Display</b>	green LED: operating state, orange LED: signalisation of telegram
<b>Degree of pollution</b>	2 to DIN VDE 0110
<b>Ambient temperature</b>	0 °C ... +55 °C
<b>Storage and shipping temperature</b>	-25 °C ... +85 °C
<b>Approvals</b>	<b>EMC</b> SW915 c <b>SD</b> <b>us</b> <b>FC</b> <b>IC</b>

### Type code

**RF RxT SW868-1K**

1 channel  
868 MHz wireless frequency  
(SW915 915 MHz)  
sWave®  
Wireless repeater  
Wireless technology

RF magnet antenna with SMA plug-in connector available as accessory, for SW868 material No. 1188958 and for SW915 material No. 1188987 required for optimum sensing range.

Mobile field strength indicator swView 868 or 915 MHz for wireless field planning is available.

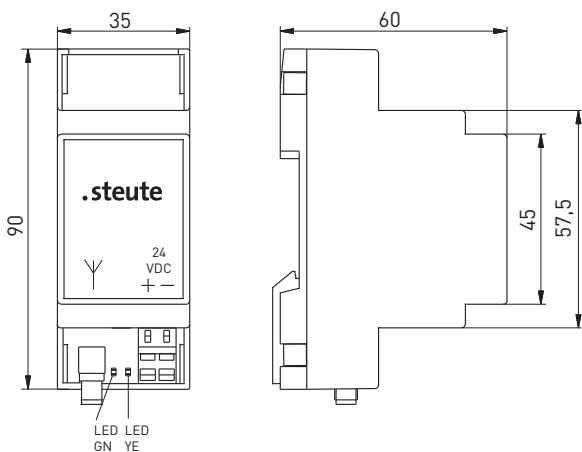
# Wireless repeaters sWave®

## // Series RF RxT SW868/SW915-2K

### Features/options

- sWave® technology
- LEDs for indication of operating state
- 1-level repeater: for the signal gain between transmitter and receiver
- 2-level repeater: for the signal gain of one 1-level repeater
- SW868: SMA plug-in connector , SW915: SMA reverse plug-in connector for external antenna

## // RF RXT SW868/SW915-2K



Wireless repeater  
RF RxT SW868-2K  
RF RxT SW915-2K

Material Number  
1260294  
1262442

## Technical Data

<b>Standards</b>	EN 60947-5-1; EN 61000-6-2; EN 61000-6-3; EN 60068-2-6; EN 60068-2-27; EN 301 489-1; EN 301 489-3; EN 300 220-1, -2
<b>Mounting</b>	DIN rail mounting
<b>Connection</b>	terminals with CAGE CLAMP WAGO Series 236: 0.08 ... 2.5 mm <sup>2</sup> / AWG 28-12, AWG 12: THHN, THWN, stripping length 5 ... 6 mm / 0.22 in
<b>Degree of protection</b>	IP 20 to IEC/EN 60529
<b>Rated operating current I<sub>e</sub></b>	24 VDC: max. 0.02 A; 24 VAC: max. 0.03 A
<b>Rated operating voltage U<sub>e</sub></b>	24 VAC/DC -15 % ... +10 %
<b>Utilisation category</b>	AC-15; DC-13
<b>U<sub>i</sub></b>	250 VAC
<b>U<sub>imp</sub></b>	2.5 kV
<b>Frequency</b>	868.3 MHz or 915 MHz (USA, Canada and Australia)
<b>Display</b>	green LED: operating state, orange LED: signalisation of telegram
<b>Degree of pollution</b>	2 to DIN VDE 0110
<b>Ambient temperature</b>	0 °C ... +55 °C
<b>Storage and shipping temperature</b>	-25 °C ... +85 °C
<b>Approvals</b>	

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### Type code

RF RxT SW868-2K

2 channels  
868 MHz wireless frequency  
(SW915 915 MHz)  
sWave®  
Wireless receiver  
Wireless technology

RF magnet antenna with SMA plug-in connector available as accessory, for SW868 material No. 1188958 and for SW915 material No. 1188987 required for optimum sensing range.

Mobile field strength indicator swView 868 or 915 MHz for wireless field planning is available.

# Wireless receivers EnOcean®

## // Series RF Rx EN868-1

### Features/options

- EnOcean® technology
- 1 potential-free relay output
- 1 change-over contact, NPN or PNP output
- Transmitter/receiver assignment by teaching mode
- LEDs for indication of switching state
- SMA plug-in connector for external antenna

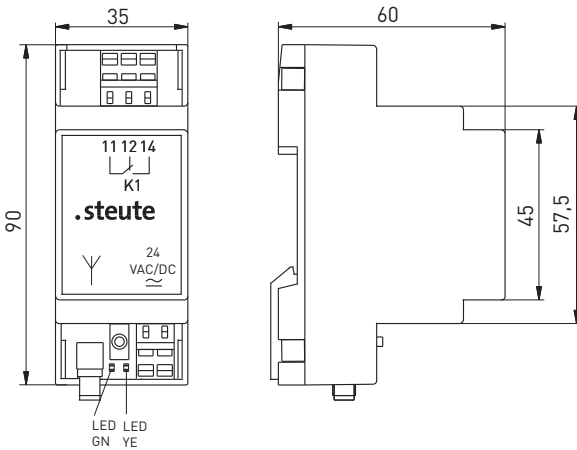
## // RF RX EN868



## Technical Data

<b>Standards</b>	EN 60947-5-1; EN 61000-6-2; EN 61000-6-3; EN 60068-2-6; EN 60068-2-27; EN 301 489-1; EN 301 489-3; EN 300 220-2, -3
<b>Number of channels</b>	1
<b>Mounting</b>	DIN rail mounting
<b>Connection</b>	terminals with CAGE CLAMP WAGO Series 236: 0.08 ... 2.5 mm <sup>2</sup> AWG 28-12, AWG 12: THHN, THWN, stripping length 5 ... 6 mm/ 0.22 in
<b>Degree of protection</b>	IP 20 to IEC/EN 60529
<b>Inputs</b>	1 wireless channel, max. 10 transmitters per channel
<b>Outputs</b>	1 change-over contact (Relay), NPN or PNP (transistor)
<b>Rated operating current I<sub>e</sub></b>	max. 0.08 A
<b>Rated operating voltage U<sub>e</sub></b>	24 DC -15% ... +10%
<b>I<sub>e</sub>/U<sub>e</sub> of output contacts</b>	6 A / 250 VAC; 2 A / 24 VDC
<b>Utilisation category</b>	AC-15; DC-13
<b>U<sub>i</sub></b>	250 VAC
<b>U<sub>imp</sub></b>	2.5 kV
<b>Frequency</b>	868.3 MHz
<b>Display</b>	green LED for operating state, orange LED for switching conditions
<b>Switching frequency</b>	approx. 9000 telegrams at repetitions/h
<b>Degree of pollution</b>	2 per DIN VDE 0110
<b>Ambient temperature</b>	0 °C ... +55 °C
<b>Note</b>	inductive loads (contactors, relays etc.) are to be suppressed by suitable circuitry.

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### Wireless receiver

- RF Rx EN868-1W 24VDC
- RF Rx EN868-PNP 24 VDC
- RF Rx EN868-NPN 24 VDC

### Material Number

- 1186059
- 1182582
- 1182581

Type code	RF Rx EN868-1W
	Change-over contact (NPN, PNP transistor output)
	Wireless frequency 868 MHz
	EnOcean®
	Wireless receiver
	Wireless technology

RF magnet antenna with SMA plug-in connector available as accessory, material No. 1186143 required for optimum sensing range.

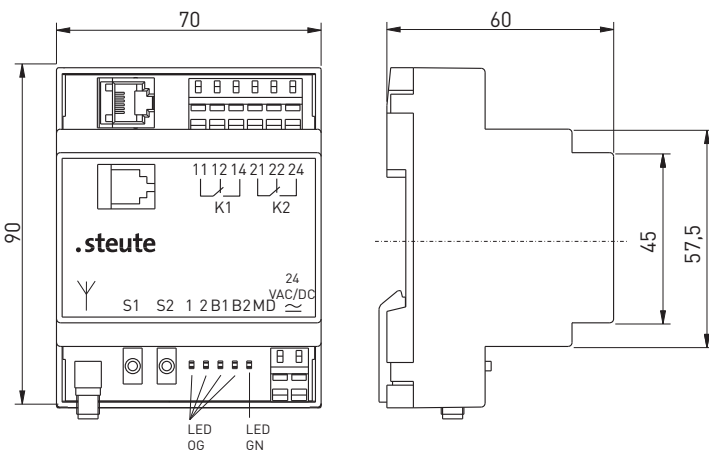
Mobile field strength indicator EPM 300 for wireless field planning is available, material No. 1187180.



# Wireless receivers EnOcean®

## // Series RF Rx EN868-2W-RS232

### // RF RX EN868-2W-RS232



#### Wireless receiver

RF Rx EN868-2W-RS232 24 VAC/DC	1186804
RF Rx EN868-2W-s-RS232 24 VAC/DC	1189512
RF Rx EN868-2W 24 VAC/DC	1187216

#### Material Number

#### Note for RF Rx EN868-2W-s-RS232

The current switching status of the device is stored when the power supply is turned off. When the supply voltage returns, the last switching status is restored. When the device is voltage-free, any switching operations are lost. A maximum of 100,000 memory operations are possible.

#### Features/options

- EnOcean® technology
- 2 potential-free relay outputs
- 2 change-over contacts, max. 6 A
- RS 232 interface
- Version with Power-down function available, suffix -s
- Transmitter/receiver assignment by teaching mode
- LEDs for indication of switching state
- SMA plug-in connector for external antenna

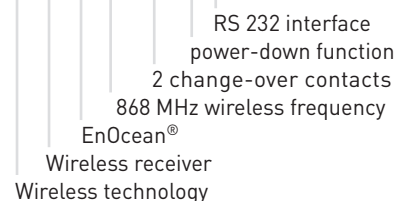
### Technical Data

Standards	EN 60947-5-1; EN 61000-6-2, -3; EN 60068-2-6, -27; EN 301 489-1; EN 301 489-3; EN 300 220-2, -3; RS 232: ANSI/EIA/TIA-232-F-1997
Number of channels	2
Mounting	DIN rail mounting
Connection	terminals with CAGE CLAMP WAGO Series 236: 0.08 ... 2.5 mm <sup>2</sup> AWG 28-12, AWG 12: THHN, THWN, stripping length 5 ... 6 mm/ 0.22 in
Degree of protection	IP 20 to IEC/EN 60529
Inputs	2 channels, max. 10 transmitters/channel
Outputs	2 change-over contacts (Relays), RS 232 interface
Rated op. current I <sub>e</sub>	24 VDC: max. 0.1 A; 24 VAC: max. 0.25 A
Rated op. voltage U <sub>e</sub>	24 VAC/DC -15% ... +10%
I <sub>e</sub> /U <sub>e</sub> output	6 A / 250 VAC; 2 A / 24 VDC
Utilisation category	AC-15; DC-13
U <sub>i</sub>	250 VAC
U <sub>imp</sub>	2.5 kV
Frequency	868.3 MHz
Display	green LED for operating state, orange LED for switching conditions and baud rate setting
Switching frequency	approx. 9000 telegrams at repetitions/h
Degree of pollution	2 per DIN VDE 0110
Ambient temperature	0 °C ... +55 °C
Baudrate	9600 Bd to 57600 Bd
Data bits	8
Stop bit	1
Parity	none
Flow control	none
Note	inductive loads (contactors, relays etc.) are to be suppressed by suitable circuitry.

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#### Type code

RF Rx EN868-2W-s-RS232



RS 232 cable provided with receiver.

RF magnet antenna with SMA plug-in connector available as accessory, material No. 1186143, required for optimum sensing range.

Mobile field strength indicator EPM 300 for wireless field planning is available, material No. 1187180.

# Wireless receivers / Wireless repeaters EnOcean®

## // Series RF RxT EN868-USB

### Features/options

- Thermoplastic enclosure
- EnOcean® technology
- USB 2.0 transmitter and receiver unit
- Multi-network capable
- Power supply via USB interface
- Support of up to 128 actors and an indefinite number of transmitters

## // RF RXT EN868-USB



## Technical Data

Standards	EN 301 489-1, EN 301 489-3, EN 300 220-2, -3
Number of channels	max. 128 actors, indefinite number of transmitters
Connection	USB 2.0, cable length 0.6 m (without plug-in connector)
Degree of protection	IP 30 to IEC/EN 60529
Inputs	indefinite number of EnOcean® transmitters
Outputs	max. 128 actors
Power supply	via USB interface
Frequency	868.3 MHz
Switching frequency	approx. 9000 telegrams at repetitions/h
Degree of pollution	2 per DIN VDE 0110
Ambient temperature	0 °C ... +55 °C
EMC rating	acc. to EMC directive
Weight	80 g
Dimensions	25 x 125 x 65 mm (H x W x D)
Note	no external antenna required.

Wireless receiver / Wireless repeater  
RF RxT EN868-USB

Material Number  
1187937

Type code	RF RxT EN868-USB
	USB connector
	868 MHz wireless frequency
	EnOcean®
	Wireless receiver / Wireless repeater
	Wireless technology

Mobile field strength indicator EPM 300 for wireless field planning is available, material No. 1187180.

# Wireless receivers EnOcean®

## // Series RF Rx EN868-4W

### Features/options

- EnOcean® technology
- 4 potential-free relay outputs
- 4 change-over contacts, max. 6 A
- Transmitter/receiver assignment by teaching mode
- LEDs for indication of switching state
- SMA plug-in connector for external antenna

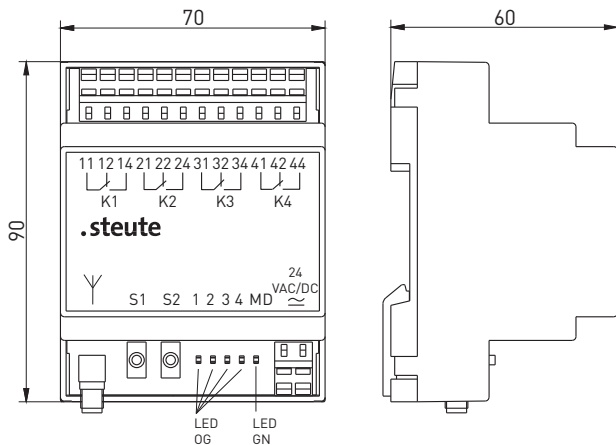
## // RF RX EN868-4W



### Technical Data

<b>Standards</b>	EN 60947-5-1; EN 61000-6-2,-3; EN 60068-2-6; EN 60068-2-27; EN 301 489-1; EN 301 489-3; EN 300 220-2, -3
<b>Number of channels</b>	4
<b>Mounting</b>	DIN rail mounting
<b>Connection</b>	terminals with CAGE CLAMP WAGO Series 236: 0.08 ... 2.5 mm <sup>2</sup> AWG 28-12, AWG 12: THHN, THWN, stripping length 5 ... 6 mm/ 0.22 in
<b>Degree of protection</b>	IP 20 to IEC/EN 60529
<b>Inputs</b>	4 wireless channels, max. 10 transmitters per channel
<b>Outputs</b>	4 change-over contacts (Relays)
<b>Rated operating current I<sub>e</sub></b>	24 VDC: max. 0.1 A; 24 VAC: max. 0.25 A
<b>Rated operating voltage U<sub>e</sub></b>	24 VAC/DC -15% ... +10%
<b>I<sub>e</sub>/U<sub>e</sub> of output contacts</b>	6 A / 250 VAC; 2 A / 24 VDC
<b>Utilisation category</b>	AC-15; DC-13
<b>U<sub>i</sub></b>	250 VAC
<b>U<sub>imp</sub></b>	2.5 kV
<b>Frequency</b>	868.3 MHz
<b>Display</b>	green LED for operating state, orange LED for switching conditions
<b>Switching frequency</b>	approx. 9000 telegrams at repetitions/h
<b>Degree of pollution</b>	2 per DIN VDE 0110
<b>Ambient temperature</b>	0 °C ... +55 °C
<b>Note</b>	inductive loads (contactors, relays etc.) are to be suppressed by suitable circuitry.

35



Wireless receiver  
RF Rx EN868-4W 24 VAC/DC

Material Number  
1185835

### Type code

**RF Rx EN868-4W**

4 change-over contacts  
Wireless frequency 868 MHz  
EnOcean®  
Wireless receiver  
Wireless technology

RF magnet antenna with SMA plug-in connector available as accessory, material No. 1186143 required for optimum sensing range.

Mobile field strength indicator EPM 300 for wireless field planning is available, material No. 1187180.

# Wireless receivers EnOcean®

## // Series RF Rx EN868-TCP/IP

### Features/options

- EnOcean® technology
- Communication via UDP or TCP/IP (Server or Client - Mode)
- Webserver based Setup
- Transmitter/receiver assignment by teaching mode
- LEDs for indication of switching state
- SMA plug-in connector for external antenna

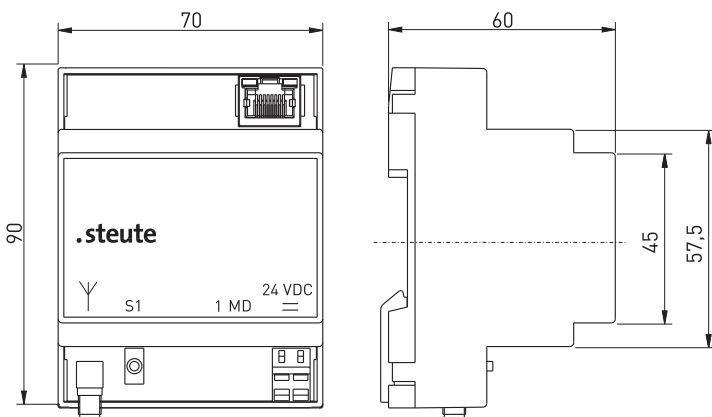
### // RF RX EN868-TCP/IP



### Technical Data

<b>Standards</b>	EN 60947-5-1; EN 61000-6-2; EN 61000-6-3; EN 60068-2-6; EN 60068-2-27; EN 301 489-1; EN 301 489-3; EN 300 220-2; EN 300 220-3
<b>Mounting</b>	DIN rail mounting
<b>Connection</b>	terminals with CAGE CLAMP WAGO Series 236: 0.08 ... 2.5 mm <sup>2</sup> / AWG 28-12, AWG 12: THHN, THWN, stripping length 5 ... 6 mm / 0.22 in
<b>Network interface</b>	10/100 Base-T Ethernet (Auto detection) via RJ 45
<b>Software interface</b>	TCP (Client, Server) / UDP / IP (DHCP)
<b>Degree of protection</b>	IP 20 to IEC/EN 60529
<b>Rated operating current I<sub>e</sub></b>	24 VDC: max. 0.06 A
<b>Rated operating voltage U<sub>e</sub></b>	24 VDC -15 % ... +10 %
<b>Frequency</b>	868.3 MHz
<b>Display</b>	green LED: Reset state, orange LED: signalisation of telegram
<b>Degree of pollution</b>	2 to DIN VDE 0110
<b>Ambient temperature</b>	0 °C ... +55 °C

36



Wireless receiver  
RF Rx EN868-TCP/IP

Material Number  
1266815

Type code	RF Rx EN868-TCP/IP
	Wireless technology
	Wireless receiver
	EnOcean®
	Wireless frequency 868 MHz
	TCP/IP interface

RF magnet antenna with SMA plug-in connector available as accessory, material No. 1186143 required for optimum sensing range.

Mobile field strength indicator EPM 300 for wireless field planning is available, material No. 1187180.

Wireless repeater EnOcean®  
 // Series RF RxT EN868-230VAC

Features/options

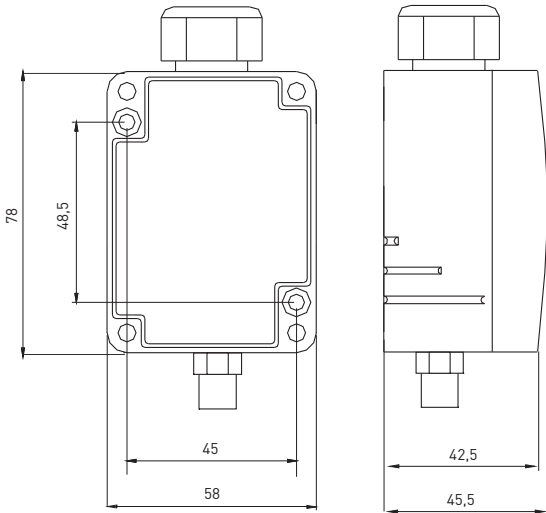
- EnOcean® technology
- On-wall mounting
- FME plug-in connector for external antenna

// RF RXT EN868-230VAC



Technical Data

<b>Standards</b>	EN 61000-3-2, -3-3, -6-2, 6-3; EN 301 489-1; EN 301 489-3; EN 300 220-2,-3; EN 60950-1, EN 60730-1
<b>Enclosure</b>	PA6, colour: white
<b>Mounting</b>	on-wall mounting
<b>Connection</b>	screw connection terminals max. 1.5 mm² (incl. conductor ferrules)
<b>Degree of protection</b>	IP 42 to IEC/EN 60529
<b>Power consumption</b>	max. 2 VA
<b>Rated operating voltage U<sub>e</sub></b>	230 VAC
<b>Mains frequency</b>	50/60 Hz
<b>Frequency</b>	868.3 MHz
<b>Ambient temperature</b>	-20 °C ... +60 °C
<b>Weight</b>	130 g



Wireless repeater  
 RF RxT EN868-230VAC

Material Number  
 1188753

<b>Type code</b>	<b>RF RxT EN868-230VAC</b>
	230 VAC power supply
	Wireless frequency 868 MHz
	EnOcean®
	Wireless repeater
	Wireless technology

RF magnet antenna with SMA plug-in connector is provided, required for optimum sensing range.

Mobile field strength indicator EPM 300 for wireless field planning is available, material No.1187180.

# Wireless position switches EnOcean®

## // Series RF 10 EN868

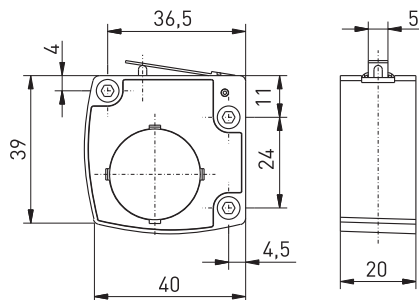
### Features/options

- Thermoplastic enclosure
- EnOcean® technology
- No wiring and pipe laying required
- Power supply by Lithium battery
- Easy programming of receiver
- Multi-network capable
- Output signal can be individually configured at the receiver

### Technical Data

<b>Standards</b>	EN 60947-5-1; EN 61000-6-2; EN 301 489-1; EN 301 489-3; EN 300 220-2, -3
<b>Enclosure</b>	thermoplastic, Polyamid PA 66
<b>Tightening torque</b>	max. 0.5 ... 0.6 Nm
<b>Degree of protection</b>	IP 67 to IEC/EN 60529
<b>Protocol</b>	EnOcean®
<b>Ambient temperature</b>	- 20 °C ... + 65 °C
<b>Switching frequency</b>	approx. 9000 telegrams at repetitions/h
<b>Voltage supply</b>	Lithium-battery CR 2032 (replaceable)
<b>Frequency</b>	868.3 MHz
<b>Transmission power</b>	max. 10 mW
<b>Data rate</b>	120 kbps
<b>Channel bandwidth</b>	280 kHz
<b>Sensing range</b>	max. 150 m outside, max. 20 m inside
<b>Mechanical life</b>	> 1 million operations
<b>Battery life</b>	> 800,000 operations
<b>Actuating time</b>	min. 80 ms
<b>Note</b>	no status signal available

## // RF 10 EN868



Wireless position switch  
RF 10 H EN868  
Spare part Lithium Battery CR2032

Material Number  
1185728  
1341953

### Type code

**RF 10 H EN868**

Wireless frequency 868 MHz  
EnOcean®  
Actuator H  
Series  
Wireless technology

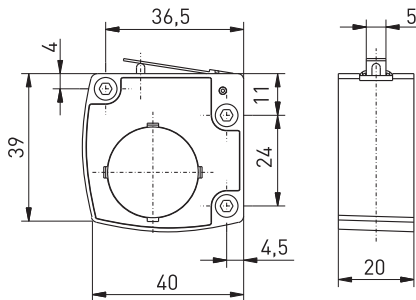
# Wireless position switches sWave®

// Series RF 10 SW868/SW915

## Features/options

- Thermoplastic enclosure
- sWave® technology
- No wiring and pipe laying required
- Power supply by Lithium battery
- Easy programming of receiver
- Output signal can be individually configured at the receiver

// RF 10 SW868/SW915



## Technical Data

<b>Standards</b>	EN 60947-5-1; EN 61000-6-2; EN 301 489-1, EN 301 489-3; EN 300 220-1, EN 300 220-2; USA: FCC, XK5-RFRXSW915; Canada: IC: 5158A-RFRXSW915
<b>Enclosure</b>	thermoplastic, Polyamid PA 66
<b>Tightening torque</b>	max. 0.5 ... 0.6 Nm
<b>Degree of protection</b>	IP 67 to IEC/EN 60529
<b>Protocol</b>	sWave®
<b>Ambient temperature</b>	- 20 °C ... + 65 °C
<b>Switching frequency</b>	approx. 12000 telegrams at repetitions/h
<b>Voltage supply</b>	Lithium-battery CR 2032 (replaceable)
<b>Frequency</b>	868.3 MHz or 915 MHz (USA, Canada and Australia)
<b>Transmission power</b>	SW868: <25 mW, SW915: <10 mW
<b>Data rate</b>	66 kbps
<b>Channel bandwidth</b>	SW868: 266 kHz, SW915: 400 kHz
<b>Sensing range</b>	max. 400 m outside, max. 50 m inside
<b>Mechanical life</b>	> 1 million operations
<b>Battery life</b>	> 800,000 operations
<b>Actuating time</b>	min. 80 ms
<b>Note</b>	no status signal available
<b>Approvals</b>	<b>ERC</b> SW915 <b>FC</b> <b>IC</b>

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## Wireless position switch

RF 10 H SW868  
RF 10 H SW915  
Spare part Lithium Battery CR2032

## Material Number

1229535  
1209282  
1341953

## Type code

**RF 10 H SW868**

868 MHz wireless frequency  
(SW915 915 MHz)  
sWave®  
Actuator H  
Series  
Wireless technology

# Wireless position switches sWave®

## // Series RF 13 SW868/SW915

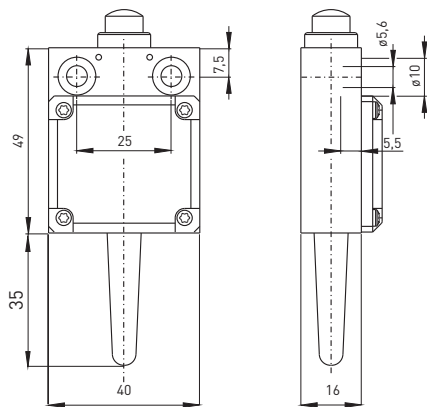
### Features/options

- Thermoplastic enclosure
- sWave® technology
- Smallest self-sufficient position switch
- Switching behaviour/ hysteresis similar to microswitch
- No power supply, no wiring and pipe laying required
- Easy programming of receiver
- Output signal can be individually configured at the receiver

### Technical Data

<b>Standards</b>	EN 60947-5-1; EN 61000-6-2; EN 301 489-1; EN 301 489-3; EN 300 220-1, EN 300 220-2; USA: FCC, XK5-RF95SW915LR; Canada: IC: 5158A-RF95SW915LR
<b>Enclosure</b>	Glass-fibre reinforced thermoplastic, self-extinguishing UL 94-V0
<b>Degree of protection</b>	IP 67 to IEC/EN 60529
<b>Protocol</b>	sWave®
<b>Ambient temperature</b>	-20 °C ... +65 °C
<b>Switching frequency</b>	approx. 12000 telegrams at repetitions/h
<b>Voltage supply</b>	Electrodynamic energy generator
<b>Frequency</b>	868.3 MHz or 915 MHz (USA, Canada and Australia)
<b>Transmission power</b>	SW868: <25 mW, SW915: <10 mW
<b>Data rate</b>	66 kbps
<b>Channel bandwidth</b>	SW868: 266 kHz, SW915: 400 kHz
<b>Sensing range</b>	max. 450 m outside, max. 40 m inside
<b>Mechanical life</b>	> 800 000 operations
<b>Actuating time</b>	min. 80 ms
<b>Note</b>	no status signal
<b>Approvals</b>	SW915 <b>FC IC</b>

### // RF 13 SW868/SW915



### Type code

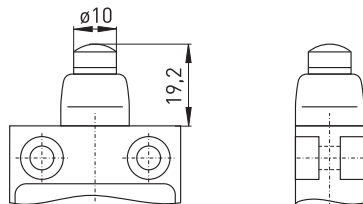
RF 13 WH SW868

868 MHz wireless frequency  
(SW915 915 MHz)  
sWave®  
Actuator H  
Watertight collar  
Series  
Wireless technology



Wireless position switches sWave®  
 // Series RF 13 SW868/SW915, actuators

// Plunger with collar W



Features/options

- Actuating speed max. 0.5 m/s with a vertical actuating angle of 0°
- Watertight collar for protection against penetration of dirt

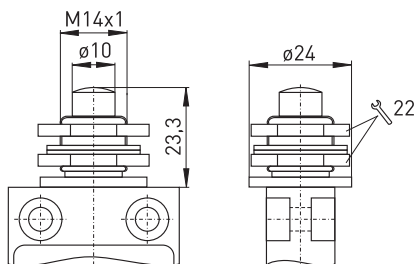
sWave®

RF 13 W SW868  
 RF 13 W SW915

Material Number

1378077  
 1378079

// Plunger for front mounting F



Features/options

- Actuating speed max. 0.5 m/s with a vertical actuating angle of 0°

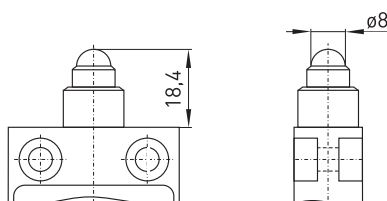
sWave®

RF 13 F SW868  
 RF 13 F SW915

Material Number

on request  
 on request

// Ball plunger KU



Features/options

- Actuating speed max. 0.5 m/s with a vertical actuating angle of 20°
- Vertical actuation or actuation from side possible
- Actuator with captive stainless steel ball
- Exact repeatability of switching point

sWave®

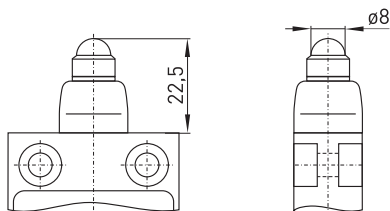
RF 13 KU SW868  
 RF 13 KU SW915

Material Number

on request  
 on request

Wireless position switches sWave®  
 // Series RF 13 SW868/SW915, actuators

// Ball plunger with collar WKU



Features/Options

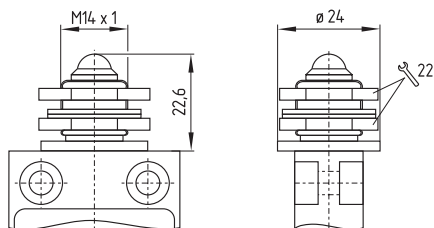
- Actuating speed max. 0.5 m/s with a vertical actuating angle of 15°
- Vertical actuation or actuation from side possible
- Actuator with captive stainless steel ball
- Exact repeatability of switching point
- Watertight collar for protection against penetration of dirt

sWave®  
 RF 13 WKU SW868  
 RF 13 WKU SW915

Material Number  
 on request  
 on request

42

// Ball plunger for front mounting FKU



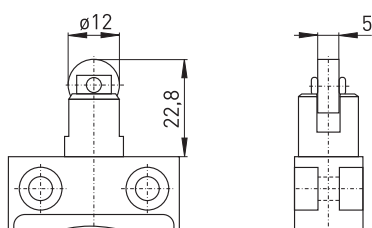
Features/Options

- Actuating speed max. 0.5 m/s with a vertical actuating angle of 20°
- Vertical actuation or actuation from side possible
- Actuator with captive stainless steel ball
- Ball diameter 8 mm
- Exact repeatability of switching point

sWave®  
 RF 13 FKU SW868  
 RF 13 FKU SW915

Material Number  
 on request  
 on request

// Roller plunger R



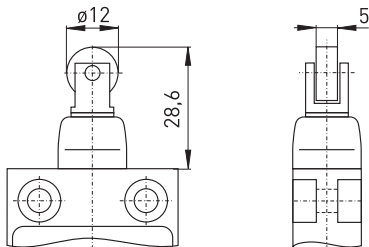
Features/Options

- Actuating speed max. 0.5 m/s with a vertical actuating angle of 30°
- Metal roller
- Actuator can be repositioned by 90° on request

sWave®  
 RF 13 R SW868  
 RF 13 R SW915

Material Number  
 1378081  
 1378083

## // Roller plunger with collar WR



### Features/Options

- Actuating speed max. 0.5 m/s with a vertical actuating angle of 25°
- Metal roller
- Actuator can be repositioned by 90° on request
- Watertight collar for protection against penetration of dirt

### sWave®

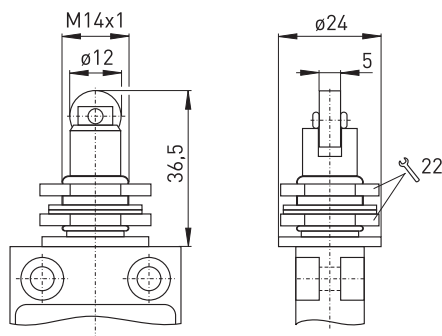
RF 13 WR SW868  
RF 13 WR SW915

### Material Number

on request  
on request

43

## // Roller plunger for front mounting FR



### Features/Options

- Actuating speed max. 0.5 m/s with a vertical actuating angle of 25°
- Metal roller
- Actuator can be repositioned by 90° on request

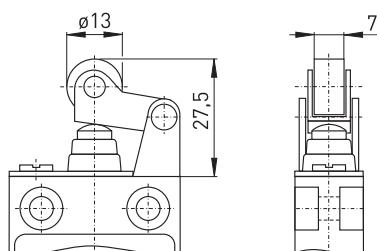
### sWave®

RF 13 FR SW868  
RF 13 FR SW915

### Material Number

on request  
on request

## // Roller lever with collar WH



### Features/Options

- Actuating speed max. 0.5 m/s with a vertical actuating angle of  $\alpha = 40^\circ$  and  $\beta = 25^\circ$
- Metal roller
- Actuator can be repositioned by 180° on request
- Watertight collar for protection against penetration of dirt
- With plastic roller available on request

### Note

Actuation from the left should be avoided since this reduces the mechanical life of the position switch

### sWave®

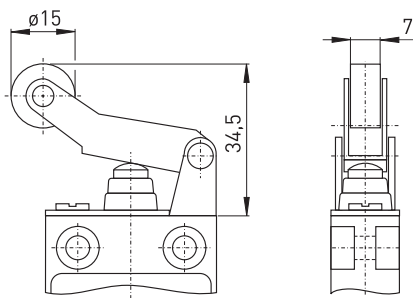
RF 13 WH SW868  
RF 13 WH SW915

### Material Number

1378086  
1378088

Wireless position switches sWave®  
 // Series RF 13 SW868/SW915, actuators

// Long roller lever with collar WHL



Features/Options

- Actuating speed max. 0.5 m/s with a vertical actuating angle of  $\alpha = 40^\circ$  and  $\beta = 25^\circ$
- Metal roller
- Actuator can be repositioned by  $180^\circ$  on request
- Watertight collar for protection against penetration of dirt
- With plastic roller available on request

Note

Actuation from the left should be avoided since this reduces the mechanical life of the position switch

sWave®

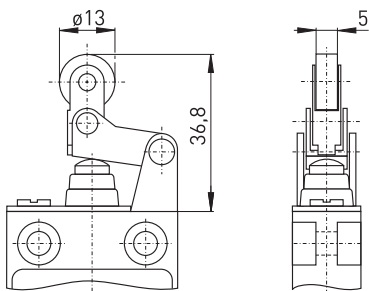
RF 13 WHL SW868  
 RF 13 WHL SW915

Material Number

on request  
 on request

44

// Offset roller lever with collar WHK



Features/Options

- Actuating speed max. 0.5 m/s with a vertical actuating angle of  $40^\circ$
- Actuation only possible from right-hand side
- Free movement of actuator from left-hand side
- Metal roller
- Actuator can be repositioned by  $180^\circ$  on request
- Watertight collar for protection against penetration of dirt
- With plastic roller available on request

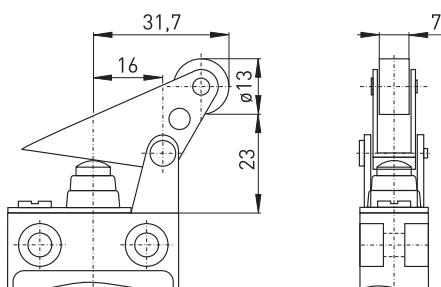
sWave®

RF 13 WHK SW868  
 RF 13 WHK SW915

Material Number

on request  
 on request

// Parallel roller lever with collar WPH



Features/Options

- Actuating speed max. 0.5 m/s with a vertical actuating angle of  $30^\circ$
- Actuation parallel to switch from below
- Metal roller
- Actuator can be repositioned by  $180^\circ$  on request
- Watertight collar for protection against penetration of dirt
- With plastic roller available on request

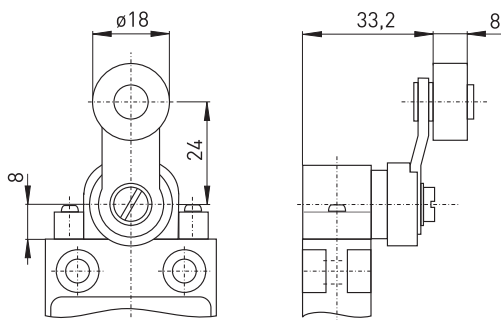
sWave®

RF 13 WPH SW868  
 RF 13 WPH SW915

Material Number

on request  
 on request

## // Rocking lever D



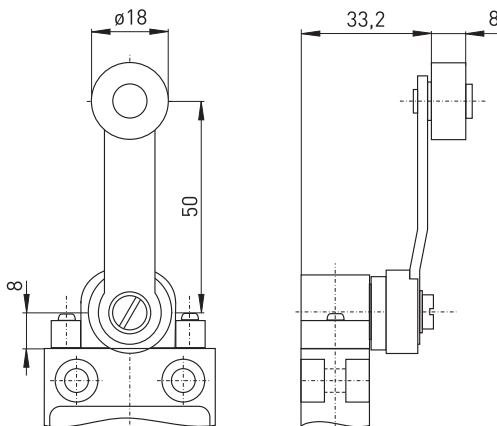
### Features/Options

- Actuating speed max. 0.5 m/s with a vertical actuating angle of 45°
- Wear-resistant plastic roller
- Lever can be repositioned in 10° steps clockwise or counter-clockwise
- Actuator can be repositioned by 180°
- With metal roller available on request

sWave®  
RF 13 D SW868  
RF 13 D SW915

Material Number  
1378090  
1378092

## // Long rocking lever DL



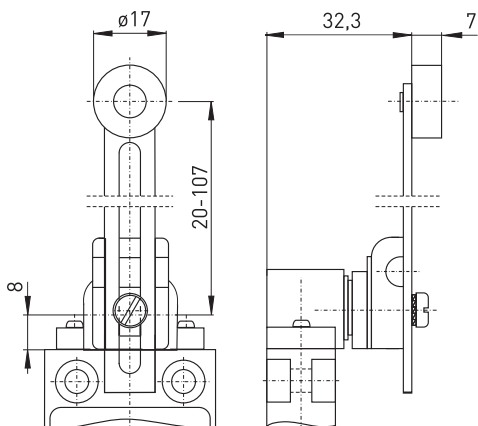
### Features/Options

- Actuating speed max. 0.5 m/s with a vertical actuating angle of 45°
- Wear-resistant plastic roller
- Lever can be repositioned in 10° steps clockwise or counter-clockwise
- Actuator can be repositioned by 180°
- With metal roller available on request

sWave®  
RF 13 DL SW868  
RF 13 DL SW915

Material Number  
on request  
on request

## // Adjustable rocking lever DS



### Features/Options

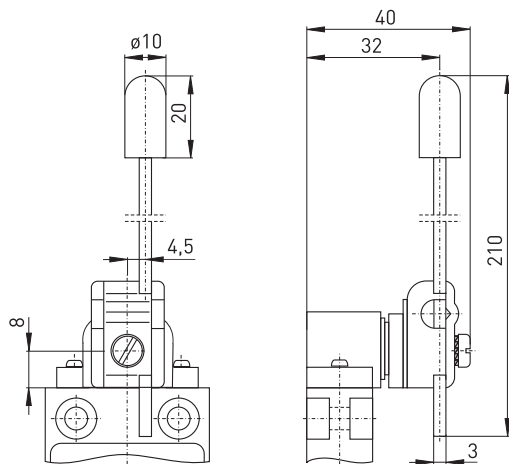
- Actuating speed max. 0.5 m/s with a vertical actuating angle of 45°
- Wear-resistant plastic roller
- Lever can be repositioned in 10° steps clockwise or counter-clockwise
- Actuator can be repositioned by 180°
- With metal roller available on request

sWave®  
RF 13 DS SW868  
RF 13 DS SW915

Material Number  
1378094  
1378096

Wireless position switches sWave®  
 // Series RF 13 SW868/SW915, actuators

// Rod lever DD



Features/Options

- Wear-resistant thermoplastic tip
- Lever can be repositioned in 10° steps clockwise or counter-clockwise
- Actuator can be repositioned by 180°

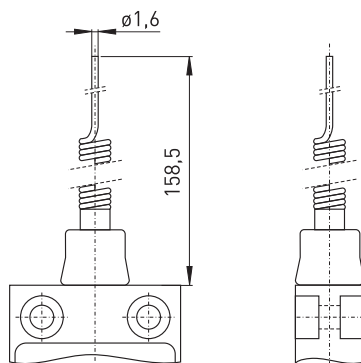
sWave®

RF 13 DD SW868  
 RF 13 DD SW915

Material Number

on request  
 on request

// Long spring rod TL



Features/Options

- Spring rod can be actuated from any direction
- Spring rod can be shortened 30 mm in actuating area
- Exact linear actuation not necessary
- Elasticity of the spring allows for deflection above the max. switching angle of 18°

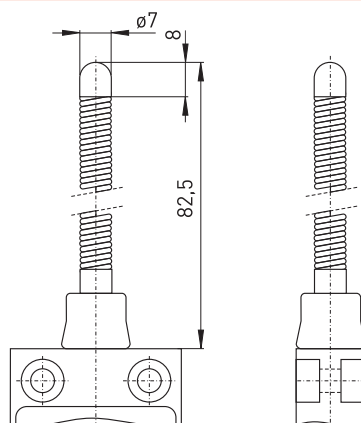
sWave®

RF 13 TL SW868  
 RF 13 TL SW915

Material Number

on request  
 on request

// Spring rod with steel tip TF



Features/Options

- With rounded steel tip
- Spring rod can be actuated from any direction
- Elasticity of the spring allows for deflection above the max. switching angle of 18°

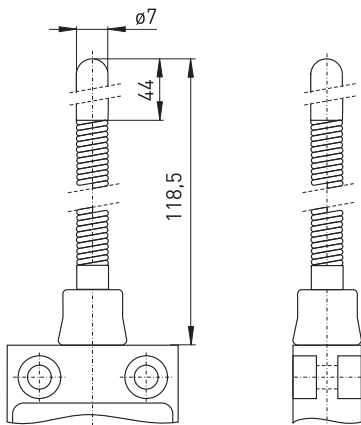
sWave®

RF 13 TF SW868  
 RF 13 TF SW915

Material Number

on request  
 on request

## // Spring rod with plastic tip TK



### Features/Options

- Wear-resistant plastic tip
- Spring rod can be actuated from any direction
- Elasticity of the spring allows for deflection above the max. switching angle of 18°

### sWave®

RF 13 TK SW868  
RF 13 TK SW915

### Material Number

on request  
on request

# Wireless position switches EnOcean®

## // Series RF 95 EN868

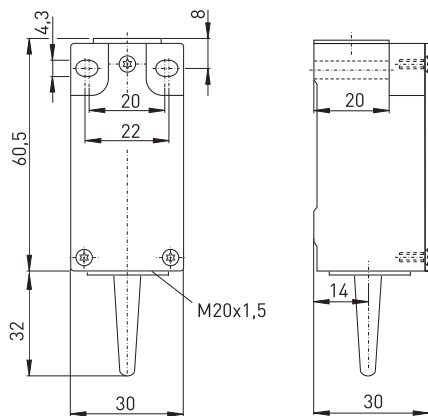
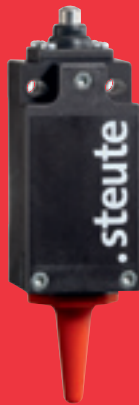
### Features/options

- Thermoplastic enclosure
- Design according to EN 50 047
- EnOcean® technology
- No power supply, no wiring and pipe laying required
- Easy programming of receiver
- Multi-network capable
- Output signal can be individually configured at the receiver
- Ex version for zones 1 and 21 available

### Technical Data

<b>Standards</b>	EN 60947-5-1; EN 61000-6-2; EN 301 489-1; EN 301 489-3; EN 300 220-2, -3
<b>Enclosure</b>	Glass-fibre reinforced shock-proof thermoplastic, self-extinguishing UL 94-V0
<b>Cover</b>	Glass-fibre reinforced shock-proof thermoplastic, self-extinguishing UL 94-V0
<b>Tightening torque</b>	max. 1.2 ... 1.3 Nm
<b>Degree of protection</b>	IP 67 to IEC/EN 60529
<b>Protocol</b>	EnOcean®
<b>Ambient temperature</b>	-20 °C ... +65 °C
<b>Switching frequency</b>	approx. 9000 telegrams at repetitions/h
<b>Voltage supply</b>	Electrodynamimic energy generator
<b>Frequency</b>	868.3 MHz
<b>Transmission power</b>	max. 10 mW
<b>Data rate</b>	120 kbps
<b>Channel bandwidth</b>	280 kHz
<b>Sensing range</b>	max. 200 m outside, max. 20 m inside
<b>Mechanical life</b>	> 1 million operations
<b>Actuating time</b>	min. 80 ms
<b>Note</b>	no status signal available

### // RF 95 EN868



### Type code

**RF 95 WR EN868**

- Wireless frequency 868 MHz
- EnOcean®
- Actuator R (H, D, DS, etc. ...)
- Watertight collar
- Series
- Wireless technology



# Wireless position switches sWave®

// Series RF 95 SW868/SW915

## Features/options

- Thermoplastic enclosure
- Design according to EN 50 047
- sWave® technology
- No power supply, no wiring and pipe laying required
- Easy programming of receiver
- Output signal can be individually configured at the receiver

// RF 95 SW868/SW915

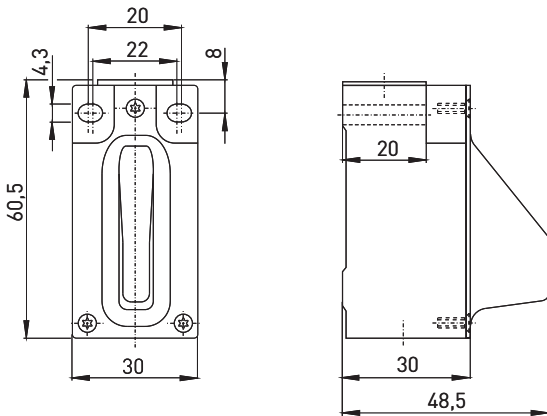


## Technical Data

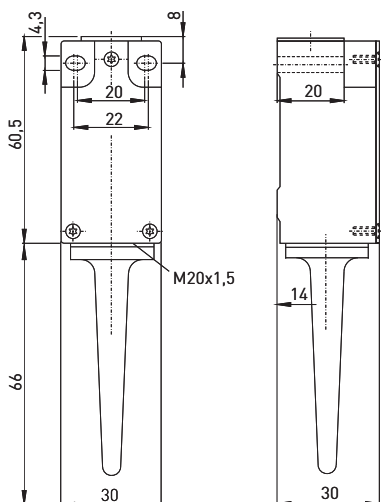
<b>Standards</b>	EN 60947-5-1; EN 61000-6-2; EN 301 489-1; EN 301 489-3 EN 300 220-1, -2; USA: FCC, XK5- RF95SW915SR, XK5-RF95SW915LR; Canada: IC: 5158A-RF95SW915SR, 5158A- RF95SW915LR
<b>Enclosure</b>	Glass-fibre reinforced shock-proof thermo- plastic, self-extinguishing UL 94-V0
<b>Cover</b>	Glass-fibre reinforced shock-proof thermo- plastic, self-extinguishing UL 94-V0
<b>Tightening torque</b>	max. 1.2 ... 1.3 Nm
<b>Degree of protection</b>	IP 67 to IEC/EN 60529
<b>Protocol</b>	sWave®
<b>Ambient temperature</b>	-20 °C ... +65 °C
<b>Switching frequency</b>	approx. 12000 telegrams at repetitions/h
<b>Voltage supply</b>	Electrodynamic energy generator
<b>Frequency</b>	868.3 MHz or 915 MHz (USA, Canada and Australia)
<b>Transmission power</b>	SW868: <25 mW, SW915: <10 mW
<b>Data rate</b>	66 kbps
<b>Channel bandwidth</b>	SW868: 266 kHz, SW915: 400 kHz
<b>Sensing range</b>	LR: max. 450 m outside, max. 40 m inside ULR: max. 700 m outside, max. 50 m inside
<b>Mechanical life</b>	> 1 million operations
<b>Actuating time</b>	min. 80 ms
<b>Note</b>	no status signal available
<b>Approvals</b>	<b>EMC</b> SW915 <b>FC</b> <b>IC</b>

49

RF 95 LR



RF 95 ULR



## Type code

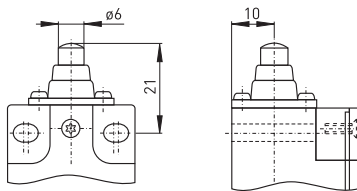
RF 95 WR LR SW868

868 MHz wireless frequency  
(SW915 915 MHz)  
sWave®  
Long Range (ULR Ultra Long  
Range)  
Actuator R (H, D, DS, etc. ...)  
Watertight collar  
Series  
Wireless technology

# Wireless position switches

## // Series RF 95, actuators

### // Plunger with collar W



#### Features/options

- Actuator type B to EN 50 047
- Watertight collar for protection against penetration of dirt

#### EnOcean®

RF 95 W EN868

#### Material number

1180482

#### sWave®

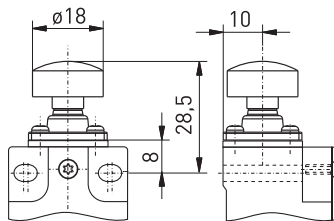
RF 95 W LR SW868  
 RF 95 W ULR SW868  
 RF 95 W LR SW915  
 RF 95 W ULR SW915

#### Material number

1188731  
 1190519  
 1190527  
 1190532

50

### // Cap with collar WK



#### Features/options

- Large actuating surface
- Safe switching also with imprecise actuation
- Suitable for manual actuation
- Watertight collar for protection against penetration of dirt

#### EnOcean®

RF 95 WK EN868

#### Material number

1181034

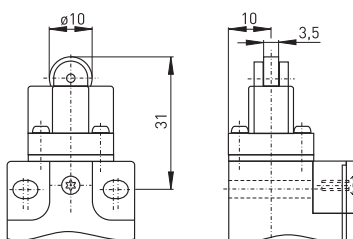
#### sWave®

RF 95 WK LR SW868  
 RF 95 WK ULR SW868  
 RF 95 WK LR SW915  
 RF 95 WK ULR SW915

#### Material number

1190516  
 1188732  
 1190528  
 1190533

### // Roller plunger R



#### Features/options

- Actuator type C to EN 50 047
- Actuator can be repositioned by 4 x 90°
- Wear-resistant plastic roller
- Metal roller available on request

#### EnOcean®

RF 95 R EN868

#### Material number

1180966

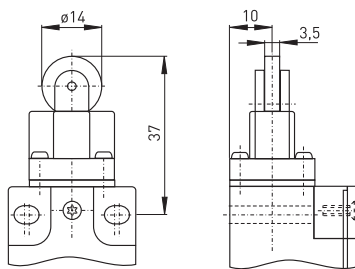
#### sWave®

RF 95 R LR SW868  
 RF 95 R ULR SW868  
 RF 95 R LR SW915  
 RF 95 R ULR SW915

#### Material number

1188733  
 1190520  
 1190530  
 1190534

## // Long roller plunger RL



### Features/options

- Wear-resistant plastic roller
- Metal roller available on request
- Actuator can be repositioned by 4 x 90°

### EnOcean®

RF 95 RL EN868

**Material Number**  
1180942

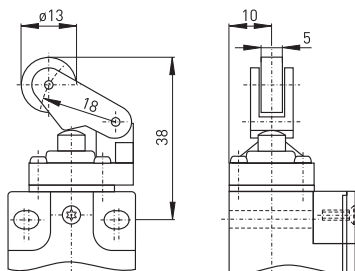
### sWave®

RF 95 RL LR SW868  
RF 95 RL ULR SW868  
RF 95 RL LR SW915  
RF 95 RL ULR SW915

**Material Number**  
on request  
on request  
1251308  
1250472

51

## // Roller lever with collar WH



### Features/options

- Actuator type E to EN 50 047
- Actuating speed max . 0.5 m/s with a vertical actuating angle of  $\alpha = 40^\circ$  and  $\beta = 25^\circ$
- Watertight collar for protection against penetration of dirt
- Actuator can be repositioned by 4 x 90°
- Metal roller available on request

### EnOcean®

RF 95 WH EN868

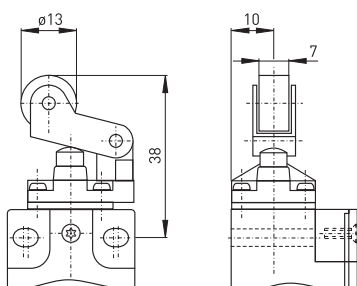
**Material Number**  
1182320

### sWave®

RF 95 WH LR SW868  
RF 95 WH ULR SW868  
RF 95 WH LR SW915  
RF 95 WH ULR SW915

**Material Number**  
1188734  
on request  
1248377  
1250178

## // Metal roller lever with collar WHM



### Features/options

- Actuating speed max . 0.5 m/s with a vertical actuating angle of  $\alpha = 40^\circ$  and  $\beta = 25^\circ$
- Watertight collar for protection against penetration of dirt
- Actuator can be repositioned by 4 x 90°
- Metal roller available on request

### EnOcean®

RF 95 WHM EN868

**Material Number**  
1182166

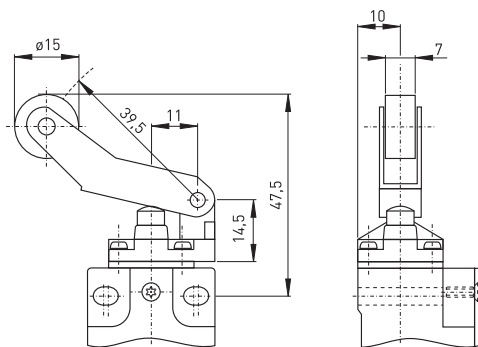
### sWave®

RF 95 WHM LR SW868  
RF 95 WHM ULR SW868  
RF 95 WHM LR SW915  
RF 95 WHM ULR SW915

**Material Number**  
1337907  
1214704  
1251505  
1250569

Wireless position switches  
 // Series RF 95, actuators

// Long metal roller lever with collar WHLM



Features/options

- Actuating speed max. 0.5 m/s with a vertical actuating angle of 40°
- Wear-resistant plastic roller
- Actuator can be repositioned by 4 x 90°
- Metal roller available on request

EnOcean®

RF 95 WHLM EN868

Material Number

1183998

sWave®

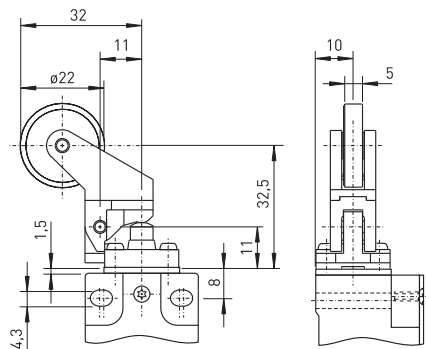
RF 95 WHLM LR SW868  
 RF 95 WHLM ULR SW868  
 RF 95 WHLM LR SW915  
 RF 95 WHLM ULR SW915

Material Number

1319241  
 on request  
 1251636  
 1251134

52

// Plastic roller lever with collar 4K



Features/options

- Actuating speed max. 0.5 m/s with a vertical actuating angle of 40°
- Actuation parallel to switch from below
- Wear-resistant plastic roller
- Actuator can be repositioned by 4 x 90°
- Metal roller available on request

EnOcean®

RF 95 4K EN868

Material Number

1184222

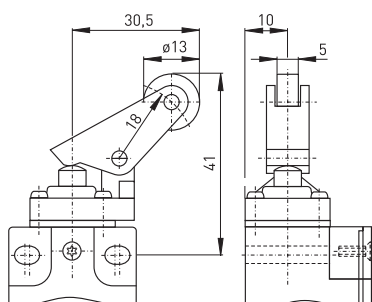
sWave®

RF 95 4K LR SW868  
 RF 95 4K ULR SW868  
 RF 95 4K LR SW915  
 RF 95 4K ULR SW915

Material Number

on request  
 on request  
 1251691  
 1251248

// Parallel roller lever with collar WPH



Features/options

- Actuating speed max. 0.5 m/s with a vertical actuating angle of 30°
- Watertight collar for protection against penetration of dirt
- Actuator can be repositioned by 4 x 90°
- Actuation parallel to switch from below

EnOcean®

RF 95 WPH EN868

Material Number

on request

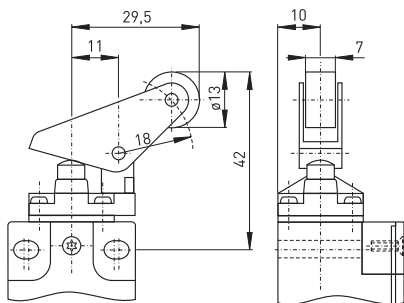
sWave®

RF 95 WPH LR SW868  
 RF 95 WPH ULR SW868  
 RF 95 WPH LR SW915  
 RF 95 WPH ULR SW915

Material Number

on request  
 on request  
 1258383  
 1260432

## // Parallel metal roller lever with collar WPHM



### Features/options

- Actuating speed max. 0.5 m/s with a vertical actuating angle of 30°
- Wear-resistant plastic roller
- Actuator can be repositioned by 4 x 90°
- Actuation parallel to switch from below
- Metal roller available on request

### EnOcean®

RF 95 WPHM EN868

### Material Number

1182394

### sWave®

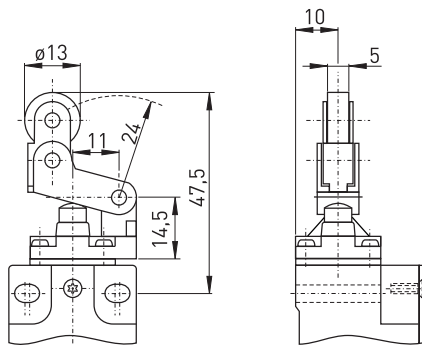
RF 95 WPHM LR SW868  
RF 95 WPHM ULR SW868  
RF 95 WPHM LR SW915  
RF 95 WPHM ULR SW915

### Material Number

on request  
1188736  
1258440  
1260575

53

## // Offset metal roller lever with collar WHKM



### Features/options

- Actuating speed max. 0.5 m/s with a vertical actuating angle of 40°
- Wear-resistant plastic roller
- Actuator can be repositioned by 4 x 90°
- Actuation only possible from right-hand side
- Free movement of actuator from left-hand side
- Metal roller available on request

### EnOcean®

RF 95 WHKM EN868

### Material Number

on request

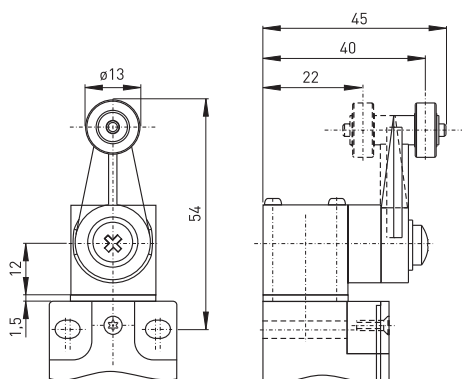
### sWave®

RF 95 WHKM LR SW868  
RF 95 WHKM ULR SW868  
RF 95 WHKM LR SW915  
RF 95 WHKM ULR SW915

### Material Number

on request  
on request  
1254366  
1260367

## // Rocking lever D



### Features/options

- Lever angle adjustable in 10° steps
- Wear-resistant plastic roller
- Actuator can be repositioned by 4 x 90°
- Metal roller available on request

### EnOcean®

RF 95 D EN868

### Material Number

1181146

### sWave®

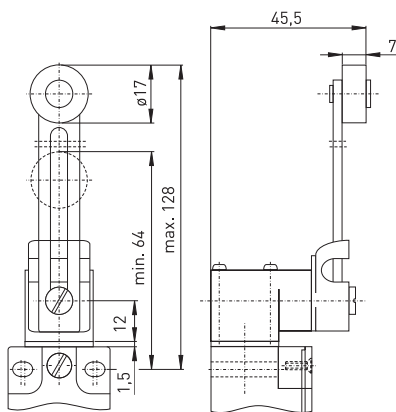
RF 95 D LR SW868  
RF 95 D ULR SW868  
RF 95 D LR SW915  
RF 95 D ULR SW915

### Material Number

1190517  
1188735  
1190531  
1190551

Wireless position switches  
 // Series RF 95, actuators

// Adjustable rocking lever DS



Features/options

- Lever angle adjustable in 10° steps
- Position of roller can be adjusted
- Wear-resistant plastic roller
- Actuator can be repositioned by 4 x 90°
- Metal roller available on request

EnOcean®

RF 95 DS EN868

Material Number

1181110

sWave®

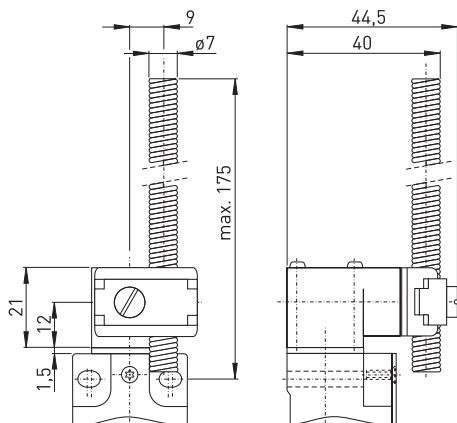
RF 95 DS LR SW868  
 RF 95 DS ULR SW868  
 RF 95 DS LR SW915  
 RF 95 DS ULR SW915

Material Number

1300890  
 1188737  
 1212747  
 1261271

54

// Spring-rod lever DF



Features/options

- Lever angle adjustable in 10° steps
- Actuator can be repositioned by 4 x 90°

EnOcean®

RF 95 DF EN868

Material Number

1182128

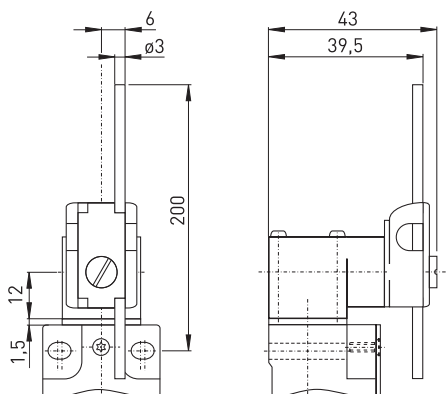
sWave®

RF 95 DF LR SW868  
 RF 95 DF ULR SW868  
 RF 95 DF LR SW915  
 RF 95 DF ULR SW915

Material Number

on request  
 on request  
 1258518  
 1262810

// Rod lever DD



Features/options

- Lever angle adjustable in 10° steps
- Actuator can be repositioned by 4 x 90°

EnOcean®

RF 95 DD EN868

Material Number

1183399

sWave®

RF 95 DD LR SW868  
 RF 95 DD ULR SW868  
 RF 95 DD LR SW915  
 RF 95 DD ULR SW915

Material Number

on request  
 on request  
 1260308  
 1260962

PRODUCTION PROCESS  
PROCESSING OF ENCLOSURES



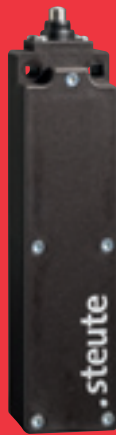
# Wireless position switches EnOcean®

## // Series RF 96 EN868

### Features/options

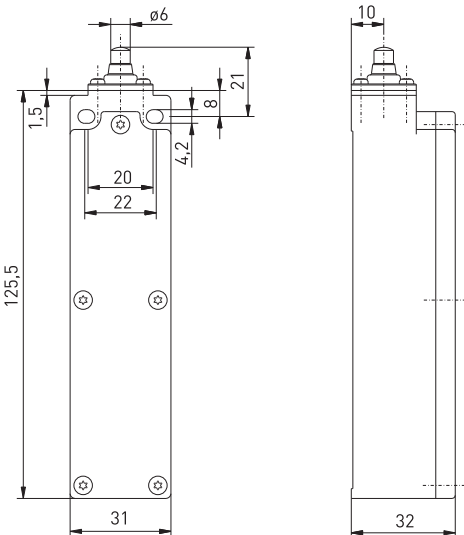
- Thermoplastic enclosure
- Mounting details to EN 50 047
- EnOcean® technology
- No wiring and pipe laying required
- Power supply by Lithium battery
- Easy programming of receiver
- Multi-network capable
- Output signal can be individually configured at the receiver

## // RF 96 EN868



### Technical Data

<b>Standards</b>	EN 60947-5-1; EN 61000-6-2; EN 301 489-1; EN 301 489-3; EN 300 220-2, -3
<b>Enclosure</b>	Glass-fibre reinforced shock-proof thermoplastic, self-extinguishing UL 94-V0
<b>Cover</b>	Glass-fibre reinforced shock-proof thermoplastic, self-extinguishing UL 94-V0
<b>Tightening torque</b>	max. 1.2 Nm
<b>Degree of protection</b>	IP 67 to IEC/EN 60529
<b>Protocol</b>	EnOcean®
<b>Ambient temperature</b>	- 20 °C ... + 65 °C
<b>Switching frequency</b>	approx. 9000 telegrams at repetitions/h
<b>Voltage supply</b>	Lithium battery (replaceable)
<b>Standby current</b>	15 µA
<b>Capacity</b>	approx. 8.5 Ah
<b>Frequency</b>	868.3 MHz
<b>Transmission power</b>	max. 10 mW
<b>Modulation principle</b>	ASK
<b>Telegram type</b>	RPS type 2
<b>Data rate</b>	120 kbps
<b>Channel bandwidth</b>	280 kHz
<b>Sensing range</b>	max. 300 m outside, max. 30 m im inside
<b>Mechanical life</b>	> 1 million operations
<b>Battery life</b>	approx. 10 years unused, approx. 2000 days with 1 actuation per s, approx. 93800 days with 1 actuation per min.
<b>Actuating time</b>	min. 80 ms
<b>Note</b>	status signal configurable ex works, transmission of battery voltage



### Type code

**RF 96 WH EN868**

RF 96 WH EN868  
 868 MHz wireless frequency  
 EnOcean®  
 Actuator H (R, D, DS, etc. ...)  
 Watertight collar  
 Series  
 Wireless technology

Spare part Lithium battery SL-2770/S

1202806



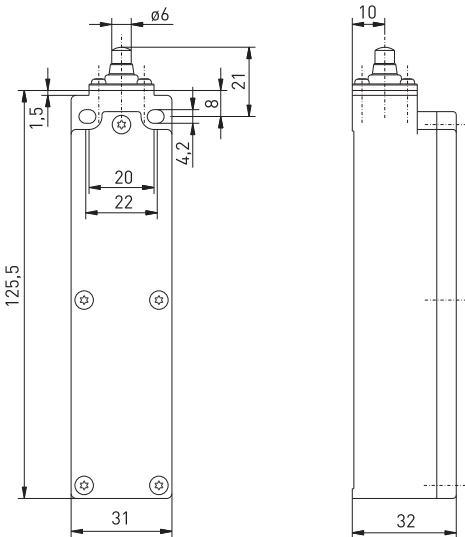
# Wireless position switches sWave®

// Series RF 96 SW868/SW915

## Features/options

- Thermoplastic enclosure
- Mounting details to EN 50 047
- sWave® technology
- No wiring and pipe laying required
- Power supply by Lithium battery
- Easy programming of receiver
- Output signal can be individually configured at the receiver

// RF 96 SW868/SW915



## Technical Data

<b>Standards</b>	EN 60947-5-1; EN 61000-6-2; EN 301 489-1; EN 301 489-3; EN 300 220-1, EN 300 220-2; USA: FCC, XK5-RFRXSW915; Canada: IC: 5158A-RFRXSW915
<b>Enclosure</b>	Glass-fibre reinforced shock-proof thermoplastic, self-extinguishing UL 94-V0
<b>Cover</b>	Glass-fibre reinforced shock-proof thermoplastic, self-extinguishing UL 94-V0
<b>Tightening torque</b>	max. 1.2 Nm
<b>Degree of protection</b>	IP 67 to IEC/EN 60529
<b>Protocol</b>	sWave®
<b>Ambient temperature</b>	-20 °C ... +65 °C
<b>Switching frequency</b>	approx. 12000 telegrams at repetitions/h
<b>Standby current</b>	1.5 µA
<b>Voltage supply</b>	Lithium battery (replaceable)
<b>Capacity</b>	approx. 8.5 Ah
<b>Frequency</b>	868.3 MHz or 915 MHz (USA, Canada and Australia)
<b>Transmission power</b>	SW868: <25 mW, SW915: <10 mW
<b>Data rate</b>	66 kbps
<b>Channel bandwidth</b>	SW868: 266 kHz, SW915: 400 kHz
<b>Sensing range</b>	max. 450 m outside, max. 40 m inside
<b>Mechanical life</b>	> 1 million operations
<b>Battery life</b>	approx. 10 years unused, wireless protocol each 1 s approx. 2.5 years, wireless protocol each 1 min <10 years
<b>Actuating time</b>	min. 80 ms
<b>Note</b>	status signal configurable ex works, transmission of battery voltage
<b>Approvals</b>	<b>ERC</b> SW915 <b>FC</b> <b>IC</b>

57

## Type code

**RF 96 WR SW868**

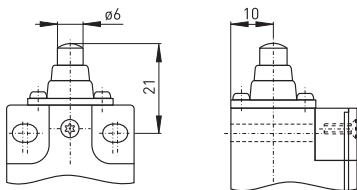
868 MHz wireless frequency  
(SW915 915 MHz)  
sWave®  
Actuator R (H, D, DS, etc. ...)  
Watertight collar  
Series  
Wireless technology

Spare part Lithium battery SL-2770/S

1202806

Wireless position switches  
 // Series RF 96, actuators

// Plunger with collar W



Features/options

- Actuator type B to EN 50 047
- Watertight collar for protection against penetration of dirt

EnOcean®  
 RF 96 W EN868

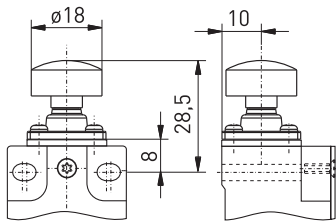
Material number  
 1187306

sWave®  
 RF 96 W SW868  
 RF 96 W SW915

Material Number  
 on request  
 on request

58

// Cap with collar WK



Features/options

- Large actuating surface
- Safe switching also with imprecise actuation
- Suitable for manual actuation
- Watertight collar for protection against penetration of dirt

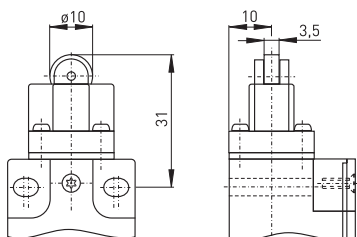
EnOcean®  
 RF 96 WK EN868

Material number  
 1186824

sWave®  
 RF 96 WK SW868  
 RF 96 WK SW915

Material number  
 on request  
 on request

// Roller plunger R



Features/options

- Actuator type C to EN 50 047
- Wear-resistant plastic roller
- Metal roller available on request
- Actuator can be repositioned by 4 x 90°

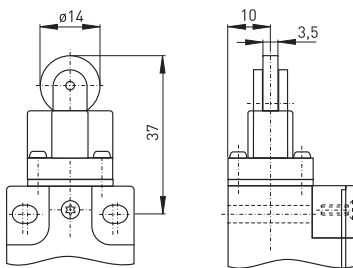
EnOcean®  
 RF 96 R EN868

Material number  
 1188290

sWave®  
 RF 96 R SW868  
 RF 96 R SW915

Material number  
 on request  
 on request

## // Long roller plunger RL



### Features/options

- Wear-resistant plastic roller
- Metal roller available on request
- Actuator can be repositioned by 4 x 90°

**EnOcean®**  
RF 96 RL EN868

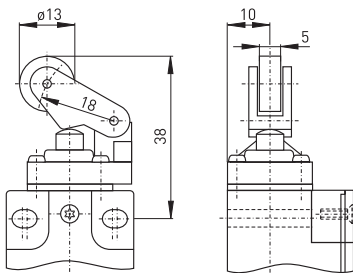
**Material number**  
1187372

**sWave®**  
RF 96 RL SW868  
RF 96 RL SW915

**Material number**  
on request  
on request

59

## // Roller lever with collar WH



### Features/options

- Actuator type E to EN 50 047
- Actuating speed max. 0.5 m/s with a vertical actuating angle of  $\alpha = 40^\circ$  and  $\beta = 25^\circ$
- Watertight collar for protection against penetration of dirt
- Wear-resistant plastic roller
- Actuator can be repositioned by 4 x 90°
- Metal roller available on request

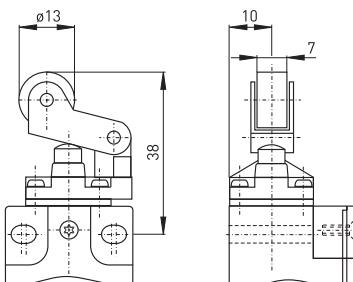
**EnOcean®**  
RF 96 WH EN868

**Material number**  
1189355

**sWave®**  
RF 96 WH SW868  
RF 96 WH SW915

**Material Number**  
on request  
on request

## // Metal roller lever with collar WHM



### Features/options

- Actuating speed max. 0.5 m/s with a vertical actuating angle of  $\alpha = 40^\circ$  and  $\beta = 25^\circ$
- Watertight collar for protection against penetration of dirt
- Wear-resistant plastic roller
- Actuator can be repositioned by 4 x 90°
- Metal roller available on request

**EnOcean®**  
RF 96 WHM EN868 EN868

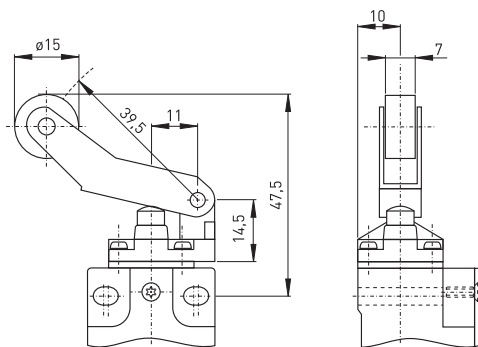
**Material number**  
1189108

**sWave®**  
RF 96 WHM SW868  
RF 96 WHM SW915

**Material Number**  
on request  
on request

Wireless position switches  
 // Series RF 96, actuators

// Long metal roller lever with collar WHLM



Features/options

- Actuating speed max. 0.5 m/s with a vertical actuating angle of 40°
- Watertight collar for protection against penetration of dirt
- Wear-resistant plastic roller
- Actuator can be repositioned by 4 x 90°
- Metal roller available on request

EnOcean®  
 RF 96 WHLM EN868

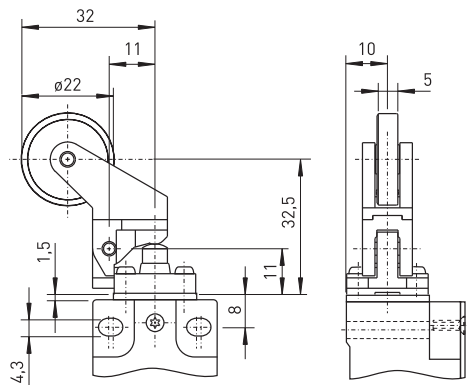
Material number  
 1189149

sWave®  
 RF 96 WHLM SW868  
 RF 96 WHLM SW915

Material Number  
 on request  
 on request

60

// Plastic roller lever with collar 4K



Features/options

- Actuating speed max. 0.5 m/s with a vertical actuating angle of 40°
- Watertight collar for protection against penetration of dirt
- Wear-resistant plastic roller
- Actuator can be repositioned by 4 x 90°
- Actuation parallel to switch from below
- Metal roller available on request

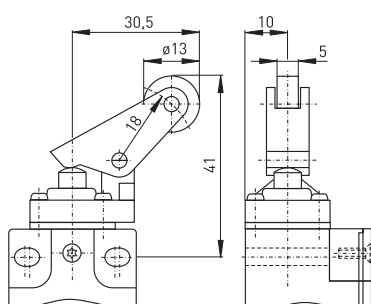
EnOcean®  
 RF 96 4K EN868

Material number  
 1189151

sWave®  
 RF 96 4K SW868  
 RF 96 4K SW915

Material Number  
 on request  
 on request

// Parallel roller lever with collar WPH



Features/options

- Actuating speed max. 0.5 m/s with a vertical actuating angle of 30°
- Watertight collar for protection against penetration of dirt
- Wear-resistant plastic roller
- Actuator can be repositioned by 4 x 90°
- Actuation parallel to switch from below
- Metal roller available on request

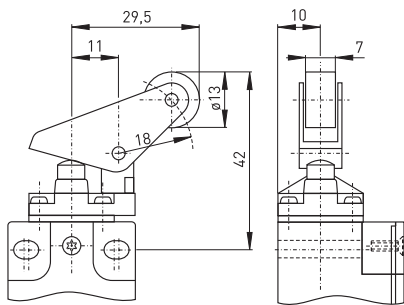
EnOcean®  
 RF 96 WPH EN868

Material number  
 1189158

sWave®  
 RF 96 WPH SW868  
 RF 96 WPH SW915

Material Number  
 on request  
 on request

## // Parallel metal roller lever with collar WPHM



### Features/options

- Actuating speed max. 0.5 m/s with a vertical actuating angle of 30°
- Watertight collar for protection against penetration of dirt
- Wear-resistant plastic roller
- Actuator can be repositioned by 4 x 90°
- Actuation parallel to switch from below
- Metal roller available on request

EnOcean®  
RF 96 WPHM EN868

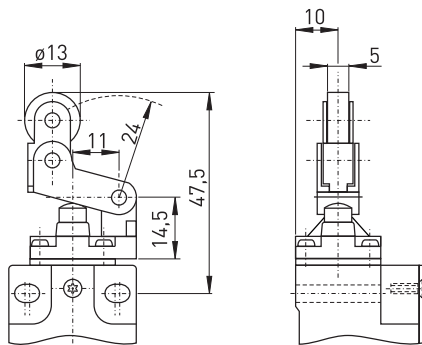
Material number  
1189160

sWave®  
RF 96 WPHM SW868  
RF 96 WPHM SW915

Material Number  
on request  
on request

61

## // Offset metal roller lever with collar WHKM



### Features/options

- Actuating speed max. 0.5 m/s with a vertical actuating angle of 40°
- Watertight collar for protection against penetration of dirt
- Wear-resistant plastic roller
- Actuator can be repositioned by 4 x 90°
- Actuation only possible from right-hand side
- Free movement of actuator from left-hand side
- Metal roller available on request

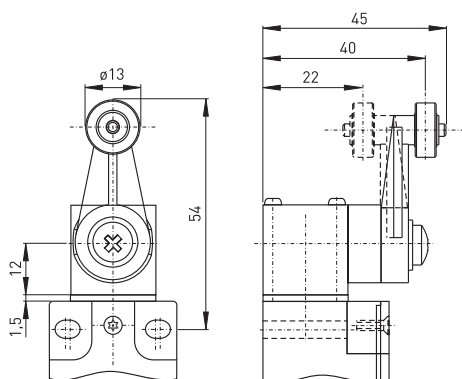
EnOcean®  
RF 96 WHKM EN868

Material number  
1189152

sWave®  
RF 96 WHKM SW868  
RF 96 WHKM SW915

Material Number  
on request  
on request

## // Rocking lever D



### Features/options

- Lever angle adjustable in 10° steps
- Wear-resistant plastic roller
- Actuator can be repositioned by 4 x 90°
- Metal roller available on request

EnOcean®  
RF 96 D EN868

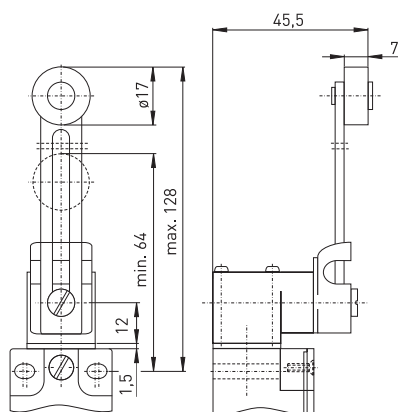
Material number  
1189161

sWave®  
RF 96 D SW868  
RF 96 D SW915

Material Number  
on request  
on request

Wireless position switches  
 // Series RF 96, actuators

// Adjustable rocking lever DS



Features/options

- Lever angle adjustable in 10° steps
- Position of roller can be adjusted
- Wear-resistant plastic roller
- Actuator can be repositioned by 4 x 90°
- Metal roller available on request

EnOcean®  
 RF 96 DS EN868

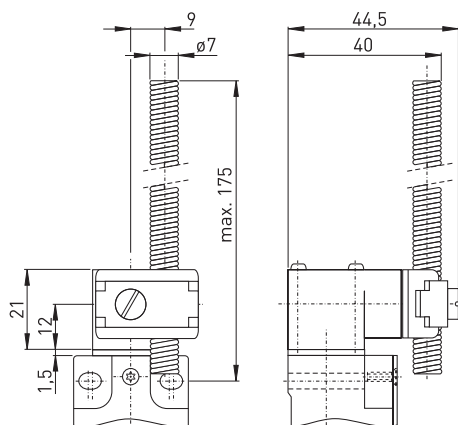
Material number  
 1189162

sWave®  
 RF 96 DS SW868  
 RF 96 DS SW915

Material Number  
 on request  
 on request

62

// Spring-rod lever DF



Features/options

- Lever angle adjustable in 10° steps
- Actuator can be repositioned by 4 x 90°

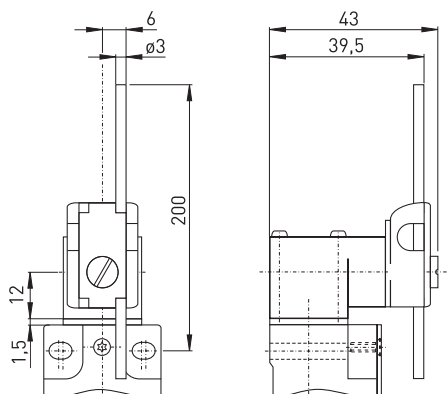
EnOcean®  
 RF 96 DF EN868

Material number  
 1188492

sWave®  
 RF 96 DF SW868  
 RF 96 DF SW915

Material Number  
 on request  
 on request

// Rod lever DD



Features/options

- Lever angle adjustable in 10° steps
- Actuator can be repositioned by 4 x 90°

EnOcean®  
 RF 96 DD EN868

Material number  
 on request

sWave®  
 RF 96 DD SW868  
 RF 96 DD SW915

Material Number  
 on request  
 on request

PRODUCTION PROCESS  
SMD PARTS READY FOR ASSEMBLY



# Wireless position switches EnOcean®

## // Series RF 41 EN868

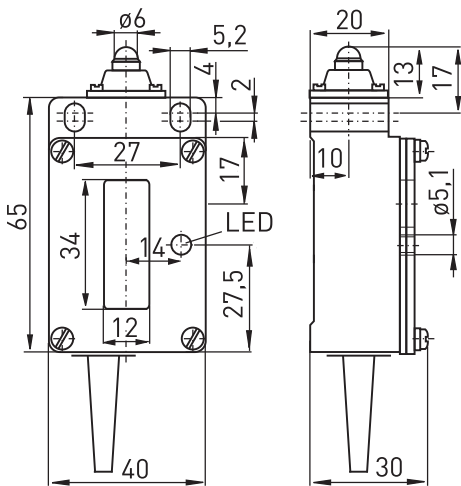
### Features/options

- Metal enclosure with plastic cover
- EnOcean® technology
- No wiring and pipe laying required
- Integrated solar cell, no battery/rechargeable battery required
- Easy programming of receiver
- Multi-network capable
- Output signal can be individually configured at the receiver

### Technical Data

<b>Standards</b>	EN 60947-5-1; EN 61000-6-2; EN 301 489-1; EN 301 489-3; EN 300 220-2, -3
<b>Enclosure</b>	aluminium die-cast, powder-coated
<b>Cover</b>	Glass-fibre reinforced thermoplastic
<b>Degree of protection</b>	IP 65 to IEC/EN 60529
<b>Protocol</b>	EnOcean®
<b>Ambient temperature</b>	-20 °C ... +65 °C
<b>Switching frequency</b>	approx. 9000 telegrams at repetitions/h
<b>Voltage supply</b>	Solar cell
<b>Frequency</b>	868.3 MHz
<b>Transmission power</b>	max. 10 mW
<b>Data rate</b>	120 kbps
<b>Channel bandwidth</b>	280 kHz
<b>Sensing range</b>	max. 300 m outside, max. 30 m inside
<b>Mechanical life</b>	> 1 million operations
<b>Current consumption in sleep mode</b>	approx. 25 nA
<b>Switching on with empty energy supply</b>	< 10 min at 400 lx
<b>Charging time with empty energy supply</b>	approx. 6 h at 400 lx, approx. 1.5 h at 1000 lx
<b>Charging time at operation limit</b>	1 h at 400 lx, approx. 15 min at 1000 lx
<b>Operation time in darkness</b>	approx. 48 h, with status signal every 3h, when the goldcap is totally charged at 1000 lx
<b>Actuating time</b>	min. 80 ms
<b>Note</b>	status signal configurable ex works

### // RF 41 EN868



### Type code

**RF 41 WH EN868**

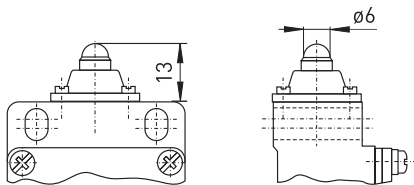
RF 41 WH EN868  
 868 MHz wireless frequency  
 EnOcean®  
 Actuator H (R, TK, D, etc. ...)  
 Watertight collar  
 Series 41  
 Wireless technology



# Wireless position switches EnOcean®

## // Series RF 41 EN868, actuators

### // Plunger



#### Features/options

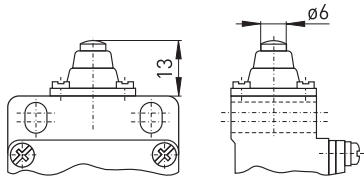
- Actuating speed max. 0.5 m/s with a vertical actuating angle of 20°
- Vertical actuation or actuation from side possible
- Actuator with captive stainless steel ball
- Exact repeatability of switching point

EnOcean®  
RF 41 EN868

Material number  
1184669

65

### // Plunger with collar W



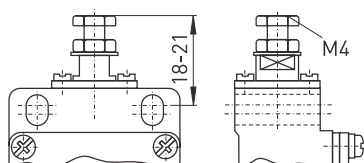
#### Features/options

- Actuating speed max. 0.5 m/s with a vertical actuating angle of 0°
- Watertight collar for protection against penetration of dirt
- Exact repeatability of switching point

EnOcean®  
RF 41 W EN868

Material number  
1178307

### // Adjustable plunger ST



#### Features/options

- Actuating speed max. 0.5 m/s with a vertical actuating angle of 0°
- Length of metal plunger adjustable by means of M4 screw for fine adjustment of switching travel

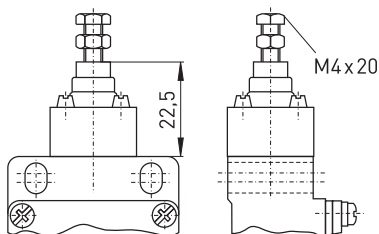
EnOcean®  
RF 41 ST EN868

Material number  
1184442

# Wireless position switches EnOcean®

## // Series RF 41 EN868, actuators

### // Adjustable plunger with collar WST



#### Features/options

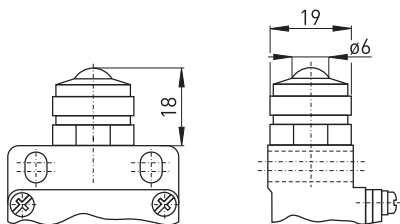
- Actuating speed max. 0.5 m/s with a vertical actuating angle of 0°
- Length of metal plunger adjustable by means of M4 screw for fine adjustment of switching travel
- Watertight collar for protection against penetration of dirt

EnOcean®  
RF 41 WST EN868

Material number  
1189560

66

### // Ball plunger KU



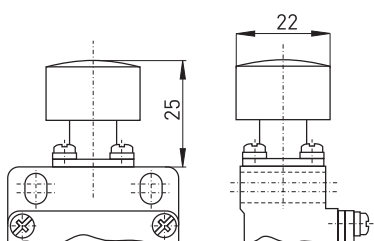
#### Features/options

- Actuating speed max. 0.5 m/s with a vertical actuating angle of 20°
- Vertical actuation or actuation from side possible
- Actuator with captive stainless steel ball
- Exact repeatability of switching point

EnOcean®  
RF 41 KU EN868

Material number  
1184670

### // Cap with collar WK



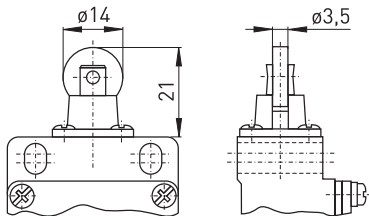
#### Features/options

- Large actuating surface
- Safe switching also with imprecise actuation
- Suitable for manual actuation
- Watertight collar for protection against penetration of dirt

EnOcean®  
RF 41 WK EN868

Material number  
1179288

## // Roller plunger R



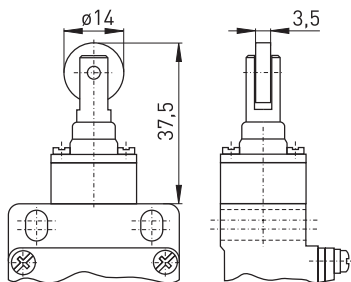
### Features/options

- Actuating speed max. 0.5 m/s with a vertical actuating angle of 30°
- Metal roller
- Actuator can be repositioned by 90°

EnOcean®  
RF 41 R EN868

Material number  
1181219

## // Roller plunger with collar WR



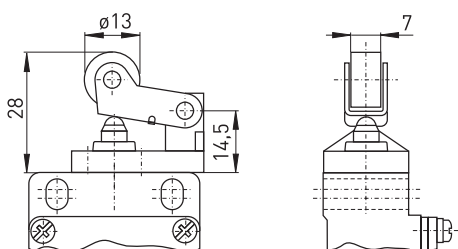
### Features/options

- Actuating speed max. 0.5 m/s with a vertical actuating angle of 25°
- Wear-resistant plastic roller
- Actuator can be repositioned by 90°
- Watertight collar for protection against penetration of dirt
- Metal roller available on request

EnOcean®  
RF 41 WR EN868

Material number  
1189349

## // Roller lever H



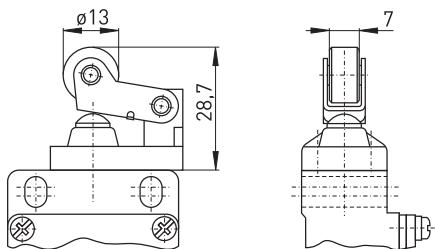
### Features/options

- Actuating speed max. 0.5 m/s with a vertical actuating angle of  $\alpha = 40^\circ$  and  $\beta = 25^\circ$
- Wear-resistant plastic roller
- Actuator can be repositioned by 4 x 90°
- Metal roller available on request
- Actuation of switch from right
- Actuation from the left should be avoided, since this reduces the mechanical life of the position switch.

EnOcean®  
RF 41 H EN868

Material number  
1184472

// Roller lever with collar WH



Features/options

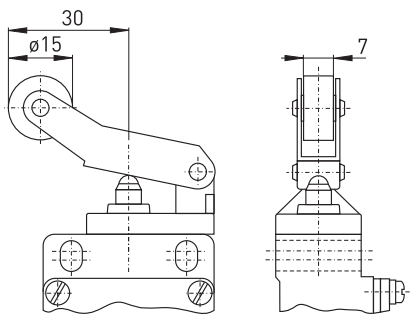
- Actuating speed max. 0.5 m/s with a vertical actuating angle of  $\alpha = 40^\circ$  and  $\beta = 25^\circ$
- Wear-resistant plastic roller
- Actuator can be repositioned by  $4 \times 90^\circ$
- Watertight collar for protection against penetration of dirt
- Metal roller available on request
- Actuation of switch from right
- Actuation from the left should be avoided, since this reduces the mechanical life of the position switch.

EnOcean®  
RF 41 WH EN868

Material number  
1184568

68

// Long roller lever HL



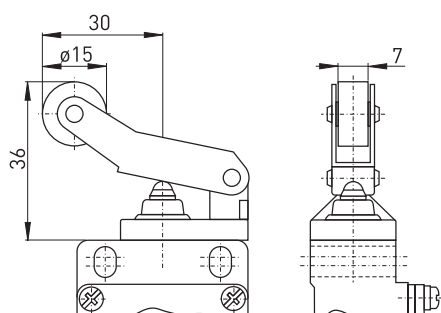
Features/options

- Actuating speed max. 0.5 m/s with a vertical actuating angle of  $\alpha = 40^\circ$  and  $\beta = 30^\circ$
- Wear-resistant plastic roller
- Actuator can be repositioned by  $4 \times 90^\circ$
- Metal roller available on request
- Actuation from the left should be avoided, since this reduces the mechanical life of the position switch.

EnOcean®  
RF 41 HL EN868

Material number  
on request

// Long roller lever with collar WHL



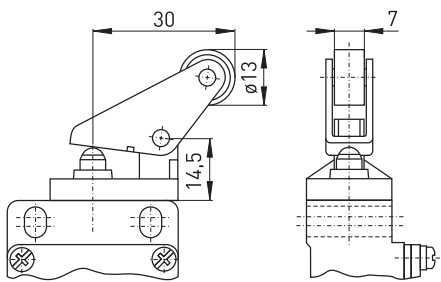
Features/options

- Actuating speed max. 0.5 m/s with a vertical actuating angle of  $\alpha = 40^\circ$  and  $\beta = 30^\circ$
- Wear-resistant plastic roller
- Actuator can be repositioned by  $4 \times 90^\circ$
- Watertight collar for protection against penetration of dirt
- Metal roller available on request
- Actuation from the left should be avoided, since this reduces the mechanical life of the position switch.

EnOcean®  
RF 41 WHL EN868

Material number  
1180225

## // Parallel roller lever PH



### Features/options

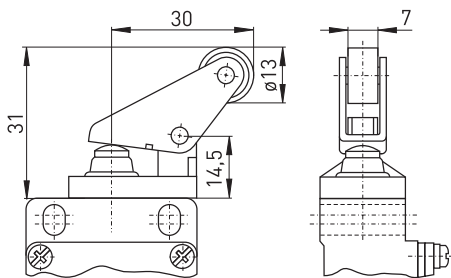
- Actuating speed max. 0.5 m/s with a vertical actuating angle of  $\alpha = 30^\circ$
- Actuation parallel to switch from below
- Wear-resistant plastic roller
- Actuator can be repositioned by  $4 \times 90^\circ$
- Metal roller available on request

EnOcean®  
RF 41 PH EN868

Material number  
on request

69

## // Parallel roller lever with collar WPH



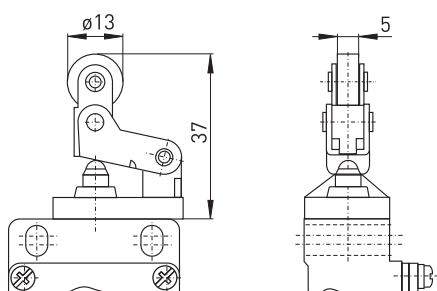
### Features/options

- Actuating speed max. 0.5 m/s with a vertical actuating angle of  $\alpha = 30^\circ$
- Actuation parallel to switch from below
- Wear-resistant plastic roller
- Actuator can be repositioned by  $4 \times 90^\circ$
- Watertight collar for protection against penetration of dirt
- Metal roller available on request

EnOcean®  
RF 41 WPH EN868

Material number  
on request

## // Offset roller lever HK



### Features/options

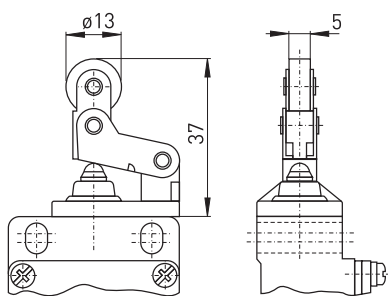
- Actuating speed max. 0.5 m/s with a vertical actuating angle of  $40^\circ$
- Wear-resistant plastic roller
- Actuation only possible from right-hand side
- Free movement of actuator from left-hand side
- Actuator can be repositioned by  $4 \times 90^\circ$
- Metal roller available on request

EnOcean®  
RF 41 HK EN868

Material number  
on request

Wireless position switches EnOcean®  
 // Series RF 41 EN868, actuators

// Offset roller lever with collar WHK



Features/options

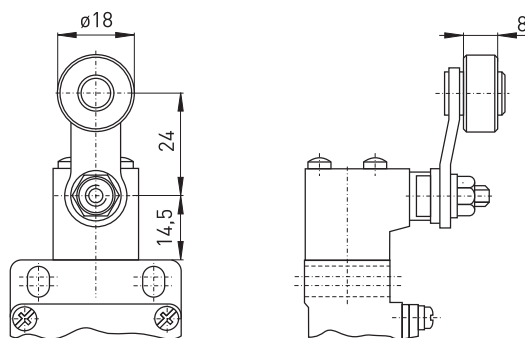
- Actuating speed max. 0.5 m/s with a vertical actuating angle of 40°
- Actuation only possible from right-hand side
- Free movement of actuator from left-hand side
- Wear-resistant plastic roller
- Actuator can be repositioned by 4 x 90°
- Watertight collar for protection against penetration of dirt
- Metal roller available on request

EnOcean®  
 RF 41 WHK EN868

Material number  
 1186980

70

// Rocking lever D



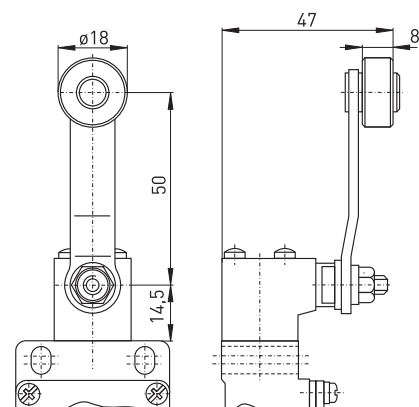
Features/options

- Actuating speed max. 0.5 m/s with a vertical actuating angle of 45°
- Wear-resistant plastic roller
- Lever angle adjustable in 10° steps
- Actuator can be repositioned by 180°
- Metal roller available on request

EnOcean®  
 RF 41 D EN868

Material number  
 1184258

// Long rocking lever DL



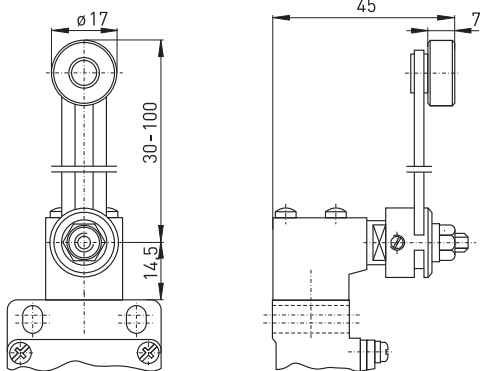
Features/options

- Actuating speed max. 0.5 m/s with a vertical actuating angle of 45°
- Wear-resistant plastic roller
- Lever angle adjustable in 10° steps
- Actuator can be repositioned by 180°
- Metal roller available on request

EnOcean®  
 RF 41 DL EN868

Material number  
 1179908

## // Adjustable rocking lever DS



### Features/options

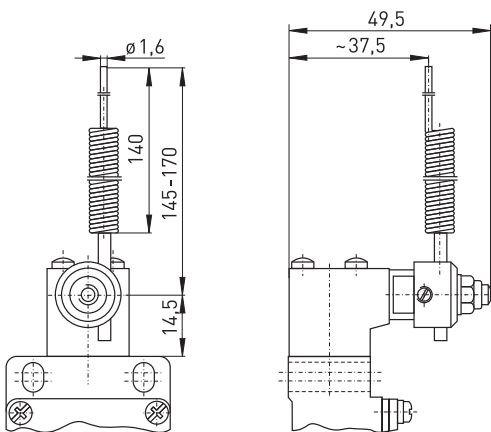
- Actuating speed max. 0.5 m/s with a vertical actuating angle of 45°
- Wear-resistant plastic roller
- Lever angle adjustable in 10° steps
- Actuator can be repositioned by 180°
- Metal roller available on request

EnOcean®  
RF 41 DS EN868

Material number  
1179056

71

## // Spring-rod lever DF



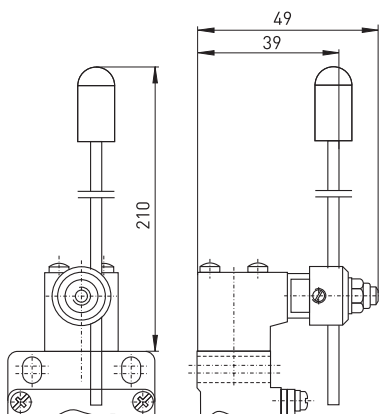
### Features/options

- Actuating speed max. 0.5 m/s
- Lever angle adjustable in 10° steps
- Actuator can be repositioned by 180°

EnOcean®  
RF 41 DF EN868

Material number  
on request

## // Rod lever DD



### Features/options

- Actuating speed max. 0.5 m/s
- Wear-resistant plastic tip
- Lever angle adjustable in 10° steps
- Actuator can be repositioned by 180°

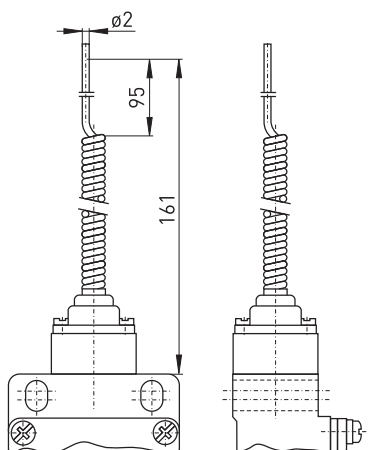
EnOcean®  
RF 41 DD EN868

Material number  
on request

# Wireless position switches EnOcean®

## // Series RF 41 EN868, actuators

### // Long spring rod TL



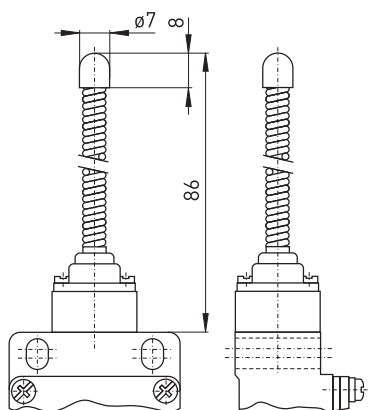
#### Features/options

- Spring rod can be actuated from any direction
- Spring rod can be shortened 30 mm in actuating area
- Exact linear actuation not necessary
- Elasticity of the spring allows for deflection above the max. switching angle

EnOcean®  
RF 41 TL EN868

Material number  
on request

### // Spring rod with steel tip TF



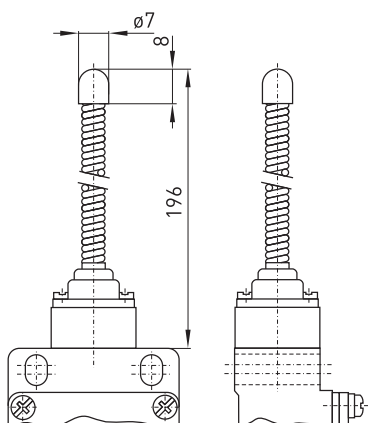
#### Features/options

- With rounded steel tip
- Spring rod can be actuated from any direction
- Elasticity of the spring allows for deflection above the max. switching angle

EnOcean®  
RF 41 TF EN868

Material number  
1186562

### // Long spring rod with steel tip TFL



#### Features/options

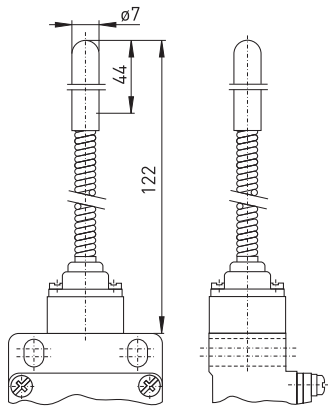
- With rounded steel tip
- Spring rod can be actuated from any direction
- Elasticity of the spring allows for deflection above the max. switching angle

EnOcean®  
RF 41 TFL EN868

Material number  
1189884



## // Spring rod with plastic tip TK



### Features/options

- Wear-resistant plastic tip
- Spring rod can be actuated from any direction
- Elasticity of the spring allows for deflection above the max. switching angle

EnOcean®  
RF 41 TK EN868

Material number  
on request

# Wireless position switches EnOcean®

## // Series RF 98 EN868

### Features/options

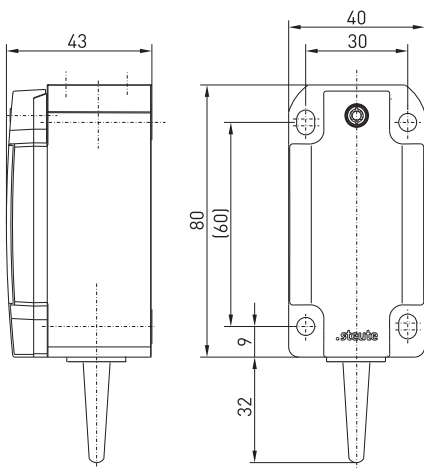
- Metal enclosure
- Design to EN 50 041
- EnOcean® technology
- No power supply, no wiring and pipe laying required
- Easy programming of receiver
- Multi-network capable
- Output signal can be individually configured at the receiver

## // RF 98 EN868



## Technical Data

Standards	EN 60947-5-1; EN 61000-6-2; EN 301 489-1; EN 301 489-3; EN 300 220-2, -3
Enclosure	aluminium die-cast, enamel finish
Degree of protection	IP 67 to IEC/EN 60529
Protocol	EnOcean®
Ambient temperature	-20 °C ... +65 °C
Switching frequency	approx. 9000 telegrams at repetitions/h
Voltage supply	Electrodynamic energy generator
Frequency	868.3 MHz
Transmission power	max. 10 mW
Data rate	120 kbps
Channel bandwidth	280 kHz
Sensing range	max. 200 m outside, max. 20 m inside
Mechanical life	> 1 million operations
Actuating time	min. 80 ms
Note	no status signal available



### Type code

RF 98 R EN868

Wireless frequency 868 MHz  
EnOcean®  
Actuator R (H, PH, D ...)  
Series  
Wireless technology

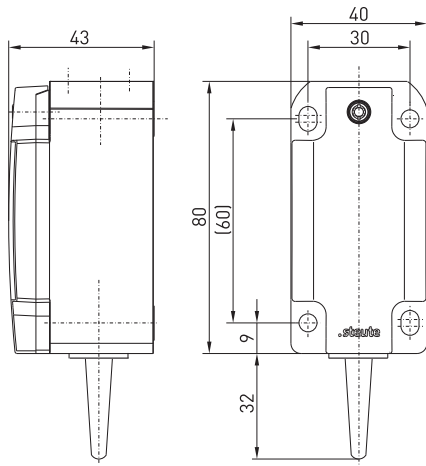
# Wireless position switches sWave®

// Series RF 98 SW868/SW915

## Features/options

- Metal enclosure
- Design to EN 50 041
- sWave® technology
- No power supply, no wiring and pipe laying required
- Easy programming of receiver
- Output signal can be individually configured at the receiver

// RF 98 SW868/SW915



## Technical Data

<b>Standards</b>	EN 60947-5-1; EN 61000-6-2; EN 301 489-1; EN 301 489-3; EN 300 220-1, EN 300 220-2; USA: FCC, XK5-RF95SW915LR; Canada: IC: 5158A-RF95SW915LR
<b>Enclosure</b>	aluminium die-cast, enamel finish
<b>Degree of protection</b>	IP 67 to IEC/EN 60529
<b>Protocol</b>	sWave®
<b>Ambient temperature</b>	-20 °C ... +65 °C
<b>Switching frequency</b>	approx. 12000 telegrams at repetitions/h
<b>Voltage supply</b>	Electrodynamic energy generator
<b>Frequency</b>	868.3 MHz or 915 MHz (USA, Canada and Australia)
<b>Transmission power</b>	SW868: <25 mW, SW915: <10 mW
<b>Data rate</b>	66 kbps
<b>Channel bandwidth</b>	SW868: 266 kHz, SW915: 400 kHz
<b>Sensing range</b>	max. 450 m outside, max. 40 m inside
<b>Mechanical life</b>	> 1 million operations
<b>Actuating time</b>	min. 80 ms
<b>Note</b>	no status signal available
<b>Approvals</b>	<b>EAC</b> SW915 <b>FC</b> <b>IC</b>

75

## Type code

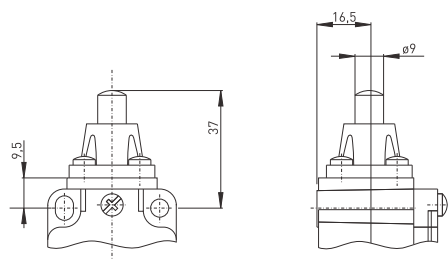
**RF 98 R SW868**

868 MHz wireless frequency  
(SW915 915 MHz)  
sWave®  
Actuator R (H, PH, D ...)  
Series  
Wireless technology

# Wireless position switches

## // Series RF 98, actuators

### // Plunger



#### Features/options

- Actuator type B to EN 50 041
- Actuating speed max. 0.5 m/s with a vertical actuating angle of 0°

**EnOcean®**  
RF 98 W EN868

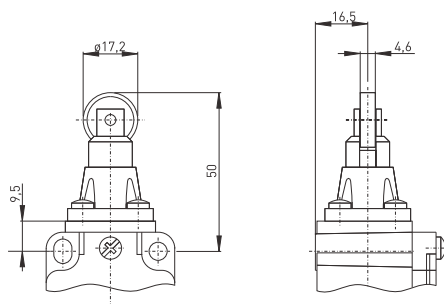
**Material number**  
1187917

**sWave®**  
RF 98 W SW868  
RF 98 W SW915

**Material number**  
on request  
on request

76

### // Roller plunger R



#### Features/options

- Actuator type C to EN 50 041
- Actuating speed max. 0.5 m/s with a vertical actuating angle of 30°
- Actuator can be repositioned by 90°

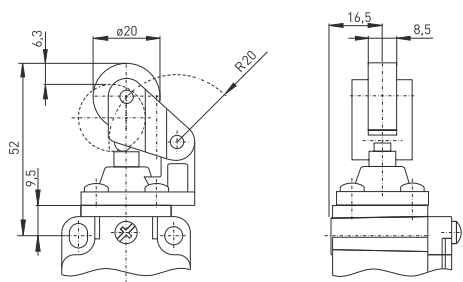
**EnOcean®**  
RF 98 R EN868

**Material number**  
1188193

**sWave®**  
RF 98 R SW868  
RF 98 R SW915

**Material number**  
1190088  
on request

### // Roller lever H



#### Features/options

- Actuating speed max. 0.5 m/s with a vertical actuating angle of 30°
- Actuation parallel to switch from right
- Actuation from the left should be avoided since this reduces the mechanical life of the position switch
- Wear-resistant plastic roller
- Actuator can be repositioned by 4 x 90°

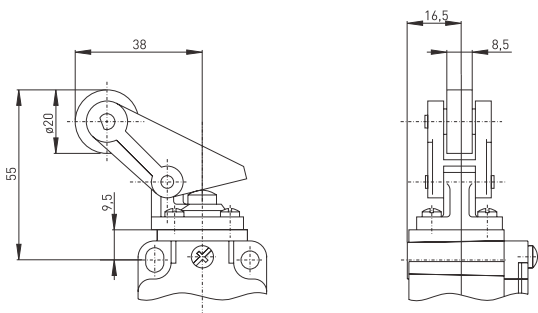
**EnOcean®**  
RF 98 H EN868

**Material number**  
1189678

**sWave®**  
RF 98 H SW868  
RF 98 H SW915

**Material number**  
on request  
on request

## // Parallel roller lever PH



### Features/options

- Actuating speed max. 0.5 m/s with a vertical actuating angle of 30°
- Actuation parallel to switch from below
- Wear-resistant plastic roller
- Actuator can be repositioned by 4 x 90°

**EnOcean®**  
RF 98 PH EN868

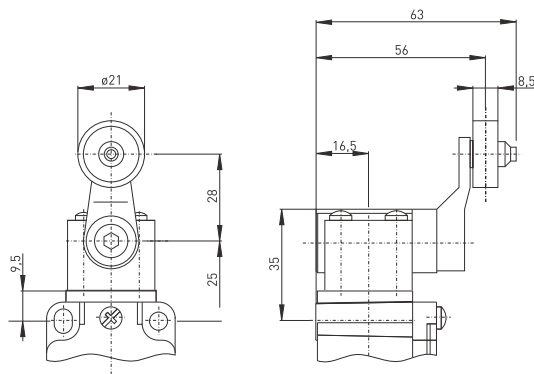
**Material number**  
1189679

**sWave®**  
RF 98 PH SW868  
RF 98 PH SW915

**Material number**  
on request  
on request

77

## // Rocking lever D



### Features/options

- Actuator type A to EN 50 041
- Actuating speed max. 2.5 m/s with a vertical actuating angle of 30°
- Wear-resistant plastic roller
- Actuator can be repositioned by 4 x 90°

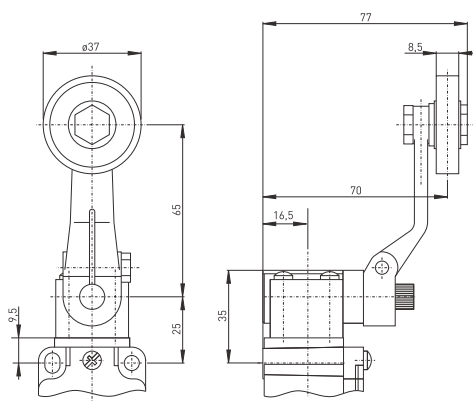
**EnOcean®**  
RF 98 D EN868

**Material number**  
1189266

**sWave®**  
RF 98 D SW868  
RF 98 D SW915

**Material number**  
on request  
on request

## // Long rocking lever DL



### Features/options

- Actuating speed max. 2.5 m/s with a vertical actuating angle of 30°
- Wear-resistant plastic roller
- Actuator can be repositioned by 4 x 90°

**EnOcean®**  
RF 98 DL EN868

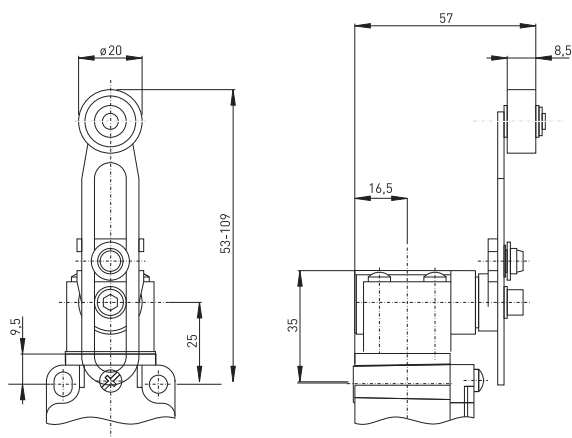
**Material number**  
1189917

**sWave®**  
RF 98 DL SW868  
RF 98 DL SW915

**Material number**  
on request  
on request

Wireless position switches  
 // Series RF 98, actuators

// Adjustable rocking lever DS



Features/options

- Actuating speed max. 2.5 m/s with a vertical actuating angle of 30°
- Wear-resistant plastic roller
- Actuator can be repositioned by 4 x 90°

EnOcean®

RF 98 DS EN868

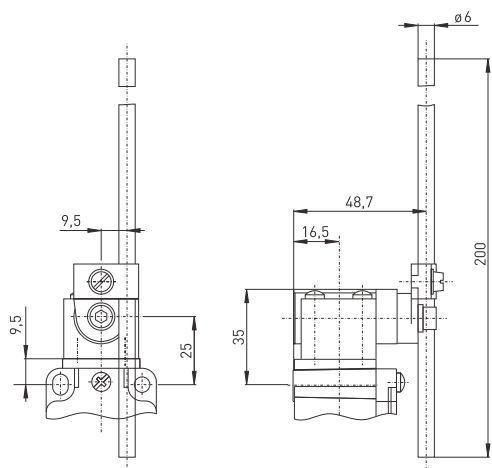
Material number  
1189912

sWave®

RF 98 DS SW868  
RF 98 DS SW915

Material number  
on request  
on request

// Rod lever DD



Features/options

- Actuator type D to EN 50041
- Actuating speed max. 2.5 m/s with a vertical actuating angle of 30°

EnOcean®

RF 98 DD EN868

Material number  
on request

sWave®

RF 98 DD SW868  
RF 98 DD SW915

Material number  
1189815  
on request

PRODUCTION PROCESS  
PROCESSING OF ENCLOSURES



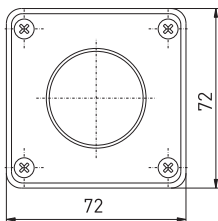
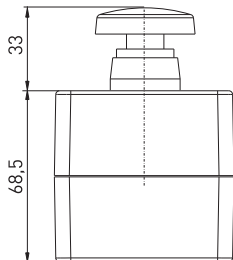
# Wireless command devices EnOcean®

## // Series RF BF 72 EN868

### Features/options

- Thermoplastic enclosure
- EnOcean® technology
- No power supply, no wiring and pipe laying required
- Easy programming of receiver
- Multi-network capable
- Output signal can be individually configurated at the receiver

## // RF BF 72 EN868



### Technical Data

<b>Standards</b>	EN 60947-5-1; EN 61000-6-2; EN 301 489-1; EN 301 489-3; EN 300 220-2, -3
<b>Enclosure</b>	Thermoplastic, Polyamid PA 66
<b>Degree of protection</b>	IP 65 to IEC/EN 60529
<b>Protocol</b>	EnOcean®
<b>Ambient temperature</b>	- 20 °C ... + 65 °C
<b>Switching frequency</b>	approx. 9000 telegrams at repetitions/h
<b>Voltage supply</b>	Electrodynamic energy generator
<b>Frequency</b>	868.3 MHz
<b>Transmission power</b>	max. 10 mW
<b>Data rate</b>	120 kbps
<b>Channel bandwidth</b>	280 kHz
<b>Sensing range</b>	max. 200 m outside, max. 20 m inside
<b>Mech. life</b>	> 1 million operations
<b>Actuating time</b>	min. 80 ms
<b>Note</b>	no status signal available

<b>Alternative voltage supply</b>	Lithium battery approx. 2.2 Ah
<b>Note</b>	status signal configurable ex works

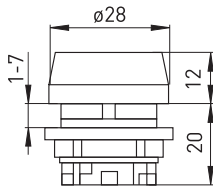
### Type code

RF BF 72 RS SW EN868

Wireless frequency  
868 MHz  
EnOcean®  
Actuator RS SW  
(different push-buttons  
available)  
Series  
Command device  
Wireless technology



// Push-button RT



Features/options

- IP 65 for actuator RT
- IP 67 for actuator with diaphragm M
- Actuator made of plastic
- Available on request with actuator made of stainless steel

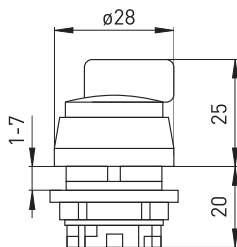
EnOcean®/black push-button  
RF BF 72 RT SW EN868

Material number  
1185035

EnOcean®/yellow push-button  
RF BF 72 RT GE EN868

Material number  
1185937

// Control switch RST



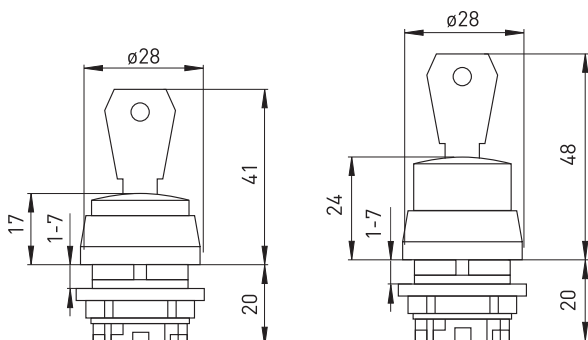
Features/options

- IP 65
- RST with spring return
- Actuator made of plastic
- Available on request with actuator made of stainless steel

EnOcean®  
RF BF 72 RSTA 0 <- I EN868

Material number  
1189164

// Key switch RSSA



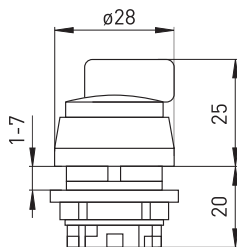
Features/options

- IP 65
- RSSA key switch with safety cylinder lock (locks against turning)
- Standard version always has same key number
- Available on request in different versions
- Available on request with actuator made of stainless steel

EnOcean®  
RF BF 72 RSSA 14 EN868

Material number  
1187895

// Selector switch RW



Features/options

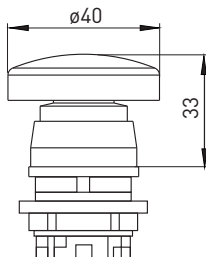
- IP 65
- Selector with rest positions
- Actuator made of plastic
- Available on request with actuator made of stainless steel

EnOcean®  
RF BF 72 RWA 0 - I EN868

Material number  
1185433

82

// Push-button RS



Features/options

- IP 65
- Actuator made of plastic
- Available on request with actuator made of stainless steel

EnOcean®/black push-button  
RF BF 72 RS SW EN868

Material number  
1184780

EnOcean®/battery/black push-button  
RF BF 72 RS SW EN868-Li

Material number  
1187223

PRODUCTION PROCESS  
PATERNOSTER STORAGE SYSTEM



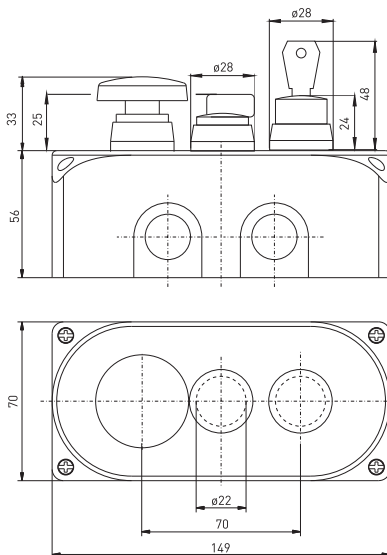
# Wireless command devices sWave®

## // Series RF BF 74

### Features/options

- Thermoplastic enclosure
- sWave® wireless technology
- No power supply, no wiring and pipe laying required
- Easy programming of receiver
- Output signal can be individually configured at the receiver

## // RF BF 74 SW868/SW915



### Technical data

<b>Standards</b>	EN 60947-5-1; EN 61000-6-2; EN 301 489-1, EN 301 489-3; EN 300 220-1, EN 300 220-2; USA: FCC ID: XK5-RF95SW915LR; Kanada: IC: 5158A-RF95SW915LR
<b>Enclosure</b>	Thermoplastic, Polyamid PA 66
<b>Degree of protection</b>	Use only with enclosure for command devices sWave®
<b>Protocol</b>	sWave®
<b>Ambient temperature</b>	- 20 °C ... + 65 °C
<b>Switching frequency</b>	approx. 12000 telegrams at repetitions/h
<b>Voltage supply</b>	Electrodynamic energy generator
<b>Frequency</b>	868.3 MHz oder 915 MHz (USA, Canada and Australia)
<b>Transmission power</b>	SW868: <25 mW, SW915: <10 mW
<b>Data rate</b>	66 kbps
<b>Channel bandwidth</b>	SW868: 266 kHz, SW915: 400 kHz
<b>Sensing range</b>	max. 450 m outside, max. 40 m inside
<b>Mech. life</b>	> 800 000 operations
<b>Actuating time</b>	min. 80 ms
<b>Note</b>	no status signal available
<b>Approvals</b>	<b>ERC</b> SW915 <b>FC</b> <b>IC</b>

### Type code

**RF BF 74 RS SW SW868**

868 MHz wireless frequency (SW915 915 MHz)  
sWave®  
Actuator RS SW (different push-buttons available)  
Series  
Command device  
Wireless technology

# Wireless command devices sWave®

## // Series RF BF 74, enclosures

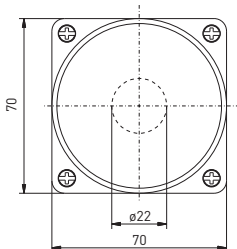
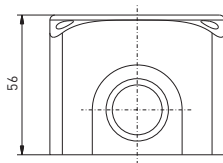
### Hinweise

- Delivery consists of single components: empty enclosure and actuators with mounted wireless module !
- The push-button RF BF 74 RSSW and RF BF 74 RSGE cannot be positioned next to each other, neither 2 of the same type

### Ordering example

RF BF 74 3 RT/RT/RSGE SW868 =  
1328080 + 1328399 + 1328399 + 1329161

## // 1 Push-button



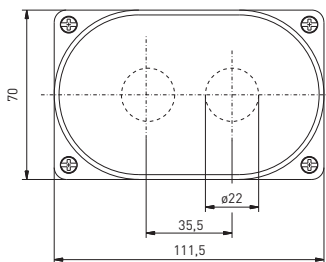
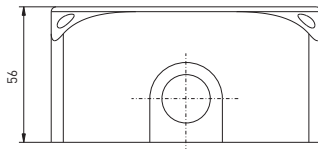
### Features/options

- Enclosure for one actuator
- Different actuators available

sWave®  
RF BF 74-1

Material number  
1328060

## // 2 Push-buttons



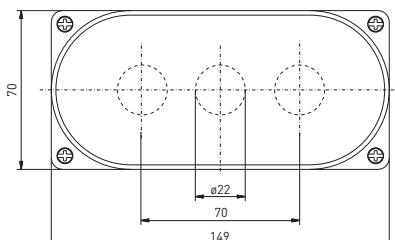
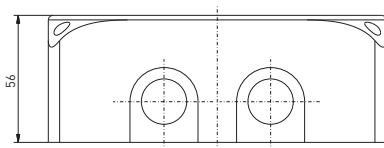
### Features/options

- Enclosure for two actuators
- Different actuators available
- Different versions possible

sWave®  
RF BF 74-2

Material number  
1328071

## // 3 Push-buttons



### Features/options

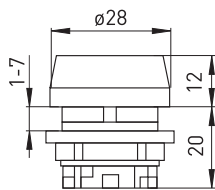
- Enclosure for three actuators
- Different actuators available
- Different versions possible

sWave®  
RF BF 74-3

Material number  
1328080

Wireless command devices sWave®  
 // Series RF BF 74, actuators

// Push-button RT



Features/options

- IP 65 for actuator RT
- IP 67 for actuator with diaphragm M
- Actuator made of plastic

sWave®

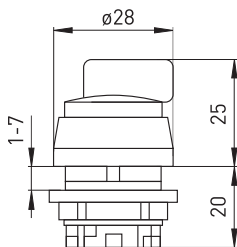
- RF BF 74 RT SW868
- RF BF 74 RTM SW868
- RF BF 74 RT SW915
- RF BF 74 RTM SW915

Material number

- 1328399
- 1328421
- 1328466
- 1329148

86

// Control switch RST



Features/options

- IP 65
- RST with spring return
- Actuator made of plastic

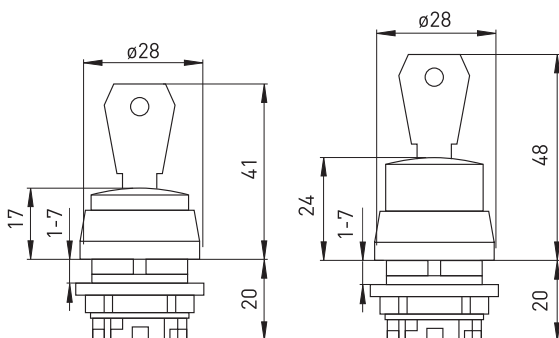
sWave®

- RF BF 74 RSTA 0 <-1 SW868
- RF BF 74 RSTA 0 <-1 SW915

Material number

- 1329205
- 1329209

// Key switch RSSA



Features/options

- IP 65
- RSSA key switch with safety cylinder lock (locks against turning)
- RSSA 14E: Actuation from middle position to the right 90° without spring return, key removal in the middle
- RSSA 15E: Actuation from middle position to the right 90° without spring return, key removal in the middle and right

sWave®

- RF BF 74 RSSA 14E SW868
- RF BF 74 RSSA 14E SW915
- RF BF 74 RSSA 15E SW868
- RF BF 74 RSSA 15E SW915

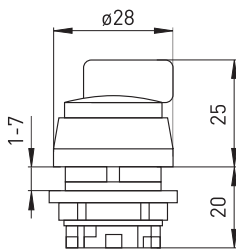
Material number

- 1329186
- 1329212
- 1329215
- 1329228

# Wireless command devices sWave®

## // Series RF BF 74, actuators

### // Selector switch RW



#### Features/options

- IP 65
- Selector with rest positions
- Actuator made of plastic

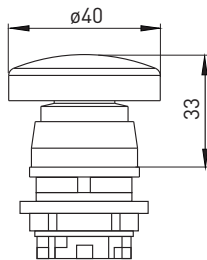
#### sWave®

RF BF 74 RWA 0 - I SW868  
RF BF 74 RWA 0 - I SW915

#### Material number

1329168  
1329199

### // Push-button RS



#### Features/options

- IP 65
- Actuator made of plastic
- Available as black push-button RSSW or yellow push-button RSGE

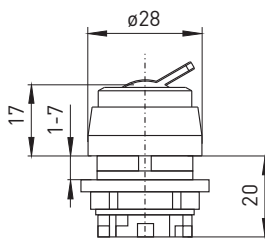
#### sWave®

RF BF 74 RS SW SW868  
RF BF 74 RS SW SW915  
RF BF 74 RS GE SW868  
RF BF 74 RS GE SW915

#### Material number

1329151  
1329158  
1329161  
1329164

### // Toggle head RK



#### Features/options

- IP 65

#### sWave®

RF BF 74 RK SW868  
RF BF 74 RK SW915

#### Material number

1329194  
1329232

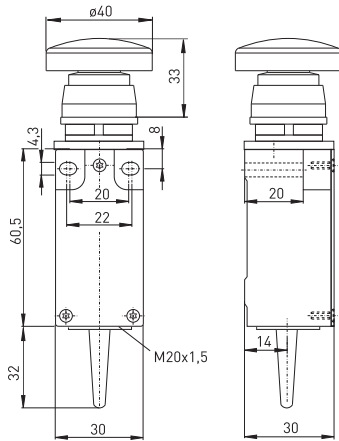
# Wireless command devices EnOcean®

## // Series RF 95 EN868

### Features/options

- Thermoplastic enclosure
- Mounting details to EN 50 047
- EnOcean® technology
- No power supply, no wiring and pipe laying required
- Easy programming of receiver
- Multi-network capable
- Output signal can be individually configured at the receiver
- Ex version for zones 1 and 21 available

## // RF 95 RS SW EN868



### Technical Data

<b>Standards</b>	EN 60947-5-1; EN 61000-6-2; EN 301 489-1; EN 301 489-3; EN 300 220-2, -3
<b>Enclosure</b>	Glass-fibre reinforced shock-proof thermoplastic, self-extinguishing UL 94-V0
<b>Cover</b>	Glass-fibre reinforced shock-proof thermoplastic, self-extinguishing UL 94-V0
<b>Tightening torque</b>	max. 1.2 ... 1.3 Nm
<b>Degree of protection</b>	IP 67 to IEC/EN 60529
<b>Protocol</b>	EnOcean®
<b>Ambient temperature</b>	-20 °C ... +65 °C
<b>Switching frequency</b>	approx. 9000 telegrams at repetitions/h
<b>Voltage supply</b>	Electrodynamical energy generator
<b>Frequency</b>	868.3 MHz
<b>Transmission power</b>	max. 10 mW
<b>Data rate</b>	120 kbps
<b>Channel bandwidth</b>	280 kHz
<b>Sensing range</b>	max. 200 m outside, max. 20 m inside
<b>Mechanical life</b>	> 1 million operations
<b>Actuating time</b>	min. 80 ms
<b>Note</b>	no status signal available

### Type code

RF 95 RS SW EN868

868 MHz wireless frequency  
EnOcean®  
Actuator RS SW (different push-buttons available)  
Series  
Wireless technology



# Wireless command devices sWave®

## // Series RF 95 SW868/SW915

### Features/options

- Thermoplastic enclosure
- Mounting details to EN 50 047
- sWave® technology
- No power supply, no wiring and pipe laying required
- Easy programming of receiver
- Output signal can be individually configured at the receiver

## // RF 95 RS SW SW868/SW915

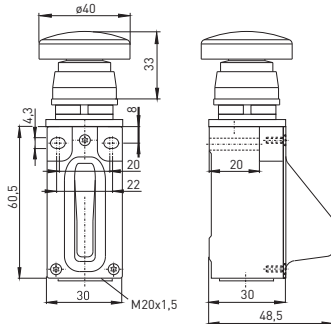


### Technical Data

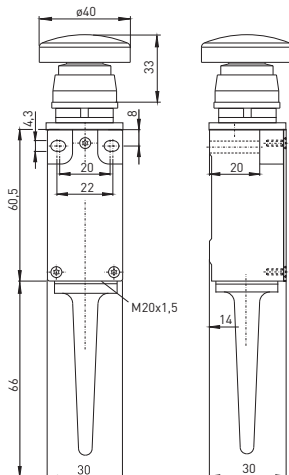
<b>Standards</b>	EN 60947-5-1; EN 61000-6-2; EN 301 489-1; EN 301 489-3; EN 300 220-1, -2; USA: FCC, XK5- RF95SW915SR, XK5-RF95SW915LR; Kanada: IC: 5158A-RF95SW915SR, 5158A- RF95SW915LR
<b>Enclosure</b>	Glass-fibre reinforced shock-proof thermo- plastic, self-extinguishing UL 94-V0
<b>Cover</b>	Glass-fibre reinforced shock-proof thermo- plastic, self-extinguishing UL 94-V0
<b>Tightening torque</b>	max. 1.2 ... 1.3 Nm
<b>Degree of protection</b>	IP 67 to IEC/EN 60529
<b>Protocol</b>	sWave®
<b>Ambient temperature</b>	-20 °C ... +65 °C
<b>Switching frequency</b>	approx. 12000 telegrams at repetitions/h
<b>Voltage supply</b>	Electrodynamic energy generator
<b>Frequency</b>	868.3 MHz or 915 MHz (USA, Canada and Australia)
<b>Transmission power</b>	SW868: <25 mW, SW915: <10 mW
<b>Data rate</b>	66 kbps
<b>Channel bandwidth</b>	SW868: 266 kHz, SW915: 400 kHz
<b>Sensing range</b>	LR: max. 450 m outside, max. 40 m inside ULR: max. 700 m outside, max. 50 m inside
<b>Mechanical life</b>	> 1 million operations
<b>Actuating time</b>	min. 80 ms
<b>Note</b>	no status signal available
<b>Approvals</b>	<b>CE</b> SW915 <b>FC</b> <b>IC</b>

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### RF 95 LR



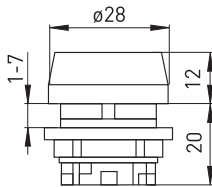
### RF 95 ULR



### Type code

<b>RF 95</b>	<b>RS</b>	<b>SW</b>	<b>LR</b>	<b>SW868</b>
				868 MHz wireless fre- quency (SW915 915 MHz)
				sWave®
				Long Range (ULR Ultra Long Range)
				Actuator RS SW (different push-buttons available)
				Series
				Wireless technology

// Push-button RT

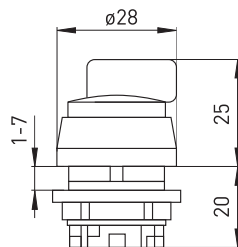


Features/options

- IP 65 for actuator RT, IP 67 for actuator with diaphragm RTM
- Available on request with actuator made of stainless steel

<b>EnOcean®</b>	<b>Material number</b>
RF 95 RT EN868	1183916
RF 95 RTM EN868	1189171
<b>sWave®</b>	<b>Material number</b>
RF 95 RT LR SW868	1331939
RF 95 RTM LR SW868	1190441
RF 95 RT ULR SW868	1190489
RF 95 RTM ULR SW868	on request
RF 95 RT LR SW915	1228606
RF 95 RTM LR SW915	1215493
RF 95 RT ULR SW915	1263995
RF 95 RTM ULR SW915	1263938

// Control switch RST

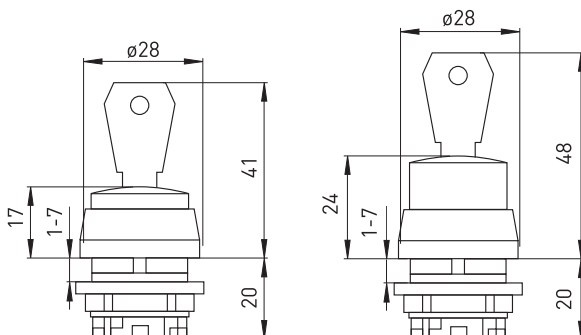


Features/options

- IP 65
- Control switch RST with spring return
- Actuator made of plastic
- Available on request with actuator made of stainless steel

<b>EnOcean®</b>	<b>Material number</b>
RF 95 RSTA 0 <- I EN868	1189174
<b>sWave®</b>	<b>Material number</b>
RF 95 RSTA 0 <- I LR SW868	on request
RF 95 RSTA 0 <- I ULR SW868	on request
RF 95 RSTA 0 <- I LR SW915	1262884
RF 95 RSTA 0 <- I ULR SW915	1263864

// Key switch RSSA

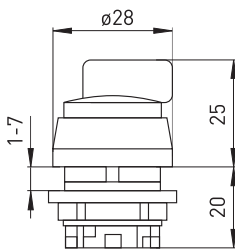


Features/options

- IP 65
- RSSA key switch with safety cylinder lock (locks against turning)
- Standard version always has same key number
- Available on request with actuator made of stainless steel

<b>EnOcean®</b>	<b>Material number</b>
RF 95 RSSA 14 EN868	1189175
<b>sWave®</b>	<b>Material number</b>
RF 95 RSSA 14 LR SW868	1190453
RF 95 RSSA 14 ULR SW868	on request
RF 95 RSSA 14 LR SW915	1262944
RF 95 RSSA 14 ULR SW915	1263809

## // Selector switch RW



### Features/options

- IP 65
- Selector with rest positions
- Actuator made of plastic
- Available on request with actuator made of stainless steel

### EnOcean®

RF 95 RWA 0 - I EN868

**Material number**  
1183913

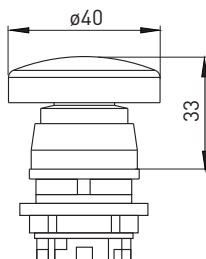
### sWave®

RF 95 RWA 0 - I LR SW868  
RF 95 RWA 0 - I ULR SW868  
RF 95 RWA 0 - I LR SW915  
RF 95 RWA 0 - I ULR SW915

**Material number**  
on request  
on request  
1262997  
1263049

91

## // Push-button RS



### Features/options

- IP 65
- Actuator made of plastic

**EnOcean®/ black push-button**  
RF 95 RS SW EN868

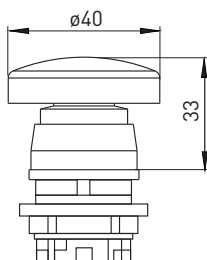
**Material Number**  
1181899

### sWave®/ black push-button

RF 95 RS SW LR SW868  
RF 95 RS SW ULR SW868  
RF 95 RS SW LR SW915  
RF 95 RS SW ULR SW915

**Material number**  
1190454  
1190492  
1209383  
1190554

## // Push-button with latching RV



### Features/options

- IP 65
- Actuator made of plastic

**EnOcean®/black push-button**  
RF 95 RV SW EN868

**Material Number**  
1182270

**EnOcean®/yellow push-button**  
RF 95 RV GE EN868

**Material Number**  
1184678

### sWave®/black push-button

RF 95 RV SW LR SW868  
RF 95 RV SW ULR SW868  
RF 95 RV SW LR SW915  
RF 95 RV SW ULR SW915

**Material number**  
on request  
on request  
1190556  
1190555

Wireless hand controls sWave®  
 // Series RF HB SW868/SW915-4CH

Features/options

- Thermoplastic enclosure
- sWave® technology
- No wiring and pipe laying required
- Power supply by Lithium battery
- Easy programming of receiver
- Output signal can be individually configured at the receiver

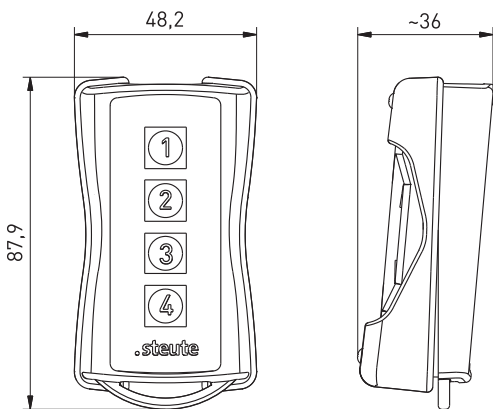
// RF HB SW868/SW915-4CH



Technical Data

Standards	EN 60947-5-1; EN 61000-6-2; EN 301 489-1, EN 301 489-3; EN 300 220-1, EN 300 220-2; USA: FCC, XK5-RFRXSW915; Canada: IC: 5158A-RFRXSW915
Enclosure	ABS / TPE
Degree of protection	IP 54 to IEC/EN 60529
Protocol	sWave®
Ambient temperature	-20 °C ... +65 °C
Switching frequency	approx. 12000 telegrams at repetitions/h
Voltage supply	Lithium battery CR 2032 (replaceable)
Frequency	868.3 MHz or 915 MHz (USA, Canada, Australia)
Transmission power	SW868: <25 mW, SW915: <10 mW
Data rate	66 kbps
Channel bandwidth	SW868: 266 kHz, SW915: 400 kHz
Sensing range	max. 450 m outside, max. 50 m inside
Mechanical life	> 1 million operations
Battery life	> 800,000 operations
Note	transmission of battery voltage and switching condition
Approvals	<b>ERC</b> SW915 <b>FC</b> <b>IC</b>

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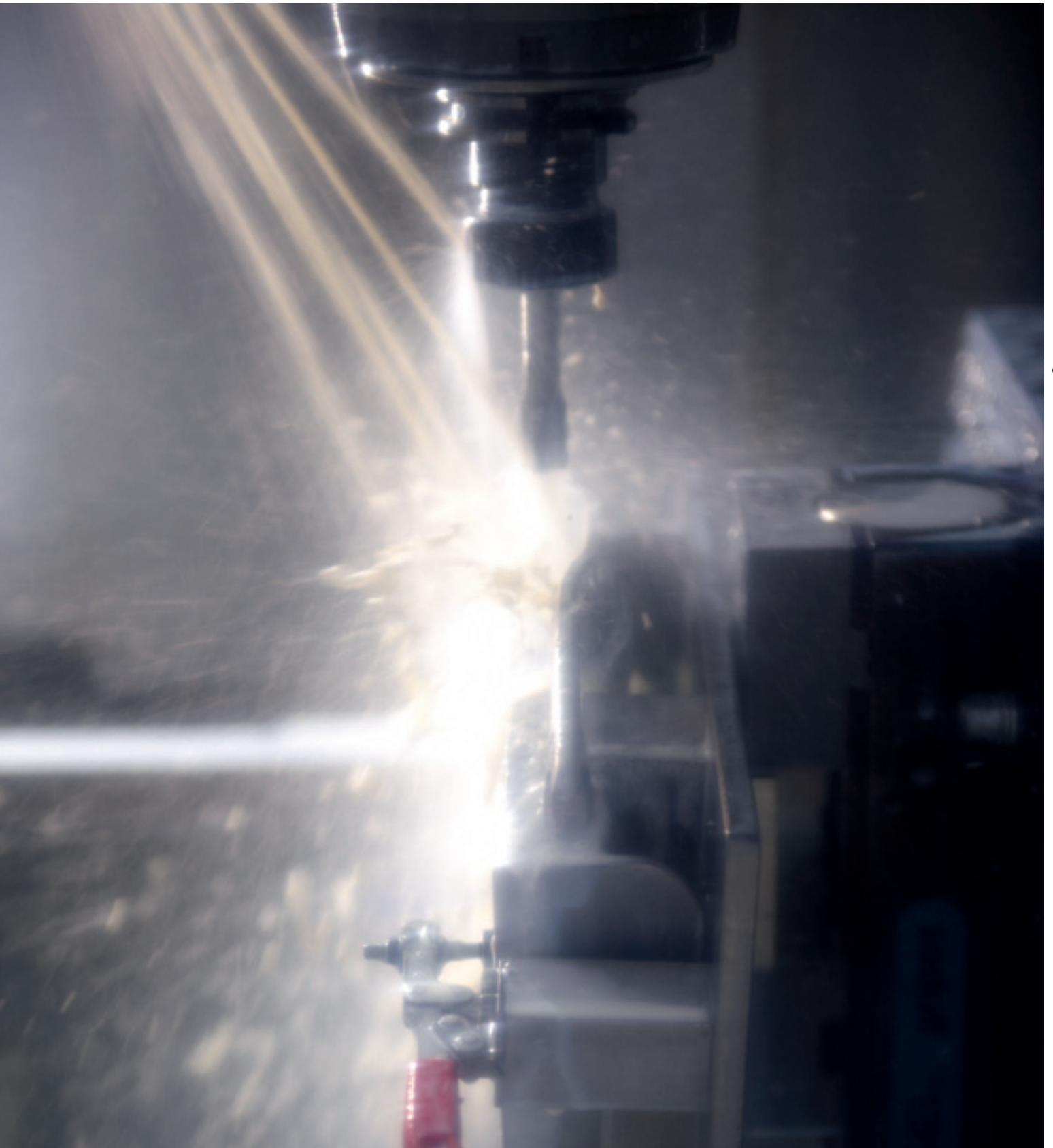
Wireless hand controls  
 RF HB SW868-4CH  
 RF HB SW915-4CH  
 Spare part Lithium Battery CR2032

Material Number  
 1293549  
 1316916  
 1341953

Type code	<b>RF HB SW868-4CH</b>
	4-channel
	Wireless frequency 868 MHz (SW915 915 MHz)
	sWave®
	Hand control
	Wireless technology

PRODUCTION PROCESS

MECHANICAL MACHINING OF FOOT SWITCH ENCLOURES



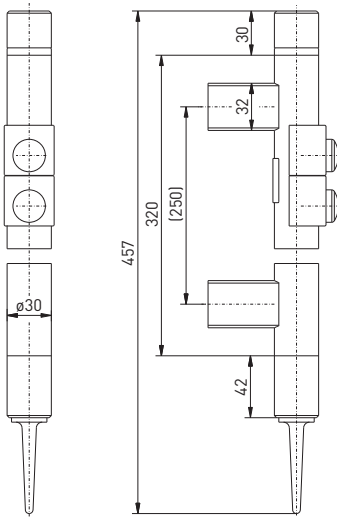
# Wireless multifunction handles sWave®

// Series RF TGM SW868/SW915

## Features/options

- Metal enclosure
- sWave® technology
- up to 4 push-buttons possible
- No wiring and pipe laying required
- Power supply by Lithium battery
- Easy programming of receiver
- Output signal can be individually configured at the receiver

// RF TGM SW868/SW915



## Wireless multifunction handle

RF TGM SW868-SS  
RF TGM SW915-SS

## Material Number

1346345  
on request

## Technical Data

<b>Standards</b>	EN 60947-5-1; EN 61000-6-2; EN 301 489-1; EN 301 489-3; EN 300 220-1; EN 300 220-2; USA: FCC, XK5-RFRXSW915; Canada: IC: 5158A-RFRXSW915 stainless steel V2A (1.4301)
<b>Enclosure</b>	stainless steel V2A (1.4301)
<b>Degree of protection</b>	IP 67 to IEC/EN 60529
<b>Switching system</b>	push-button
<b>Protocol</b>	sWave®
<b>Ambient temperature</b>	-20 °C ... +65 °C
<b>Operating cycles</b>	5 Hz
<b>Voltage supply</b>	Battery 2/3 AA, SL-361/P, 1.6 Ah (replaceable)
<b>Frequency</b>	868.3 MHz oder 915 MHz (USA, Canada, Australia)
<b>Transmission power</b>	SW868: <25 mW, SW915: <10 mW
<b>Data rate</b>	66 kbps
<b>Channel bandwidth</b>	SW868: 266 kHz, SW915: 400 kHz
<b>Sensing range</b>	max. 450 m outside, max. 40 m inside
<b>Mechanical life</b>	> 1 million operations
<b>Battery life</b>	> 800 000 operations
<b>Actuating time</b>	min. 80 ms
<b>Note</b>	status signal configurable ex works, transmission of battery voltage
<b>Approvals</b>	<b>EMC</b> SW915 <b>FC</b> <b>IC</b>

## Type code

RF TGM SW868-S

1 NO contact (SS 2 NO, SSS 3 NO, SSSS 4 NO contacts)  
Wireless frequency 868 MHz (SW915 915 MHz)  
sWave®  
Multifunction handle  
Wireless technology

Other handle lengths and several push-buttons available on request.

PRODUCTION PROCESS  
COLOUR COATING OF PROTECTIVE SHIELDS



# Wireless foot switches EnOcean®

## // Series RF GFI EN868

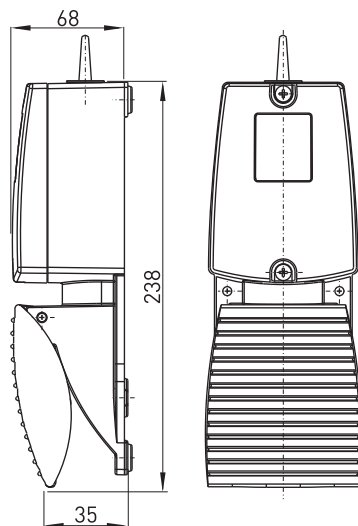
### Features/options

- Metal enclosure
- Available on request with special finish in RAL colour tones
- EnOcean® technology
- No power supply, no wiring and pipe laying required
- Easy programming of receiver
- Multi-network capable
- Output signal can be individually configured at the receiver
- Ex version for zones 1 and 21 available

### Technical data

Standards	EN 60947-5-1; EN 61000-6-2; EN 301 489-1; EN 301 489-3; EN 300 220-2, -3
Enclosure	aluminium die-cast, enamel finish, RAL 5011
Cover	aluminium die-cast, enamel finish, RAL 2004
Pedal	aluminium die-cast, enamel finish, RAL 5011
Degree of protection	IP 67 to IEC/EN 60529
Protocol	EnOcean®
Ambient temperature	-20 °C ... +65 °C
Switching frequency	approx. 9000 telegrams at repetitions/h
Voltage supply	Electrodynamic energy generator
Frequency	868.3 MHz
Transmission power	max. 10 mW
Data rate	120 kbps
Channel bandwidth	280 kHz
Sensing range	max. 200 m outside, max. 20 m inside
Mechanical life	> 1 million operations
Actuating time	min. 80 ms
Note	no status signal available

### // RF GFI EN868



Wireless foot switch  
RF GFI EN868

Material Number  
1181367

### Type code

**RF GFI EN868**

868 MHz wireless frequency  
EnOcean®  
Series  
Wireless technology

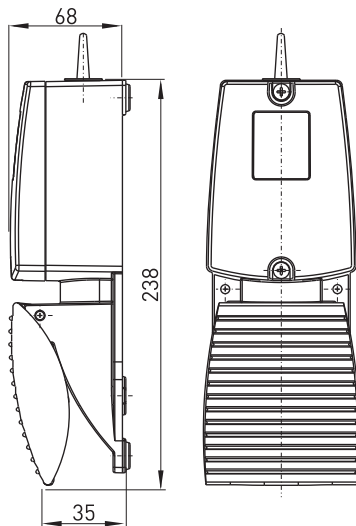


Wireless foot switches sWave®  
 // Series RF GFI SW868/SW915

Features/options

- Metal enclosure
- Available on request with special finish in RAL colour tones
- sWave® technology
- No power supply, no wiring and pipe laying required
- Easy programming of receiver
- Output signal can be individually configured at the receiver

// RF GFI SW868/SW915



Wireless foot switch

RF GFI SW868  
 RF GFI SW915

Material Number

1269066  
 1224029

Technical Data

Standards	EN 60947-5-1; EN 61000-6-2; EN 301 489-1; EN 301 489-3; EN 300 220-1, -2; USA: FCC, XK5- RF95SW915LR; Canada: IC: 5158A- RF95SW915LR
Enclosure	aluminium die-cast, enamel finish, RAL 5011
Cover	aluminium die-cast, enamel finish, RAL 2004
Pedal	aluminium die-cast, enamel finish, RAL 5011
Degree of protection	IP 67 to IEC/EN 60529
Protocol	sWave®
Ambient temperature	-20 °C ... +65 °C
Switching frequency	approx. 12000 telegrams at repetitions/h
Voltage supply	Electrodynamic energy generator
Frequency	868.3 MHz or 915 MHz (USA, Canada and Australia)
Transmission power	SW868: <25 mW, SW915: <10 mW
Data rate	66 kbps
Channel bandwidth	SW868: 266 kHz, SW915: 400 kHz
Sensing range	max. 700 m outside, max. 50 m inside
Mechanical life	> 1 million operations
Actuating time	min. 80 ms
Note	no status signal available
Approvals	<b>ERL</b> SW915 <b>FC</b> <b>IC</b>

Type code

RF GFI SW868

868 MHz wireless frequency  
 (SW915 915 MHz)  
 sWave®  
 Series  
 Wireless technology

# Wireless foot switches EnOcean®

## // Series RF GFSI EN868

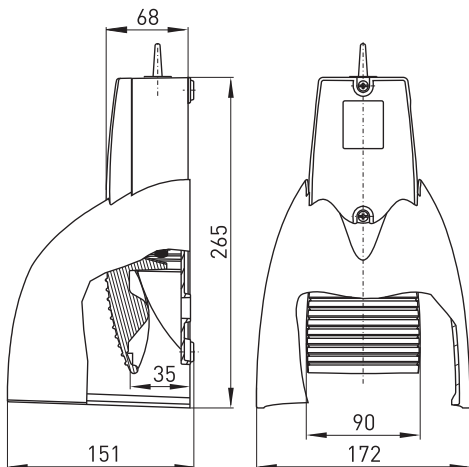
### Features/options

- Metal enclosure
- Available on request with special finish in RAL colour tones
- EnOcean® technology
- No power supply, no wiring and pipe laying required
- Easy programming of receiver
- Multi-network capable
- Output signal can be individually configured at the receiver
- Ex version for zones 1 and 21 available

### // RF GFSI EN868



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Wireless foot switch  
RF GFSI EN868

Material Number  
1181374

### Technical data

<b>Standards</b>	EN 60947-5-1; EN 61000-6-2; EN 301 489-1; EN 301 489-3; EN 300 220-2, -3
<b>Enclosure</b>	aluminium die-cast, enamel finish, RAL 5011
<b>Pedal</b>	aluminium die-cast, enamel finish, RAL 5011
<b>Protective shield</b>	aluminium die-cast, enamel finish, RAL 2004
<b>Degree of protection</b>	IP 67 to IEC/EN 60529
<b>Protocol</b>	EnOcean®
<b>Ambient temperature</b>	-20 °C ... +65 °C
<b>Switching frequency</b>	approx. 9000 telegrams at repetitions/h
<b>Voltage supply</b>	Electrodynamic energy generator
<b>Frequency</b>	868.3 MHz
<b>Transmission power</b>	max. 10 mW
<b>Data rate</b>	120 kbps
<b>Channel bandwidth</b>	280 kHz
<b>Sensing range</b>	max. 200 m outside, max. 20 m inside
<b>Mechanical life</b>	> 1 million operations
<b>Actuating time</b>	min. 80 ms
<b>Note</b>	no status signal available

### Type code

**RF GFSI EN868**

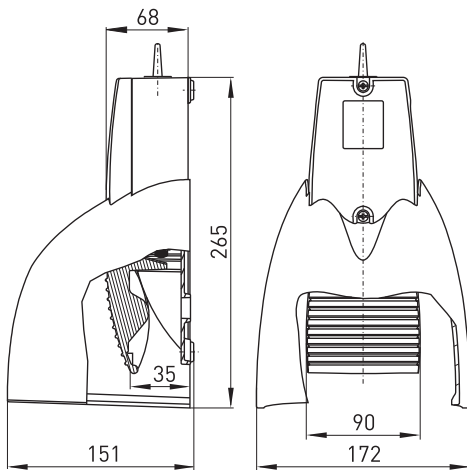
868 MHz wireless frequency  
EnOcean®  
Series  
Wireless technology

Wireless foot switches sWave®  
 // Series RF GFSI SW868/SW915

Features/options

- Metal enclosure
- Available on request with special finish in RAL colour tones
- sWave® technology
- No power supply, no wiring and pipe laying required
- Easy programming of receiver
- Output signal can be individually configured at the receiver

// RF GFSI SW868/SW915



Wireless foot switch  
 RF GFSI SW868  
 RF GFSI SW915

Material Number  
 1269225  
 1225705

Technical Data

Standards	EN 60947-5-1; EN 61000-6-2; EN 301 489-1; EN 301 489-3; EN 300 220-1, -2; USA: FCC, XK5- RF95SW915LR; Canada: IC: 5158A- RF95SW915LR
Enclosure	aluminium die-cast, enamel finish, RAL 5011
Pedal	aluminium die-cast, enamel finish, RAL 5011
Protective shield	aluminium die-cast, enamel finish, RAL 2004
Degree of protection	IP 67 to IEC/EN 60529
Protocol	sWave®
Ambient temperature	-20 °C ... +65 °C
Switching frequency	approx. 12000 telegrams at repetitions/h
Voltage supply	Electrodynamic energy generator
Frequency	868.3 MHz or 915 MHz (USA, Canada and Australia)
Transmission power	SW868: <25 mW, SW915: <10 mW
Data rate	66 kbps
Channel bandwidth	SW868: 266 kHz, SW915: 400 kHz
Sensing range	max. 700 m outside, max. 50 m inside
Mechanical life	> 1 million operations
Actuating time	min. 80 ms
Note	no status signal available
Approvals	<b>EAR</b> SW915 <b>FC</b> <b>IC</b>

Type code

RF GFSI SW868

868 MHz wireless frequency  
 (SW915 915 MHz)  
 sWave®  
 Series  
 Wireless technology

# Wireless pull-wire switches EnOcean®

## // Series RF 95 WH/90° EN868

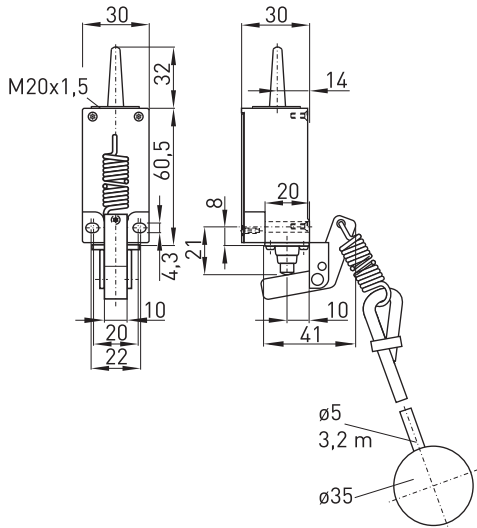
### Features/options

- Thermoplastic enclosure
- Mounting details to EN 50 047
- Including 3.2 m long pull-wire and ball
- EnOcean® technology
- No power supply, no wiring and pipe laying required
- Easy programming of receiver
- Multi-network capable
- Output signal can be individually configured at the receiver
- Ex version for zones 1 and 21 available

### Technical Data

<b>Standards</b>	EN 60947-5-1; EN 61000-6-2; EN 301 489-1; EN 301 489-3; EN 300 220-2, -3
<b>Enclosure</b>	Glass-fibre reinforced shock-proof thermoplastic, self-extinguishing UL 94-V0
<b>Cover</b>	Glass-fibre reinforced shock-proof thermoplastic, self-extinguishing UL 94-V0
<b>Tightening torque</b>	max. 1.2 ... 1.3 Nm
<b>Degree of protection</b>	IP 67 to IEC/EN 60529
<b>Protocol</b>	EnOcean®
<b>Ambient temperature</b>	-20 °C ... +65 °C
<b>Switching frequency</b>	approx. 9000 telegrams at repetitions/h
<b>Voltage supply</b>	Electrodynamic energy generator
<b>Frequency</b>	868.3 MHz
<b>Transmission power</b>	max. 10 mW
<b>Data rate</b>	120 kbps
<b>Channel bandwidth</b>	280 kHz
<b>Sensing range</b>	max. 200 m outside, max. 20 m inside
<b>Mechanical life</b>	> 1 million operations
<b>Actuating time</b>	min. 80 ms
<b>Note</b>	no status signal available

## // RF 95 WH/90° EN868



Wireless pull-wire switch  
RF 95 WH/90° EN868

Material Number  
1181193

<b>Type code</b>	<b>RF 95 WH/90° EN868</b>
	868 MHz wireless frequency
	EnOcean®
	Actuator H/90°
	Watertight collar
	Series
	Wireless technology

# Wireless pull-wire switches sWave®

## // Series RF 95 WH/90° SW868/SW915

### Features/options

- Thermoplastic enclosure
- Mounting details to EN 50 047
- Including 3.2 m long pull-wire and ball
- sWave® technology
- No power supply, no wiring and pipe laying required
- Easy programming of receiver
- Output signal can be individually configured at the receiver

## // RF 95 WH/90° SW868/SW915

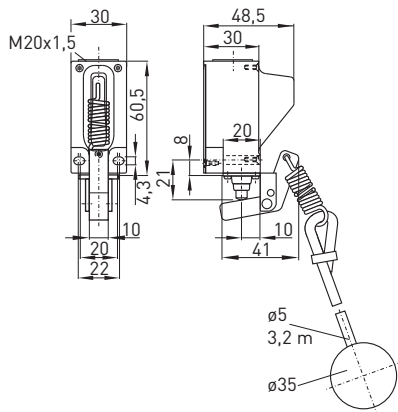


### Technical Data

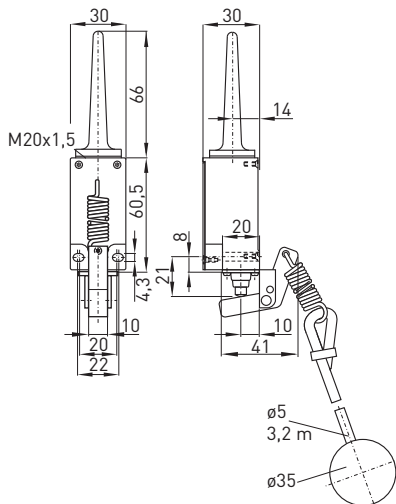
<b>Standards</b>	EN 60947-5-1; EN 61000-6-2; EN 301 489-1; EN 301 489-3; EN 300 220-1, -2; USA: FCC, XK5- RF95SW915SR, XK5-RF95SW915LR; Canada: IC: 5158A-RF95SW915SR, 5158A- RF95SW915LR
<b>Enclosure</b>	Glass-fibre reinforced shock-proof thermo- plastic, self-extinguishing UL 94-V0
<b>Cover</b>	Glass-fibre reinforced shock-proof thermo- plastic, self-extinguishing UL 94-V0
<b>Tightening torque</b>	max. 1.2 ... 1.3 Nm
<b>Degree of protection</b>	IP 67 to IEC/EN 60529
<b>Protocol</b>	sWave®
<b>Ambient temperature</b>	-20 °C ... +65 °C
<b>Switching frequency</b>	approx. 12000 telegrams at repetitions/h
<b>Voltage supply</b>	Electrodynamic energy generator
<b>Frequency</b>	868.3 MHz or 915 MHz (USA, Canada and Australia)
<b>Transmission power</b>	SW868: <25 mW, SW915: <10 mW
<b>Data rate</b>	66 kbps
<b>Channel bandwidth</b>	SW868: 266 kHz, SW915: 400 kHz
<b>Sensing range</b>	LR: max. 450 m outside, max. 40 m inside ULR: max. 700 m outside, max. 50 m inside
<b>Mechanical life</b>	> 1 million operations
<b>Actuating time</b>	min. 80 ms
<b>Note</b>	no status signal available
<b>Approvals</b>	<b>CE</b> SW915 <b>FC</b> <b>IC</b>

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### RF 95 LR



### RF 95 ULR



<b>Wireless pull-wire switch</b>	<b>Material Number</b>
RF 95 WH/90° LR SW868	1208145
RF 95 WH/90° LR SW915	1211856
RF 95 WH/90° ULR SW868	on request
RF 95 WH/90° ULR SW915	1261750

### Type code

### RF 95 WH/90° LR SW868

868 MHz wireless  
frequency (SW915  
915 MHz)  
sWave®  
Long Range (ULR Ultra  
Long Range)  
Actuator H/90°  
Watertight collar  
Series  
Wireless technology

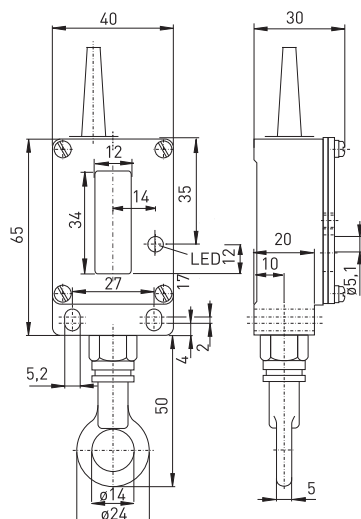
# Wireless pull-wire switches EnOcean®

## // Series RF 41 Z EN868

### Features/options

- Metal enclosure
- EnOcean® technology
- No wiring and pipe laying required
- Integrated solar cell, no battery/rechargeable battery required
- Easy programming of receiver
- Multi-network capable
- Output signal can be individually configured at the receiver

## // RF 41 Z EN868



Wireless pull-wire switch  
RF 41 Z EN868  
RF 41 WZ EN868

Material Number  
1178306  
on request

## Technical Data

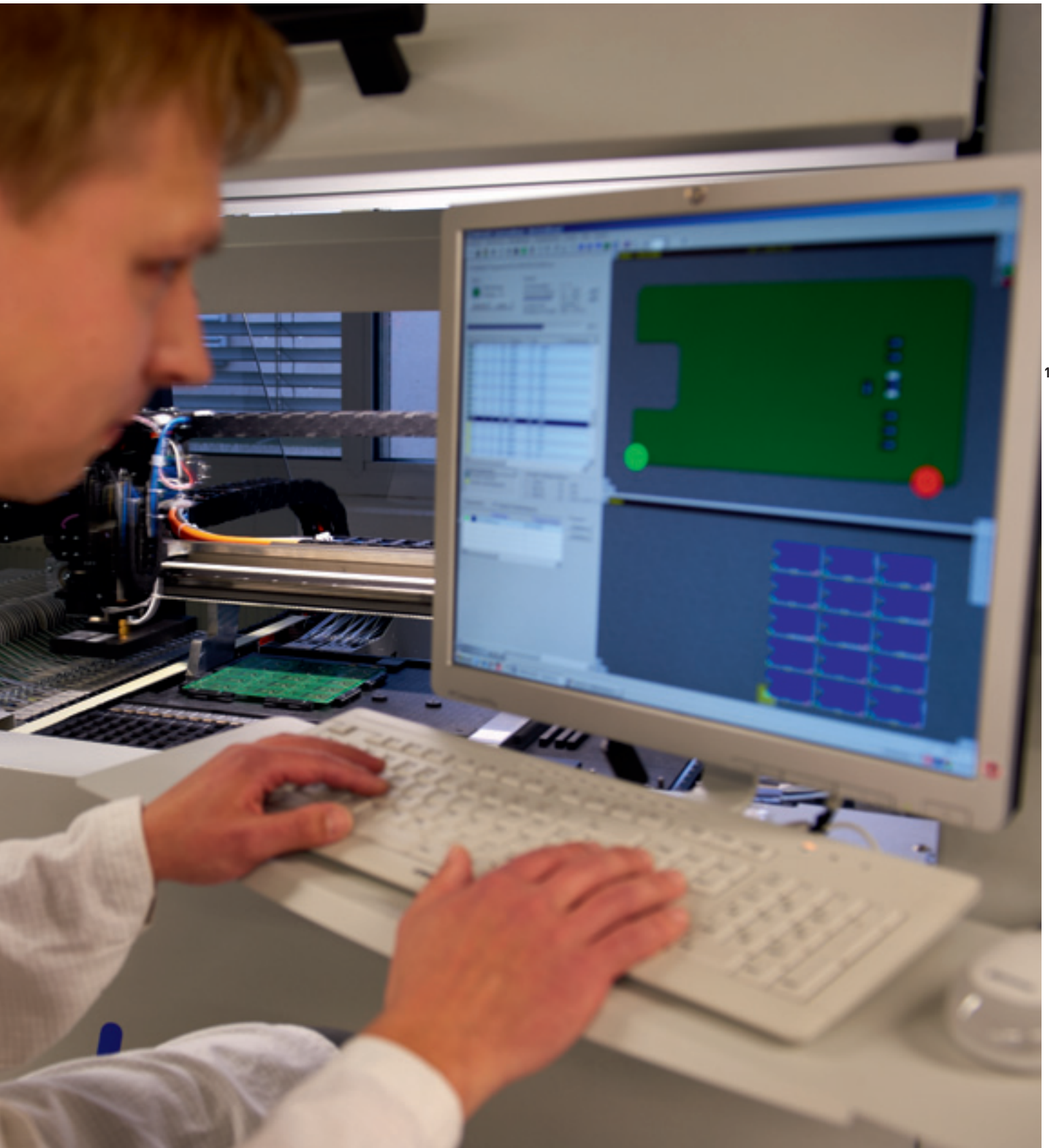
Standards	EN 60947-5-1, EN 61000-6-2; EN 301 489-1, EN 301 489-3, EN 300 220-2, -3
Enclosure	aluminium die-cast, powder-coated
Cover	Glass-fibre reinforced thermoplastic
Degree of protection	IP 65 to IEC/EN 60529
Protocol	EnOcean®
Ambient temperature	-20 °C ... +65 °C
Switching frequency	approx. 9000 telegrams at repetitions/h
Voltage supply	Solar cell
Frequency	868.3 MHz
Transmission power	max. 10 mW
Data rate	120 kbps
Channel bandwidth	280 kHz
Sensing range	max. 300 m outside, max. 30 m inside
Mechanical life	> 1 million operations
Switching on with empty energy supply	< 10 min at 400 lx
Charging time with empty energy supply	approx. 6 h at 400 lx, approx. 1.5 h at 1000 lx
Charging time at operation limit	1 h at 400 lx, approx. 15 min at 1000 lx
Operation time in darkness	approx. 48 h, with status signal every 3h, when the goldcap is totally charged at 1000 lx
Actuating time	min. 80 ms
Note	status signal configurable ex works,

### Type code

RF 41 WZ EN868

868 MHz wireless frequency  
EnOcean®  
Actuator Z  
Watertight collar  
Series 41  
Wireless technology

PRODUCTION PROCESS  
ASSEMBLY OF COMPONENTS



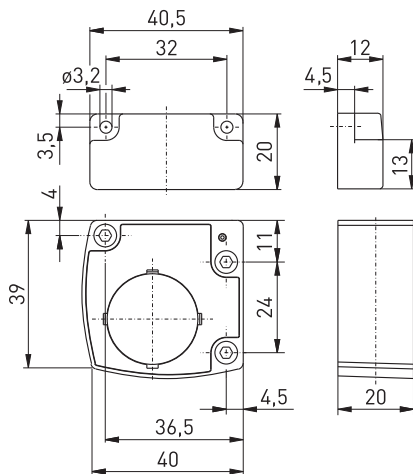
# Wireless magnetic sensors EnOcean®

## // Series RF RC 10 EN868

### Features/options

- Thermoplastic enclosure
- EnOcean® technology
- No wiring and pipe laying required
- Power supply by Lithium battery
- Easy programming of receiver
- Multi-network capable
- Output signal can be individually configured at the receiver

## // RF RC 10 EN868



## Technical Data

<b>Standards</b>	EN 60947-5-1; EN 61000-6-2; EN 301 489-1; EN 301 489-3; EN 300 220-2, -3
<b>Enclosure</b>	thermoplastic, Polyamid PA 66
<b>Tightening torque</b>	max. 0.5 ... 0.6 Nm
<b>Degree of protection</b>	IP 67 to IEC/EN 60529
<b>Protocol</b>	EnOcean®
<b>Ambient temperature</b>	- 20 °C ... + 65 °C
<b>Switching element</b>	Reed contact
<b>Switching distance</b>	> 10 mm
<b>Hysteresis</b>	< 1 mm
<b>Switching frequency</b>	approx. 9000 telegrams at repetitions/h
<b>Voltage supply</b>	Lithium-battery CR 2032 (replaceable)
<b>Capacity</b>	210 mAh
<b>Frequency</b>	868.3 MHz
<b>Transmission power</b>	max. 10 mW
<b>Data rate</b>	120 kbps
<b>Channel bandwidth</b>	280 kHz
<b>Sensing range</b>	max. 150 m outside, max. 20 m inside
<b>Mechanical life</b>	> 1 million operations
<b>Battery life</b>	> 800,000 operations
<b>Actuating time</b>	min. 80 ms
<b>Mounting actuator</b>	min. 8 mm distance to ferromagnetic material
<b>Note</b>	no status signal available; actuator required as accessory

### Wireless magnetic sensor

RF RC 10 EN868

Actuator M 4

Spare part Lithium Battery CR2032

### Material Number

1186800

1186763

1341953

### Type code

RF RC 10 EN868

868 MHz wireless frequency  
EnOcean®  
Series  
Magnetic sensor  
Wireless technology



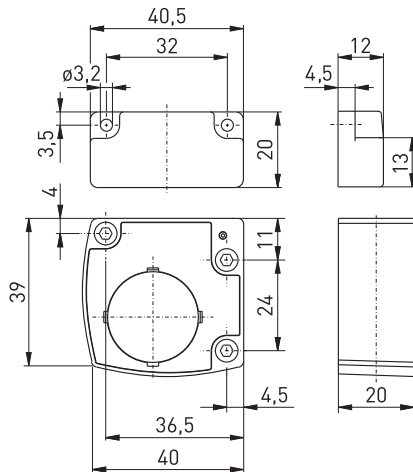
# Wireless magnetic sensors sWave®

## // Series RF RC 10 SW868/SW915

### Features/options

- Thermoplastic enclosure
- sWave® technology
- No wiring and pipe laying required
- Power supply by Lithium battery
- Easy programming of receiver
- Output signal can be individually configured at the receiver

## // RF RC 10 SW868/SW915



### Wireless magnetic sensor

- RF RC 10 SW868
- RF RC 10 SW915
- Actuator M 4
- Spare part Lithium Battery CR2032

### Material Number

- 1271243
- 1271511
- 1186763
- 1341953

## Technical Data

<b>Standards</b>	EN 60947-5-1; EN 61000-6-2; EN 301 489-1; EN 301 489-3; EN 300 220-1, EN 300 220-2; USA: FCC, XK5-RFRXSW915; Canada: IC: 5158A-RFRXSW915
<b>Enclosure</b>	Thermoplastic, Polyamid PA 66
<b>Tightening torque</b>	max. 0.5 ... 0.6 Nm
<b>Degree of protection</b>	IP 67 to IEC/EN 60529
<b>Protocol</b>	sWave®
<b>Ambient temperature</b>	-20 °C ... +65 °C
<b>Switching element</b>	Reed contact
<b>Switching distance</b>	> 10 mm
<b>Hysteresis</b>	< 1 mm
<b>Switching frequency</b>	approx. 12000 telegrams at repetitions/h
<b>Voltage supply</b>	Lithium-battery CR 2032 (replaceable)
<b>Capacity</b>	210 mAh
<b>Frequency</b>	868.3 MHz or 915 MHz (USA, Canada and Australia)
<b>Transmission power</b>	SW868: <25 mW, SW915: <10 mW
<b>Data rate</b>	66 kbps
<b>Channel bandwidth</b>	SW868: 266 kHz, SW915: 400 kHz
<b>Sensing range</b>	max. 400 m outside, max. 50 m inside
<b>Mechanical life</b>	> 1 million operations
<b>Battery life</b>	> 800 000 operations
<b>Actuating time</b>	min. 80 ms
<b>Mounting actuator</b>	min. 8 mm distance to ferromagnetic material
<b>Note</b>	no status signal available; actuator required as accessory
<b>Approvals</b>	<b>EMC</b> SW915 <b>FC</b> <b>IC</b>

105

### Type code

**RF RC 10 SW868**

868 MHz wireless frequency  
(SW915 915 MHz)  
sWave®  
Series  
Magnetic sensor  
Wireless technology

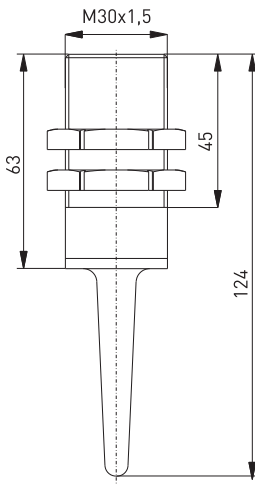
# Wireless magnetic sensors sWave®

## // Series RF RC M30 SW868/SW915-KST

### Features/options

- Thermoplastic enclosure
- RF RC M30 ... : Sensor with reed contact
- RF GS M30 ... : Sensor based on GMR effect
- RF HS M30 ... : Sensor with Hall sensor
- sWave® technology
- No wiring and pipe laying required
- Power supply by Lithium battery
- Easy programming of receiver
- Output signal can be individually configured at the receiver

### // RF RC M30 SW868/SW915-KST



### Technical Data

<b>Standards</b>	EN 60947-5-1; EN 61000-6-2; EN 301 489-1; EN 301 489-3; EN 300 220-2, EN 300 220-3; USA: FCC, XK5-RFRXSW915; Canada: IC: 5158A-RFRXSW915
<b>Enclosure</b>	PVC-C grey
<b>Mounting type</b>	flush, in not ferromagnetic material
<b>Switching system</b>	Reed contact MK17, GMR sensor or Hall element
<b>Switching element</b>	NO function
<b>Switching distances</b>	Rated operating switching distance $s_n$ M100: >15 mm, M30 Niro: >30 mm; switch-on distance $s_a$ M100: 0 ... 12.15 mm, M30 Niro: 0 ... 24.3 mm
<b>Hysteresis</b>	< 1 mm
<b>Degree of protection</b>	IP 67 to IEC/EN 60529
<b>Protocol</b>	sWave®
<b>Ambient temperature</b>	- 25 °C ... + 65 °C
<b>Switching frequency</b>	approx. 12,000 telegrams at repetitions/h
<b>Operating cycles</b>	max. 5 Hz
<b>Voltage supply</b>	Lithium battery CR 2032, replaceable without transmissions: Reed contact: approx. 1 µA; GMR sensor: <5 µA, Hall sensor: <10 µA
<b>Current consumption</b>	868.3 MHz or 915 MHz (USA, Canada and Australia)
<b>Frequency</b>	SW868: <25 mW, SW915: <10 mW
<b>Transmission power</b>	66 kbps
<b>Data rate</b>	SW868: 266 kHz, SW915: 400 kHz
<b>Channel bandwidth</b>	max. 450 m outside, max. 40 m inside
<b>Sensing range</b>	> 1 million operations
<b>Mechanical life</b>	approx. 10 years unused, transmissions 1/ min approx. 2 years Hall sensor, transmissions 1/ min approx. 6 years reed contact
<b>Battery life</b>	min. 80 ms
<b>Actuating time</b>	
<b>Approvals</b>	<b>ERC</b> SW915 <b>FC</b> <b>IC</b>

### Wireless sensor

RF RC M30 SW868-KST	1349227
RF RC M30 SW915-KST	1362227
Actuator M 30 Niro	1189024
Actuator M 100 N	1042609
Spare part Lithium Battery CR2032	1341953

### Material Number

### Type code

### RF GS M30 SW868-KST

Thermoplastic enclosure  
868 MHz wireless frequency (SW915 915 MHz)  
sWave®  
M30 thread  
Sensor with GMR effect (RC reed contact; HS Hall sensor)  
Wireless technology

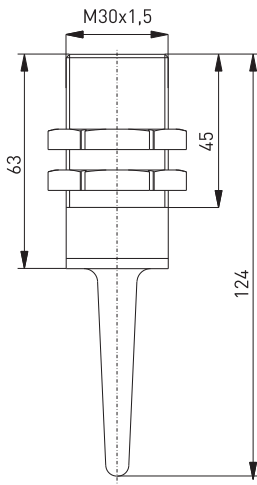
Two mounting nuts are provided.

Wireless magnetic sensors sWave®  
 // Series RF RC M30 SW868/SW915-Niro

Features/options

- Metal enclosure
- RF RC M30 ... : Sensor with reed contact
- RF GS M30 ... : Sensor based on GMR effect
- RF HS M30 ... : Sensor with Hall sensor
- sWave® technology
- No wiring and pipe laying required
- Power supply by Lithium battery
- Easy programming of receiver
- Output signal can be individually configured at the receiver

// RF RC M30 SW868/SW915-NIRO



Technical Data

<b>Standards</b>	EN 60947-5-1; EN 61000-6-2; EN 301 489-1; EN 301 489-3; EN 300 220-2, EN 300 220-3; USA: FCC, XK5-RFRXSW915; Canada: IC: 5158A-RFRXSW915
<b>Enclosure</b>	stainless steel 1.4539
<b>Mounting type</b>	flush, in not ferromagnetic material
<b>Switching system</b>	Reed contact MK17, GMR sensor or Hall elem.
<b>Switching element</b>	NO function
<b>Switching distances</b>	Rated operating switching distance $s_n$ M100: >15 mm, M30 Niro: >30 mm; switch-on distance $s_a$ M100: 0 ... 12.15 mm, M30 Niro: 0 ... 24.3 mm
<b>Hysteresis</b>	< 1 mm
<b>Degree of protection</b>	IP 67 to IEC/EN 60529
<b>Protocol</b>	sWave®
<b>Ambient temperature</b>	- 25 °C ... + 65 °C
<b>Switching frequency</b>	approx. 12,000 telegrams at repetitions/h
<b>Operating cycles</b>	max. 5 Hz
<b>Voltage supply</b>	Lithium battery CR 2032, replaceable
<b>Capacity</b>	approx. 240 mAh
<b>Current consumption</b>	without transmissions: Reed contact: approx. 1 µA; GMR sensor: <5 µA, Hall sensor: <10 µA
<b>Frequency</b>	868.3 MHz or 915 MHz (USA, Canada and Australia)
<b>Transmission power</b>	SW868: <25 mW, SW915: <10 mW
<b>Data rate</b>	66 kbps
<b>Channel bandwidth</b>	SW868: 266 kHz, SW915: 400 kHz
<b>Sensing range</b>	max. 450 m outside, max. 40 m inside
<b>Mechanical life</b>	> 1 million operations
<b>Battery life</b>	approx. 10 years unused, transmissions 1/ min approx. 2 years Hall sensor, transmissions 1/ min approx. 6 years reed contact
<b>Actuating time</b>	min. 80 ms
<b>Approvals</b>	<b>ERC</b> SW915 <b>FC</b> <b>IC</b>

Wireless sensor

- RF RC M30 SW868-Niro
- RF RC M30 SW915-Niro
- Actuator M 30 Niro
- Actuator M 100 N
- Spare part Lithium Battery CR2032

Material Number

- 1363715
- 1364786
- 1189024
- 1042609
- 1341953

Type code

<b>RF</b>	<b>GS</b>	<b>M30</b>	<b>SW868-Niro</b>
			Stainless steel enclosure
			868 MHz wireless frequency (SW915 915 MHz)
			sWave®
			M30 thread
			Sensor with GMR effect (RC reed contact; HS Hall sensor)
			Wireless technology

Two mounting nuts are provided.

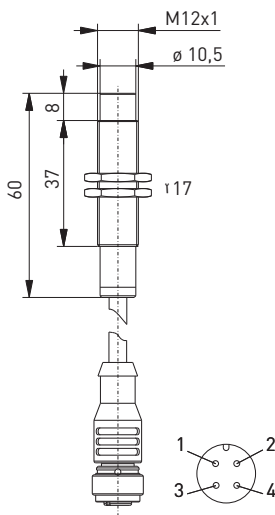
# Wireless inductive sensors

## // Series RF IS Mxx nb-ST

### Features/options

- Metal enclosure
- Non-flush mounting
- To be connected to universal transmitter RF 96 ST or RF I/O
- With M12 coupling, 4-pole

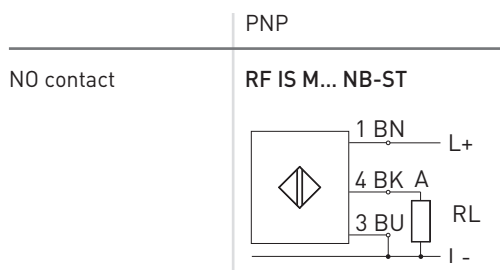
### // RF IS M12 NB-ST



### Technical Data

Standards	EN 60947-5-1
Enclosure	Brass nickeled
Cap	PVC black
Connection	Coupling M12x1, 4-pole
Cable length	0.5, 1 or 2 m
Degree of protection	IP 67 to IEC/EN 60529
Ambient temperature	-25 °C ... +70 °C
Rated isolation voltage $U_i$	75 VDC
Rated operating current $I_a$	0.2 mA
Rated operating voltage $U_e$	3 ... 5 VDC
Switching distance	RF IS M8: $s_n$ 2 mm, $s_a$ 0 ... 1.62 mm, $s_r$ 1.8 mm ... 2.2 mm RF IS M12: $s_n$ 4 mm, $s_a$ 0 ... 3.24 mm, $s_r$ 3.6 mm ... 4.4 mm RF IS M18: $s_n$ 8 mm, $s_a$ 0 ... 6.48 mm, $s_r$ 7.2 mm ... 8.8 mm RF IS M30: $s_n$ 15 mm, $s_a$ 0 ... 12.15 mm, $s_r$ 13.5 mm ... 16.5 mm
Hysteresis	approx. 10 %
Repeatability	< 5 %
Mounting	non-flush
Operating cycles	see RF 96 ST; RF I/O
Correction factors	Steel (St37) = 1; V2A approx. 0.7; Brass approx. 0.5; Al approx. 0.5; Cu approx. 0.4
Target	M8: 8 x 8 mm x 1 mm; M12: 12 x 12 mm x 1 mm; M18: 24 x 24 mm x 1 mm; M30: 45 x 45 mm x 1 mm material: Steel (FE 360)
Note	The sensors can only be used in conjunction with RF 96 ST or RF I/O

### Contact variants: switch travel/contacts



### Type code

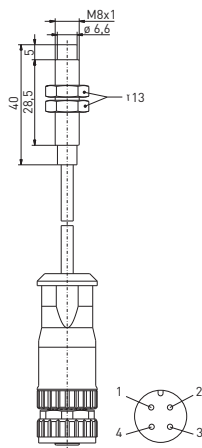
RF IS M30 nb-ST

M12 coupling  
non-flush mounting  
M30 thread (M8, M12 or M18)  
Inductive sensor  
Wireless technology

Two mounting nuts are provided.

Wireless inductive sensors  
 // Series RF IS Mxx nb-ST

// RF IS M8 nb-ST

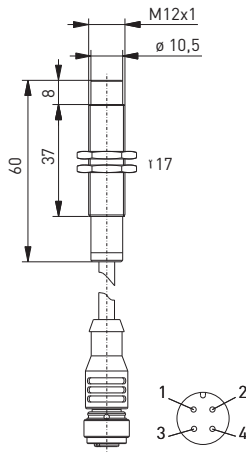


**Features/options**  
 - non-flush mounting  
 - M8 thread

**Inductive sensors**  
 RF IS M8 nb-ST 0,5m  
 RF IS M8 nb-ST 1m  
 RF IS M8 nb-ST 2m

**Material number**  
 on request  
 1373082  
 on request

// RF IS M12 nb-ST

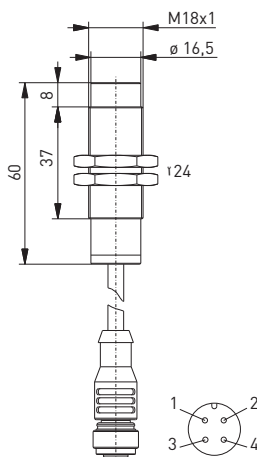


**Features/options**  
 - non-flush mounting  
 - M12 thread

**Inductive sensors**  
 RF IS M12 nb-ST 0,5m  
 RF IS M12 nb-ST 1m  
 RF IS M12 nb-ST 2m

**Material number**  
 1228522  
 1356467  
 1189974

// RF IS M18 nb-ST



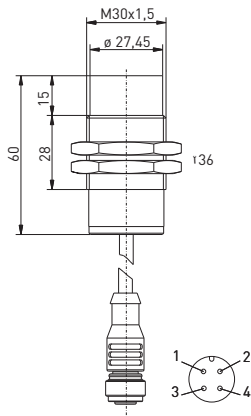
**Features/options**  
 - non-flush mounting  
 - M18 thread

**Inductive sensors**  
 RF IS M18 nb-ST 0,5m  
 RF IS M18 nb-ST 1m  
 RF IS M18 nb-ST 2m

**Material number**  
 1261564  
 on request  
 1189975

Wireless inductive sensors  
// Series RF IS Mxx nb-ST

// RF IS M30 nb-ST

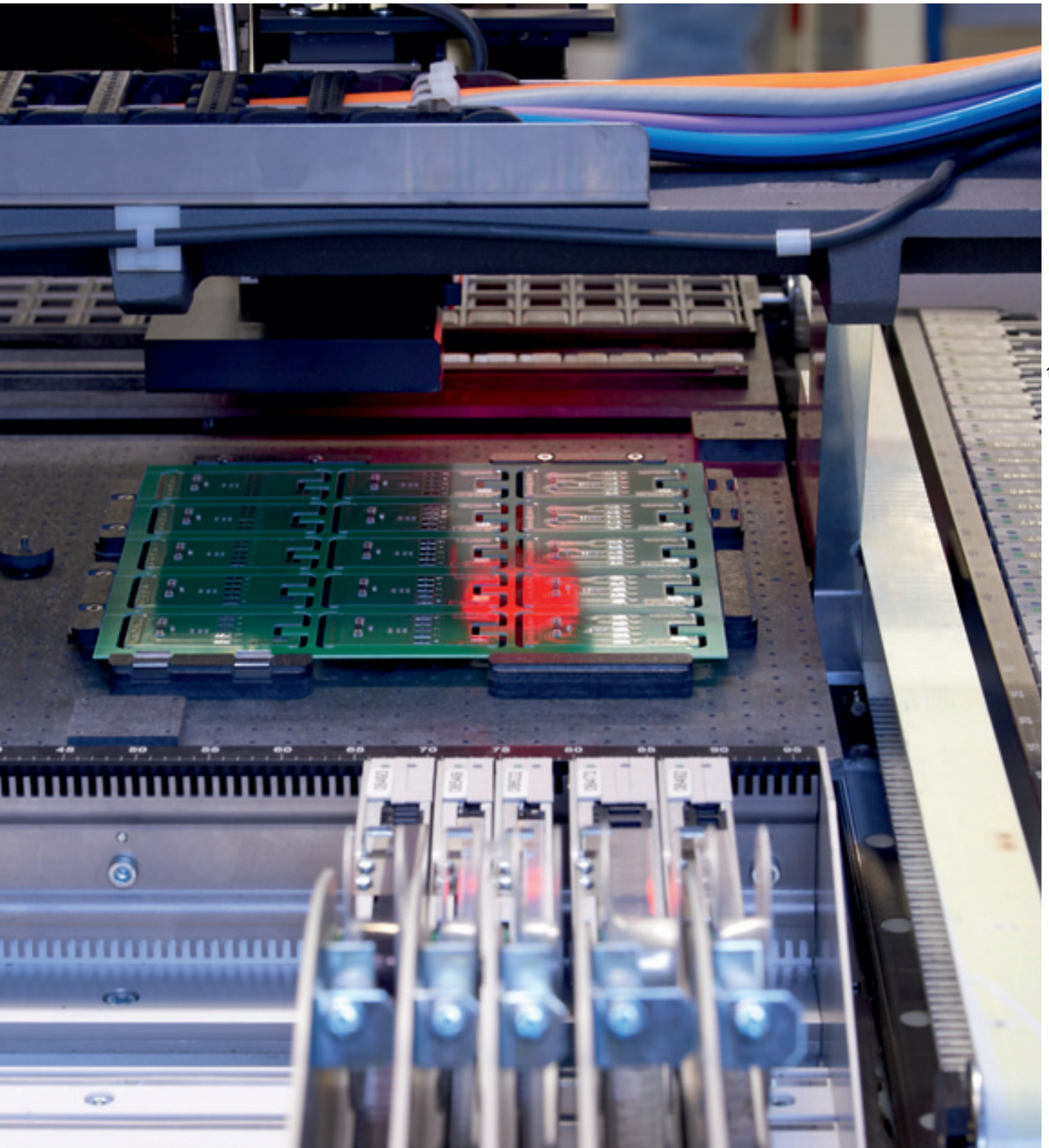


**Features/options**  
- non-flush mounting  
- M30 thread

**Inductive sensors**  
RF IS M30 nb-ST 0,5m  
RF IS M30 nb-ST 1m  
RF IS M30 nb-ST 2m

**Material number**  
1260490  
1228548  
1189976

PRODUCTION PROCESS  
SMD ASSEMBLY OF CIRCUIT BOARDS



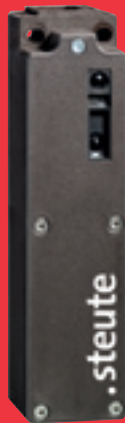
# Wireless optical sensors EnOcean®

## // Series RF 96 LT EN868

### Features/options

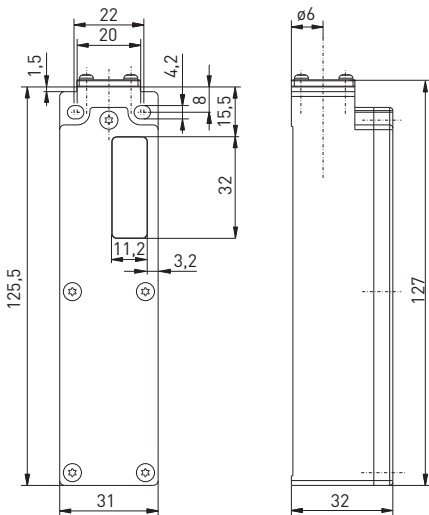
- Light sensor: actuated by light reflection
- Thermoplastic enclosure
- Mounting details to EN 50 047
- EnOcean® technology
- No wiring and pipe laying required
- Power supply by Lithium battery
- Easy programming of receiver
- Multi-network capable
- Output signal can be individually configured at the receiver

## // RF 96 LT EN868



### Technical Data

Standards	EN 60947-5-1, EN 61000-6-2, EN 301 489-1, EN 301 489-3, EN 300 220-2, -3
Enclosure	Glass-fibre reinforced shock-proof thermoplastic, self-extinguishing UL 94-V0
Degree of protection	IP 50 to IEC/EN 60529
Protocol	EnOcean®
Ambient temperature	0 °C ... + 65 °C
Switching distance	40 ... 300 mm
Switching frequency	max. 20 telegrams/h
Voltage supply	Lithium battery (replaceable)
Capacity	8.5 Ah
Frequency	868.3 MHz
Transmission power	max. 10 mW
Data rate	120 kbps
Channel bandwidth	280 kHz
Sensing range	max. 300 m outside, max. 30 m inside
Actuating time	min. 80 ms
Note	status signal configurable ex works, transmission of battery voltage



Wireless optical sensor  
RF 96 LT EN868  
Spare part Lithium battery SL-2770/S

Material Number  
1188810  
1202806

Type code	RF 96 LT EN868
	868 MHz wireless frequency
	EnOcean®
	Optical sensor
	Series
	Wireless technology



PRODUCTION PROCESS

WIRELESS SENSORS READY FOR BATTERY ASSEMBLY



# Wireless universal transmitters EnOcean®

## // Series RF 96 ST EN868

### Features/options

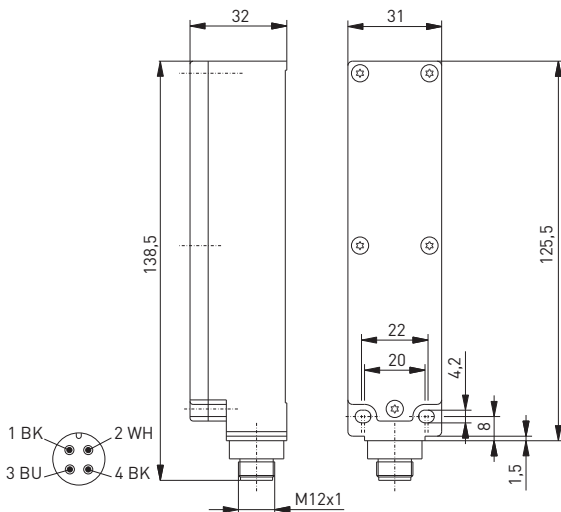
- Thermoplastic enclosure
- Mounting details to EN 50 047
- Plug-in connector M12
- EnOcean® technology
- No wiring and pipe laying required
- Power supply by Lithium battery
- Easy programming of receiver
- Multi-network capable
- Output signal can be individually configured at the receiver

## // RF 96 ST EN868



### Technical Data

<b>Standards</b>	EN 60947-5-1; EN 61000-6-2; EN 301 489-1; EN 301 489-3; EN 300 220-2, -3
<b>Enclosure</b>	Glass-fibre reinforced shock-proof thermo- plastic, self-extinguishing UL 94-V0
<b>Connection</b>	Plug-in connector M12x1, 4 poles
<b>Degree of protection</b>	IP 67 to IEC/EN 60529
<b>Protocol</b>	EnOcean®
<b>Ambient temperature</b>	-20 °C ... +65 °C
<b>Switching frequency</b>	approx. 9,000 telegrams at repetitions/h
<b>Operating cycles</b>	max. 5 Hz
<b>Standby current</b>	15 µA
<b>Voltage supply</b>	Lithium battery (replaceable)
<b>Capacity</b>	8.5 Ah
<b>Frequency</b>	868.3 MHz
<b>Transmission power</b>	max. 10 mW
<b>Modulation process</b>	ASK
<b>Telegram type</b>	RPS type 2
<b>Data rate</b>	120 kbps
<b>Channel bandwidth</b>	280 kHz
<b>Sensing range</b>	max. 300 m outside, max. 30 m inside
<b>Battery life</b>	according to switch frequency, 1 s approx. 780 days, 10 s approx. 1300 days, 100 s approx. 1400 days
<b>Actuating time</b>	min. 80 ms
<b>Note</b>	status signal configurable ex works, transmission of battery voltage



Wireless universal transmitter  
RF 96 ST EN868  
Spare part Lithium battery SL-2770/S

Material Number  
1189913  
1202806

### Type code

**RF 96 ST EN868**

868 MHz wireless frequency  
EnOcean®  
Plug-in connector M12 x 1  
Series  
Wireless technology

# Wireless universal transmitters sWave®

## // Series RF 96 ST SW868/SW915

### Features/options

- Thermoplastic enclosure
- Mounting details to EN 50 047
- Plug-in connector M12
- sWave® technology
- No wiring and pipe laying required
- Power supply by Lithium battery
- Easy programming of receiver
- Output signal can be individually configured at the receiver

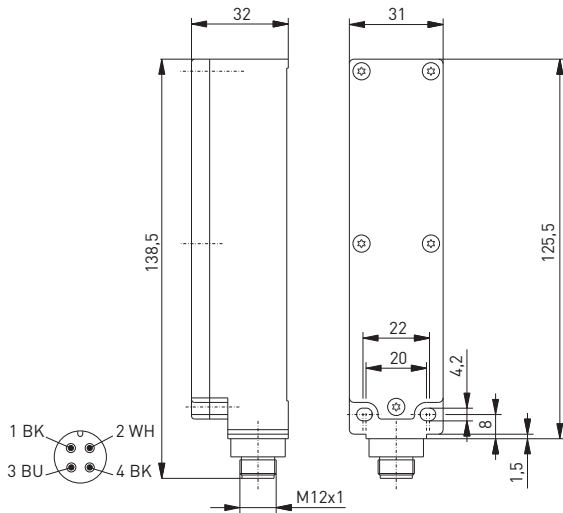
## // RF 96 ST SW868/SW915



### Technical Data

<b>Standards</b>	EN 60947-5-1; EN 61000-6-2; EN 301 489-1; EN 301 489-3; EN 300 220-1, EN 300 220-2; USA: FCC, XK5-RFRXSW915; Canada: IC: 5158A-RFRXSW915
<b>Enclosure</b>	Glass-fibre reinforced, shock-proof thermoplastic, self-extinguishing UL 94-V0
<b>Connection</b>	Plug-in connector M12 x 1, 4-poles
<b>Degree of protection</b>	IP 67 to IEC/EN 60529
<b>Protocol</b>	sWave®
<b>Ambient temperature</b>	-20 °C ... +65 °C
<b>Switching frequency</b>	approx. 12,000 telegrams at repetitions/h
<b>Operating cycles</b>	max. 5 Hz
<b>Standby current</b>	1.5 µA
<b>Voltage supply</b>	Lithium battery (replaceable)
<b>Capacity</b>	8.5 Ah
<b>Frequency</b>	868.3 MHz or 915 MHz (USA, Canada and Australia)
<b>Transmission power</b>	SW868: <25 mW, SW915: <10 mW
<b>Data rate</b>	66 kbps
<b>Channel bandwidth</b>	SW868: 266 kHz, SW915: 400 kHz
<b>Sensing range</b>	max. 450 m outside, max. 40 m inside
<b>Battery life</b>	according to switch frequency, 1 s approx. 780 days, 10 s approx. 1300 days, 100 s approx. 1400 days
<b>Actuating time</b>	min. 80 ms
<b>Note</b>	status signal configurable ex works, transmission of battery voltage

Approvals **EMC** SW915 **FC** **IC**



#### Wireless universal transmitter

RF 96 ST SW868	Material Number	1206036
RF 96 ST SW868 10s status signal		1244324
RF 96 ST SW915		1207474

#### Wireless universal transmitter LBT

RF 96 ST SW868 LBT	Material Number	1319752
RF 96 ST SW915 LBT		on request

Spare part Lithium battery SL-2770/S		1202806
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#### Type code

**RF 96 ST SW868**

868 MHz wireless frequency  
(SW915 915 MHz)  
sWave®  
Plug-in connector M12 x 1  
Series  
Wireless technology

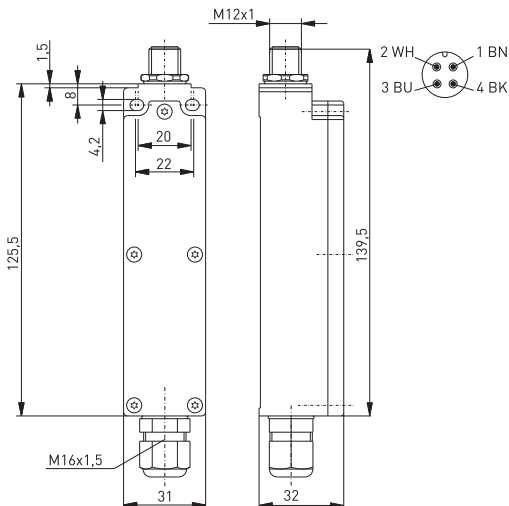
# Wireless universal transmitters sWave®

## // Series RF 96 ST SW868/SW915-Vcc extern

### Features/options

- Thermoplastic enclosure
- Mounting details to EN 50047
- Plug-in connector M12
- sWave® wireless technology
- Power supply: 24 VDC
- Easy programming of receiver
- Output signal can be individually configured at the receiver

## // RF 96 ST SW868/SW915-VCC EXTERN



### Technical Data

<b>Standards</b>	EN 60947-5-1; EN 61000-6-2; EN 301 489-1; EN 301 489-3; EN 300 220-1, EN 300 220-2; USA: FCC, XK5-RFRXSW915; Canada: IC: 5158A-RFRXSW915
<b>Enclosure</b>	Glass-fibre reinforced, shock-proof thermoplastic, self-extinguishing UL 94-V0
<b>Connection</b>	Plug-in connector M12 x 1, 4-poles
<b>Degree of protection</b>	IP 67 to IEC/EN 60529
<b>Protocol</b>	sWave®
<b>Ambient temperature</b>	-20 °C ... +65 °C
<b>Switching frequency</b>	approx. 12,000 telegrams at repetitions/h
<b>Operating cycles</b>	max. 5 Hz
<b>Rated operating voltage range <math>U_B</math></b>	10 - 30 VDC Pin 1 and Pin 3
<b>Rated isolation voltage <math>U_i</math></b>	75 VDC
<b><math>U_{imp}</math></b>	500 V
<b>Rated operating current <math>I_e</math></b>	2.5 mA
<b>Voltage drop <math>U_e U_a</math></b>	-1.5 V
<b>Max. output current</b>	100 mA
<b>Switching point <math>E_1 E_2</math></b>	> 5 VDC
<b>Frequency</b>	868.3 MHz or 915 MHz (USA, Canada and Australia)
<b>Transmission power</b>	SW868: <25 mW, SW915: <10 mW
<b>Data rate</b>	66 kbps
<b>Channel bandwidth</b>	SW868: 266 kHz, SW915: 400 kHz
<b>Sensing range</b>	max. 450 m outside, max. 40 m inside
<b>Actuating time</b>	min. 80 ms
<b>Approvals</b>	SW915

### Wireless universal transmitter

RF 96 ST SW868-Vcc extern  
RF 96 ST SW915-Vcc extern

### Material Number

1245018  
1245020

### Type code

RF 96 ST SW868-Vcc extern

externe Spannungsversorgung  
 868 MHz wireless frequency (SW915 915 MHz)  
 sWave®  
 Plug-in connector M12 x 1  
 Series  
 Wireless technology

PRODUCTION PROCESS  
MACHINING OF ENCLOSURES



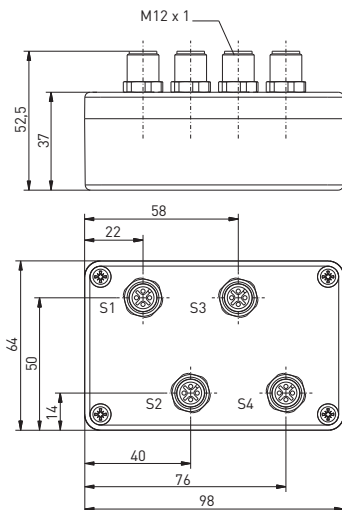
# Wireless universal transmitters sWave®

## // Series RF I/O SW868/SW915

### Features/options

- Thermoplastic enclosure
- 4 connectors: for the use with wireless sensors, series RF and/or external NO contacts with gold contacts
- sWave® technology
- No wiring and pipe laying required
- Power supply by Lithium battery
- Easy programming of receiver
- Output signal can be individually configured at the receiver

## // RF I/O SW868/SW915



### Wireless universal transmitter

RF I/O SW868

RF I/O SW915

Spare part Lithium battery SL 760/S 3.6 V/2.2 Ah

### Material Number

1359762

1362074

1351045

## Technical Data

<b>Standards</b>	EN 60947-5-1; EN 61000-6-2; EN 301 489-1; EN 301 489-3; EN 300 220-1; EN 300 220-2; USA: FCC, XK5-RFRXSW915; Canada: IC: 5158A-RFRXSW915
<b>Enclosure</b>	ABS
<b>Connection</b>	Plug-in connector 4 x M12x1, 4 poles
<b>Suitable sensors</b>	sensors: RF IS M8, RF IS M12, RF IS M18, RF IS M30
<b>Degree of protection</b>	IP 67 to IEC/EN 60529
<b>Protocol</b>	sWave®
<b>Ambient temperature</b>	-20 °C ... +65 °C
<b>Switching frequency</b>	approx. 12,000 telegrams at repetitions/h
<b>Operating cycles</b>	max. 5 Hz
<b>Standby current</b>	60 µA
<b>Voltage supply</b>	Tadiran SL-760; System Li/SOCl <sub>2</sub>
<b>Nominal voltage</b>	3.6 V
<b>Capacity</b>	2.2 Ah
<b>Frequency</b>	868.3 MHz or 915 MHz (USA, Canada, Australia)
<b>Transmission power</b>	SW868: <25 mW, SW915: <10 mW
<b>Data rate</b>	66 kbps
<b>Channel bandwidth</b>	SW868: 266 kHz, SW915: 400 kHz
<b>Sensing range</b>	max. 450 m outside, max. 40 m inside
<b>Battery life</b>	depending on the switching frequency and number and type of sensors for 1000 transfers/day and one inductive sensor approx. 300 days; for 1000 transfers/day and one mechanical switch approx. 1400 days
<b>Actuating time</b>	min. 80 ms
<b>Note</b>	transmission of battery voltage; status signal: individually adjustable via jumper, no, 10 s, 100 s, 1000 s, 10 000 s;
<b>Approvals</b>	<b>EMC</b> SW915 <b>FC</b> <b>IC</b>

### Type code

RF I/O SW868

868 MHz wireless frequency  
(SW915 915 MHz)  
sWave®  
Series  
Wireless technology

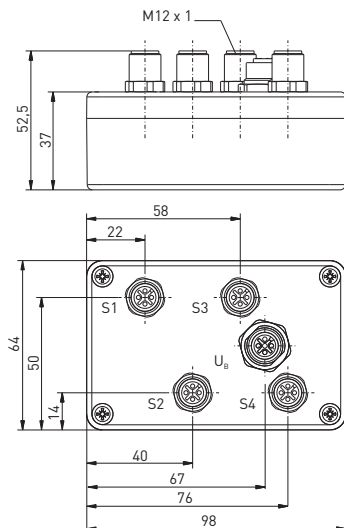
# Wireless universal transmitters sWave®

## // Series RF I/O SW868/SW915-Vcc extern

### Features/options

- Thermoplastic enclosure
- 4 connectors: for the use with wireless sensors, series RF and/or external NO contacts with gold contacts
- sWave® technology
- No wiring and pipe laying required
- External power supply via M12 female plug-in connector
- Easy programming of receiver
- Output signal can be individually configured at the receiver

## // RF I/O SW868/SW915-VCC EXTERN



### Wireless universal transmitter

RF I/O SW868-Vcc extern  
RF I/O SW915-Vcc extern

### Material Number

1362723  
1362918

## Technical Data

<b>Standards</b>	EN 60947-5-1; EN 61000-6-2; EN 301 489-1; EN 301 489-3; EN 300 220-1; EN 300 220-2; USA: FCC, XK5-RFRXSW915; Canada: IC: 5158A-RFRXSW915
<b>Enclosure</b>	ABS
<b>Connection</b>	Sensors: plug-in connector 4 x M12x1, 4 poles, power supply: 1 x M12 female plug-in connector
<b>Degree of protection</b>	IP 67 to IEC/EN 60529
<b>Protocol</b>	sWave®
<b>Ambient temperature</b>	-20 °C ... +65 °C
<b>Switching frequency</b>	approx. 12,000 telegrams at repetitions/h
<b>Operating cycles</b>	max. 5 Hz
<b>Rated operating voltage range <math>U_B</math></b>	18 - 30 VDC Pin 1 und Pin 3 connector M12
<b><math>U_i</math></b>	75 VDC
<b><math>U_{imp}</math></b>	500 V
<b>Rated operating current <math>I_e</math></b>	2.5 mA
<b>Voltage drop <math>U_e</math></b>	$U_a - 3.5$ V with 4 x 50 mA sensor current
<b>Max. load current per sensor connection</b>	50 mA
<b>Switching point E1 -E4</b>	> 5 VDC
<b>Frequency</b>	868.3 MHz or 915 MHz (USA, Canada and Australia)
<b>Transmission power</b>	SW868: <25 mW, SW915: <10 mW
<b>Data rate</b>	66 kbps
<b>Channel bandwidth</b>	SW868: 266 kHz, SW915: 400 kHz
<b>Sensing range</b>	max. 450 m outside, max. 40 m inside according to switch frequency, 1 s approx. 780 days, 10 s approx. 1300 days, 100 s approx. 1400 days
<b>Battery life</b>	
<b>Actuating time</b>	min. 80 ms
<b>Note</b>	status signal: individually adjustable via jumper, no, 10 s, 100 s, 1000 s, 10 000 s
<b>Approvals</b>	<b>CE</b> SW915 <b>FC</b> <b>IC</b>

### Type code

RF I/O SW868-Vcc-extern

external power supply  
868 MHz wireless frequency  
(SW915 915 MHz)  
sWave®  
Series  
Wireless technology

## Wireless technology 868 MHz and 915 MHz // Accessories

### // Field strength indicator EPM 300 EnOcean®



#### Features/options

- Only suitable for EnOcean® technology
- Mobile field strength indicator for link range testing
- To measure and indicate the electrical field strength
- Battery not included, requires AA/LR91 Lithium battery
- Repeater mode can be selected

Field strength indicators  
EPM 300

Material Number  
1187180

### // Field strength indicator swView 868 MHz / swView 915 MHz sWave®



#### Features/options

- Only suitable for sWave® technology
- Mobile field strength indicator for link range testing
- To measure and indicate the electrical field strength
- Battery included: 2 x AA batteries
- Several functions can be selected: Scan-Mode, Repeat-Mode, Rescan-Mode, Radio-Link

Field strength indicators  
swView 868  
swView 915

Material Number  
1190393  
1221794

### // 24 VDC power supply



#### Features/options

- 24 VDC power supply for wireless receivers RF Rx ...

Power supplies  
Power supply 24 VDC

Material Number  
1188751



## // RF Magnet antenna 868 MHz EnOcean®



### Features/options

- RF magnet antenna with straight SMA plug-in connector without ferrite core
- Cable length 2.5 m

### Antennas

RF Magnet antenna EN868

### Material Number

1186143

### Note

The antenna must be mounted on a metal plate of min. 250 x 250 mm size.

## // RF High gain antenna 868 MHz



### Features/options

- RF high gain antenna suitable for mast mounting up to max. 41 mm diameter
- 260 mm length
- N-connector socket
- 5 dbi gain
- internally grounded as lightning protection

### Antennas

RF high gain antenna

RF SMA N antenna connecting cable 5 m

RF SMA N antenna connecting cable 10 m

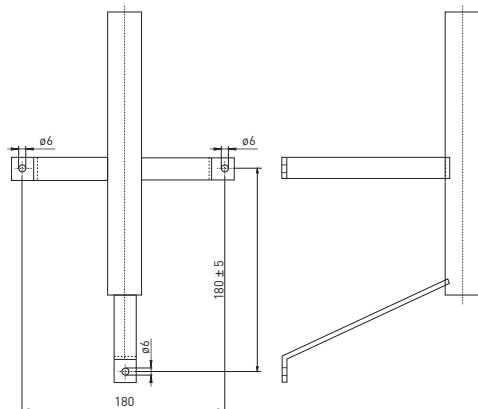
### Material Number

1187161

1187162

1187254

## // RF Mounting bracket for high gain antenna



### Features/options

- Mounting bracket for wall mounting
- Distance to wall approx. 170 mm
- aluminium welded

### Mounting bracket for wall mounting

Mounting bracket for high gain antenna

### Material Number

1187183

// RF Magnet antenna 868 MHz



**Features/options**

- RF magnet antenna with straight SMA plug-in connector without ferrite core
- Cable length 1.5 m

**Antennas**

RF Magnet antenna SW868 5 dB

**Material Number**

1188958

**Note**

The antenna must be mounted on a metal plate of min. 250 x 250 mm size.

// RF Magnet antenna 868 MHz



**Features/options**

- RF magnet antenna with straight TNC plug-in connector
- IP 65 degree of protection
- Cable length 1.5 m

**Antennas**

RF Magnet antenna SW868 5 dB TNC connector IP 65

**Material Number**

1275629

**Note**

The antenna must be mounted on a metal plate of min. 250 x 250 mm size.

// RF Magnet antenna 915 MHz



**Features/options**

- RF magnet antenna with straight RSMA plug-in connector without ferrite core
- Cable length 3.6 m

**Antennas**

RF Magnet antenna SW915 5 dB

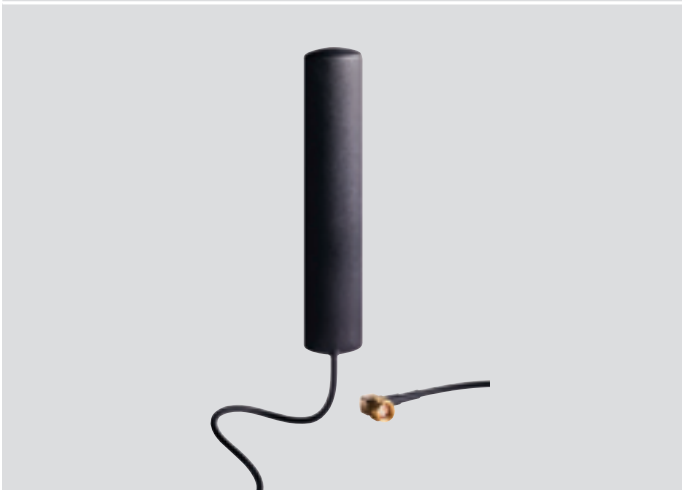
**Material Number**

1188987

**Note**

The antenna must be mounted on a metal plate of min. 250 x 250 mm size.

## // RF Stick-on antenna 868 MHz or 915 MHz



### Features/options

- RF stick-on antenna with angled SMA plug-in connector without ferrite core for 868 MHz
- RF stick-on antenna with angled RSMA plug-in connector without ferrite core for 915 MHz
- Cable length 2 m

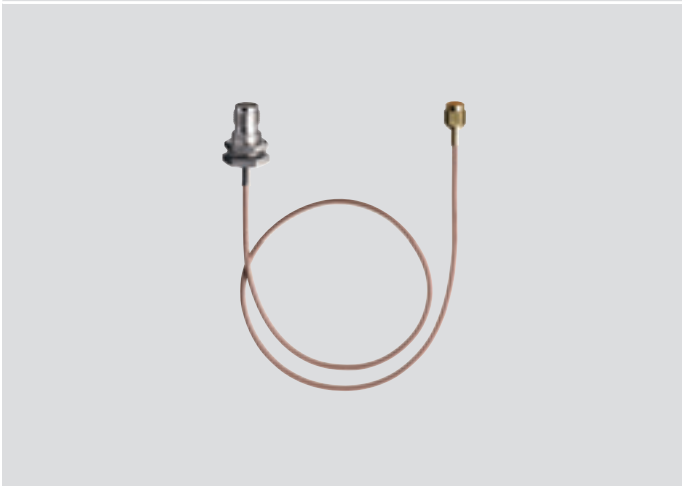
### Antennas

- RF stick-on antenna SW868 2.5 dBi
- RF stick-on antenna SW915 2.5 dBi

### Material Number

- 1373199
- 1361395

## // RF SMA antenna socket



### Features/options

- Suitable for antenna material No. 1275629
- IP 65 degree of protection
- Cable length 0.5 m

### Antenna sockets

- RF SMA antenna socket 0.5 m TNC connector IP 65

### Material Number

- 1275627

## // RF SMA antenna socket



### Features/options

- Suitable for the antennas material numbers 1186143, 1188958 and 1373199
- Cable length 0.5 m

### Antenna sockets

- RF SMA antenna socket

### Material Number

- 1185712

// RF SMA antenna extension



**Features/options**

- RF SMA cable suitable for EnOcean® as well as sWave® 868 technology
- Antenna extension cable with straight SMA plug-in connector

**Antenna extensions**

RF SMA antenna extension cable 3 m

**Material Number**

1186734

// RF SMA N antenna extension for high gain antenna



**Features/options**

- RF SMA N cable for high gain antenna
- Antenna extension cable with straight SMA plug-in connector

**Antenna extensions**

RF SMA N antenna extension cable 5 m

RF SMA N antenna extension cable 10 m

**Material Number**

1187162

1187254

// M12 x 1 female connector for Wireless universal transmitters



**Features/options**

- 4-pole female connector for RF 96 ST and RF I/O
- With straight M12 x 1 female plug-in connector
- Cable length 2 m

**Connector**

Female connector 4-pole M12 x 1 straight, 2 m

**Material Number**

1215497

// M12 x 1 connector for Wireless universal transmitters



**Features/options**

- 4-pole female connector for RF 96 ST and RF I/O
- With straight M12 x 1 female plug-in connector
- Cable length 5 m

**Connector**

Female connector 4-pole M12 x 1 straight, 5 m

**Material Number**

1262873

// RS 232 cable



**Features/options**

- RS 232 cable for receiver RF Rx EN868-2W-RS232, RF Rx SW868-2W-RS232 and RF Rx SW915-2W-RS232
- Provided with receiver

**Cable**

RS 232 cable

**Material Number**

on request

// Plug-in connector for RF I/O



**Features/options**

- 4-pole connector for RF RF I/O
- With straight M12 x 1 plug-in connector
- Cable length 2 m

**Connector**

Connector 4-pole M12 x 1 straight, 2 m

**Material Number**

1294064

// Female connector for RF I/O



**Features/options**

- 4-pole female connector for RF I/O
- With straight M12 x 1 female plug-in connector
- to be field-wired
- with screw connection

**Female connector**

Female connector 4-pole M12 x 1 straight

**Material Number**

1303000

// Plug-in connector for RF I/O



**Features/options**

- 4-pole plug-in connector for RF I/O
- With straight M12 x 1 plug-in connector
- to be field-wired
- with screw connection

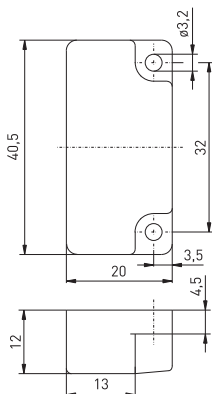
**Connector**

Connector 4-pole M12 x 1 straight

**Material Number**

1304201

// M 4 actuating magnet



**Features/options**

- M 4 actuator for wireless magnetic sensor RF RC 10
- Order unit: 1 piece

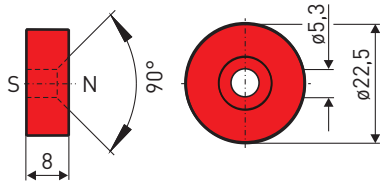
**Actuators**

M 4

**Material Number**

1186763

## // M100 N actuating magnet



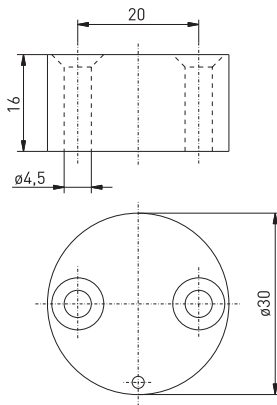
### Features/options

- M 100 N actuator for wireless magnetic sensor RF RC M30
- Order unit: 1 piece

Actuators  
M 100 N

Material Number  
1042609

## // M 30 Niro actuating magnet



### Features/options

- M 30 Niro actuator for wireless magnetic sensor RF RC M30
- Order unit: 1 piece

Actuators  
M 30 Niro

Material Number  
1189024







#### Wireless receivers

// Series RF RxT SW2.4-safe  
from page 130

#### Wireless foot switches

// Series RF GFI SW2.4-safe  
from page 132

// Series RF GFSI SW2.4-safe  
from page 133

// Series RF GF SW2.4-safe  
from page 134

// Series RF GFI SW2.4-safe  
from page 135

// Series RF GF 2 SW2.4-safe  
from page 136

// Series RF GFS 2 SW2.4-safe  
from page 137

Safe wireless system sWave®-safe  
 // Series RF RxT SW2.4-4W-safe

Features/options

- sWave® technology
- 2 channel: potential free relay outputs
- 4 change-over contacts, max. 6 A
- LEDs for indication of switching state
- SMA plug-in connector for external antenna

// RF RXT SW2.4-SAFE



Technical data

Standards	EN 60947-5-1; EN 61000-6-2; EN 61000-6-3; EN 61326-3-1; EN 13849-1; EN 61784-3; EN 60068-2-6; EN 60068-2-27
Mounting	DIN rail mounting
Connection	terminals with CAGE CLAMP WAGO Series 236
Degree of protection	IP 20 to IEC/EN 60529
I <sub>e</sub>	max. 0.1 A
U <sub>e</sub>	24 VDC -15 % ... +10 %
Outputs	Relay with change-over contacts, positive-guided
I <sub>e</sub> /U <sub>e</sub> outputs	2 A/24 VDC
Max. fuse rating of outputs	2 A gG/gN fuse
Utilisation category	DC-13
LED display	1 x green LED: operating state, 4 x orange LED: switching state indication
Interference resistance	to EMC directive
Risk time	< 200 ms
Ambient temperature	0 °C ... +55 °C
Mechanical life	> 10 million operations

Specifications of wireless module	
Frequency	2.4 ... 2.4835 GHz
Transmission power	3.15 mW
Data rate	max. 250 kbps
Sensing range	max. 15 m

Safety-related data to EN ISO 13849-1

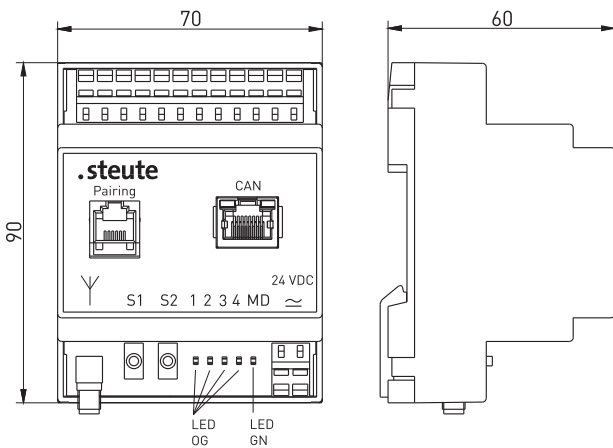
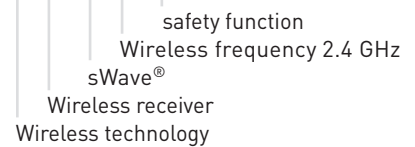
Performance Level	PL d
Category	3
T <sub>M</sub>	max. 20 years
MTTF <sub>d</sub>	74 years
DC	60 %
PFH <sub>d</sub>	1.55 x 10 <sup>-7</sup> 1/h

Approvals



Type code

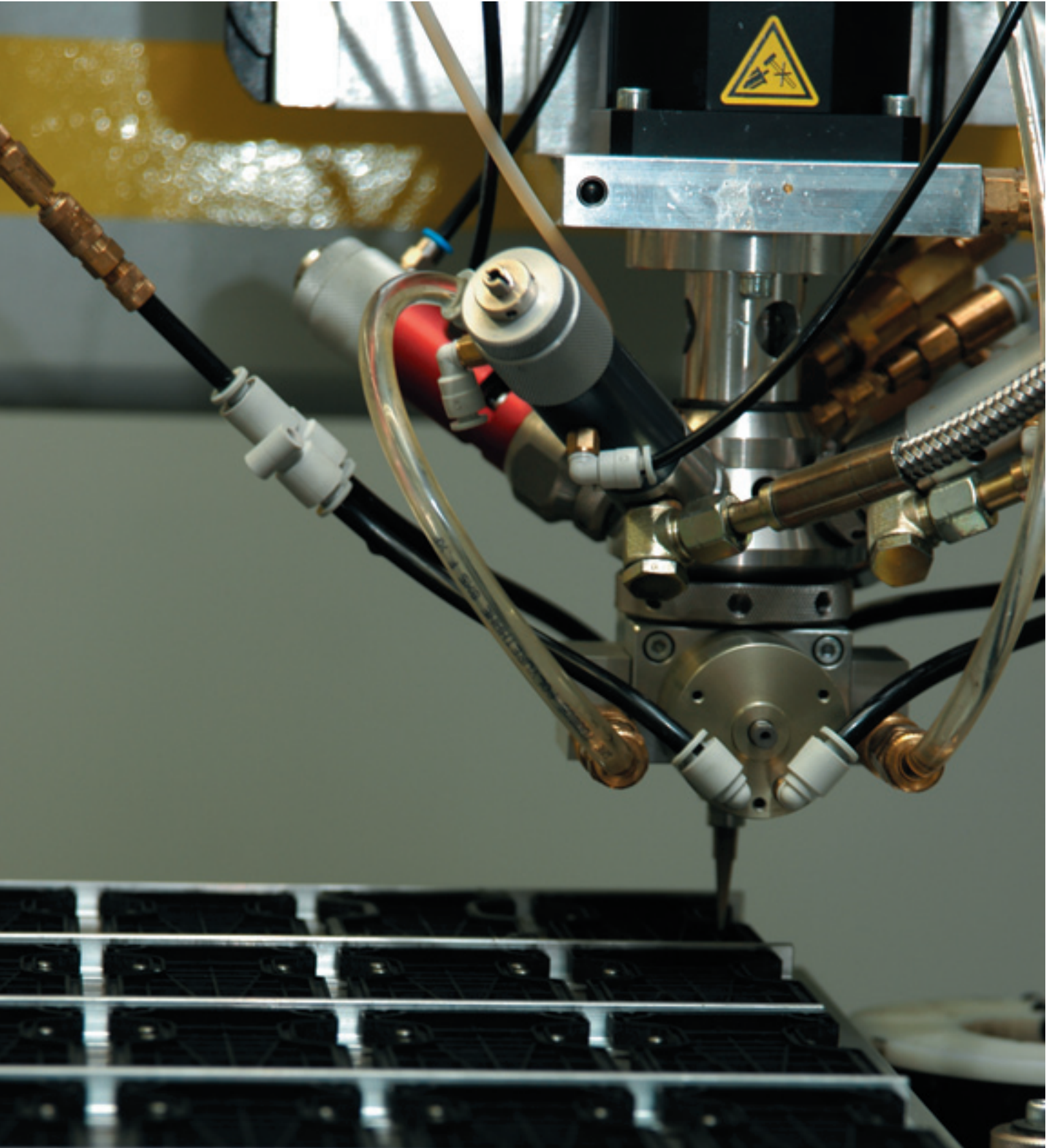
RF RxT SW2.4-safe



Note

A set consists of a wireless foot switch, a wireless receiver, a magnetic base antenna, a charging device and a pairing cable.

PRODUCTION PROCESS  
FOAMING MACHINE FOR ENCLOSURE GASKETS



# Safe wireless system sWave®-safe

## // Series RF GFI SW2.4-safe

### Features/options

- Metal enclosure
- Available on request with special finish in RAL colour tones
- sWave® technology
- Point-to-Point connection
- Pairing via internal push-button

## // RF GFI SW2.4-SAFE



### Technical data

<b>Standards</b>	EN 60947-5-1; EN 61000-6-2; EN 61000-6-3; EN 61326-3-1; EN 13849-1; EN 61784-3
<b>Enclosure</b>	aluminium die-cast, enamel finish, RAL 5011
<b>Cover</b>	aluminium die-cast, enamel finish, RAL 2004
<b>Pedal</b>	aluminium die-cast, enamel finish, RAL 5011
<b>Degree of protection</b>	IP 67 to IEC/EN 60529
<b>Transmission interval</b>	<50 ms
<b>Synchronisation after sleep mode</b>	max. 8 s
<b>Current consumption active</b>	approx. 35 mA
<b>Current consumption sniff mode</b>	approx. 12 mA
<b>Current consumption sleep mode</b>	approx. 1 mA
<b>Voltage supply</b>	Lithium ion battery, 3.7 V / 2.25 Ah
<b>Battery life</b>	after 300 charging cycles 80 % residual capacity
<b>Ambient temperature</b>	-20 °C ... +65 °C
<b>Mechanical life</b>	> 1 million operations

### Specifications of wireless module

<b>Frequency</b>	2.4 ... 2.4835 GHz
<b>Transmission power</b>	3.15 mW
<b>Data rate</b>	max. 250 kbps
<b>Sensing range</b>	max. 15 m

### Safety-related data to EN ISO 13849-1

<b>Performance Level</b>	PL d
<b>Category</b>	2
<b>T<sub>M</sub></b>	max. 20 years
<b>MTTF<sub>d</sub> electronics</b>	216 years
<b>MTTF<sub>d</sub> with B<sub>10d</sub> and n<sub>op</sub></b>	119 years
<b>DC</b>	20 million
<b>PFH<sub>d</sub></b>	378 000
<b>DC</b>	84 %
<b>PFH<sub>d</sub></b>	5.28 x 10 <sup>-7</sup> 1/h

### Approvals



### Type code

RF GFI SW2.4-safe

Safety switch  
 Wireless frequency 2.4 GHz  
 sWave®  
 Series  
 Wireless technology

Wireless set  
RF GFI SW2.4-safe

Material Number  
1329073

### Note

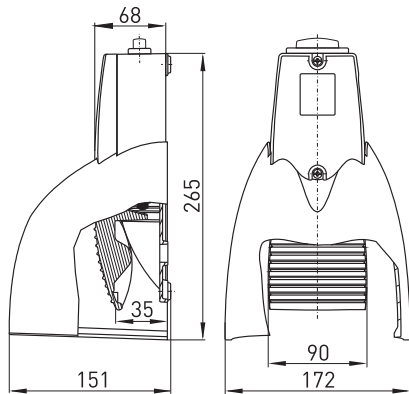
A set consists of a wireless foot switch, a wireless receiver, a magnetic base antenna, a charging device and a pairing cable.

Safe wireless system sWave®-safe  
 // Series RF GFSI SW2.4-safe

Features/options

- Metal enclosure
- Available on request with special finish in RAL colour tones
- sWave® technology
- Point-to-Point connection
- Pairing via internal push-button

// RF GFSI SW2.4-SAFE



Wireless set  
 RF GFSI SW2.4-safe

Material Number  
 1329045

**Note**  
 A set consists of a wireless foot switch, a wireless receiver, a magnetic base antenna, a charging device and a pairing cable.

Technical data

<b>Standards</b>	EN 60947-5-1; EN 61000-6-2; EN 61000-6-3; EN 61326-3-1; EN 13849-1; EN 61784-3
<b>Enclosure</b>	aluminium die-cast, enamel finish, RAL 5011
<b>Pedal</b>	aluminium die-cast, enamel finish, RAL 5011
<b>Protective shield</b>	aluminium die-cast, enamel finish, RAL 2004
<b>Degree of protection</b>	IP 67 to IEC/EN 60529
<b>Transmission interval</b>	<50 ms
<b>Synchronisation after sleep mode</b>	max. 8 s
<b>Current consumption active</b>	approx. 35 mA
<b>Current consumption</b>	sniff mode: approx. 12 mA; sleep mode: approx. 1 mA
<b>Voltage supply</b>	Lithium ion battery, 3.7 V / 2.25 Ah
<b>Battery life</b>	after 300 charging cycles 80 % residual capacity
<b>Ambient temperature</b>	-20 °C ... +65 °C
<b>Mechanical life</b>	> 1 million operations

Specifications of wireless module

<b>Frequency</b>	2.4 ... 2.4835 GHz
<b>Transmission power</b>	3.15 mW
<b>Data rate</b>	max. 250 kbps
<b>Sensing range</b>	max. 15 m

Safety-related data to EN ISO 13849-1

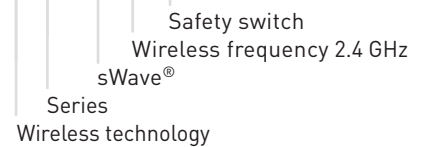
<b>Performance Level</b>	PL d
<b>Category</b>	2
<b>T<sub>M</sub></b>	max. 20 years
<b>MTTF<sub>d electronics</sub></b>	216 years
<b>MTTF<sub>d</sub></b>	119 years
<b>with B<sub>10d</sub></b>	20 million
<b>and n<sub>op</sub></b>	378 000
<b>DC</b>	84 %
<b>PFH<sub>d</sub></b>	5.28 x 10 <sup>-7</sup> 1/h

Approvals



Type code

RF GFSI SW2.4-safe

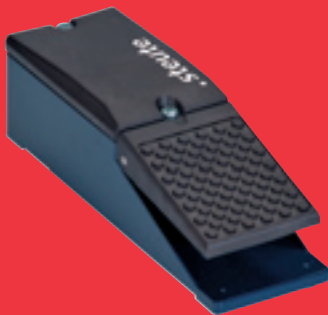


Safe wireless system sWave®-safe  
 // Series RF GF SW2.4-safe

Features/options

- Metal enclosure
- Available on request with special finish in RAL colour tones
- sWave® technology
- Point-to-Point connection
- Pairing via internal push-button

// RF GF SW2.4-SAFE



Technical data

Standards	EN 60947-5-1; EN 61000-6-2; EN 61000-6-3; EN 61326-3-1; EN 13849-1; EN 61784-3
Enclosure	aluminium die-cast, enamel finish, RAL 5011
Cover	glass-fibre reinforced thermoplastic
Pedal	glass-fibre reinforced thermoplastic
Degree of protection	IP 67 to IEC/EN 60529
Transmission interval	<50 ms
Synchronisation after sleep mode	max. 8 s
Current consumption active	approx. 35 mA
Current consumption sniff mode	approx. 12 mA;
Current consumption sleep mode	approx. 1 mA
Voltage supply	Lithium ion battery, 3.7 V / 2.25 Ah
Battery life	after 300 charging cycles 80 % residual capacity
Ambient temperature	-20 °C ... +65 °C
Mechanical life	> 1 million operations

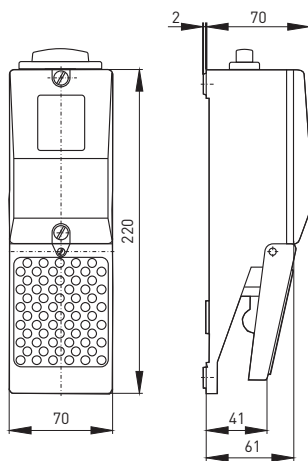
Specifications of wireless module

Frequency	2.4 ... 2.4835 GHz
Transmission power	3.15 mW
Data rate	max. 250 kbps
Sensing range	max. 15 m

Safety-related data to EN ISO 13849-1

Performance Level	PL d
Category	2
T <sub>M</sub>	max. 20 years
MTTF <sub>d</sub> electronics	216 years
MTTF <sub>d</sub> with B <sub>10d</sub> and n <sub>op</sub>	119 years
DC	20 million
PFH <sub>d</sub>	378 000
	84 %
	5.28 x 10 <sup>-7</sup> 1/h

Approvals



Wireless set  
 RF GF SW2.4-safe

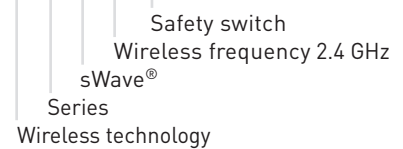
Material Number  
 1329075

Note

A set consists of a wireless foot switch, a wireless receiver, a magnetic base antenna, a charging device and a pairing cable.

Type code

RF GF SW2.4-safe

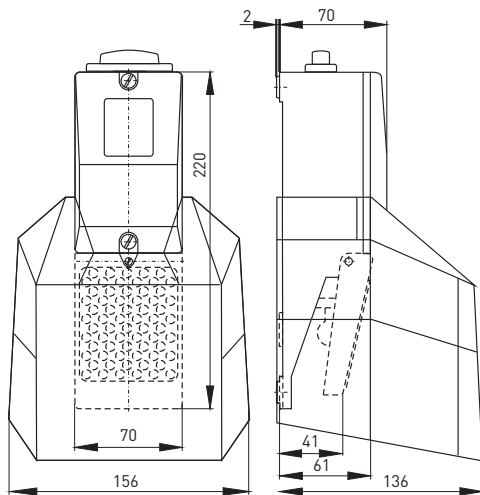
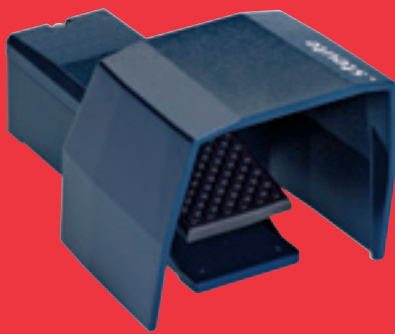


Safe wireless system sWave®-safe  
 // Series RF GFS SW2.4-safe

Features/options

- Metal enclosure
- Available on request with special finish in RAL colour tones
- sWave® technology
- Point-to-Point connection
- Pairing via internal push-button

// RF GFS SW2.4-SAFE



Wireless set  
 RF GFS SW2.4-safe

Material Number  
 1329078

Note

A set consists of a wireless foot switch, a wireless receiver, a magnetic base antenna, a charging device and a pairing cable.

Technical data

Standards	EN 60947-5-1; EN 61000-6-2; EN 61000-6-3; EN 61326-3-1; EN 13849-1; EN 61784-3
Enclosure	aluminium die-cast, enamel finish, RAL 5011
Pedal	glass-fibre reinforced thermoplastic
Protective shield	aluminium die-cast, enamel finish, RAL 5011
Degree of protection	IP 67 to IEC/EN 60529
Transmission interval	<50 ms
Synchronisation after sleep mode	max. 8 s
Current consumption active	approx. 35 mA
Current consumption	sniff mode: approx. 12 mA; sleep mode: approx. 1 mA
Voltage supply	Lithium ion battery, 3.7 V / 2.25 Ah
Battery life	after 300 charging cycles 80 % residual capacity
Ambient temperature	-20 °C ... +65 °C
Mechanical life	> 1 million operations

Specifications of wireless module

Frequency	2.4 ... 2.4835 GHz
Transmission power	3.15 mW
Data rate	max. 250 kbps
Sensing range	max. 15 m

Safety-related data to EN ISO 13849-1

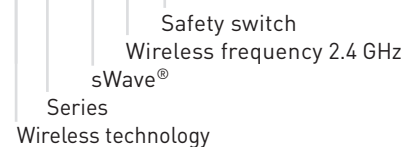
Performance Level	PL d
Category	2
T <sub>M</sub>	max. 20 years
MTTF <sub>d electronics</sub>	216 years
MTTF <sub>d with B<sub>10d</sub> and n<sub>op</sub></sub>	119 years
DC	20 million
PFH <sub>d</sub>	378 000
	84 %
	5.28 x 10 <sup>-7</sup> 1/h

Approvals



Type code

RF GFS SW2.4-safe



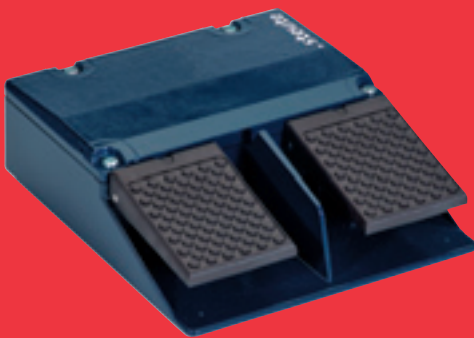
# Safe wireless system sWave®-safe

## // Series RF GF 2 SW2.4-safe

### Features/options

- Metal enclosure
- Available on request with special finish in RAL colour tones
- sWave® technology
- Point-to-Point connection
- Pairing via internal push-button

## // RF GF 2 SW2.4-SAFE



### Technical data

<b>Standards</b>	EN 60947-5-1; EN 61000-6-2; EN 61000-6-3; EN 61326-3-1; EN 13849-1; EN 61784-3
<b>Enclosure</b>	aluminium die-cast, enamel finish, RAL 5011
<b>Pedal</b>	glass-fibre reinforced thermoplastic
<b>Degree of protection</b>	IP 67 to IEC/EN 60529
<b>Transmission interval</b>	<50 ms
<b>Synchronisation after sleep mode</b>	max. 8 s
<b>Current consumption active</b>	approx. 35 mA
<b>Current consumption sniff mode</b>	approx. 12 mA
<b>Current consumption sleep mode</b>	approx. 1 mA
<b>Voltage supply</b>	Lithium ion battery, 3.7 V / 2.25 Ah
<b>Battery life</b>	after 300 charging cycles 80 % residual capacity
<b>Ambient temperature</b>	-20 °C ... +65 °C
<b>Mechanical life</b>	> 1 million operations

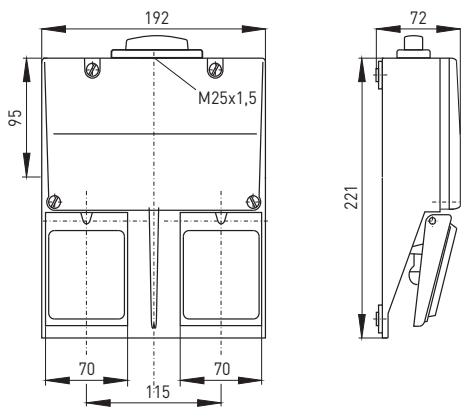
### Specifications of wireless module

<b>Frequency</b>	2.4 ... 2.4835 GHz
<b>Transmission power</b>	3.15 mW
<b>Data rate</b>	max. 250 kbps
<b>Sensing range</b>	max. 15 m

### Safety-related data to EN ISO 13849-1

<b>Performance Level</b>	PL d
<b>Category</b>	2
<b>T<sub>M</sub></b>	max. 20 years
<b>MTTF<sub>d electronics</sub></b>	216 years
<b>MTTF<sub>d</sub> with B<sub>10d</sub> and n<sub>op</sub></b>	119 years
<b>DC</b>	20 million
<b>PFH<sub>d</sub></b>	378 000
	84 %
	5.28 x 10 <sup>-7</sup> 1/h

### Approvals



**Wireless set**  
RF GF 2 SW2.4-safe

**Material Number**  
1329080

### Note

A set consists of a wireless foot switch, a wireless receiver, a magnetic base antenna, a charging device and a pairing cable.

### Type code

**RF GF 2 SW2.4-safe**

Wireless technology  
Series  
2 pedals  
sWave®  
Wireless frequency 2.4 GHz  
Safety switch



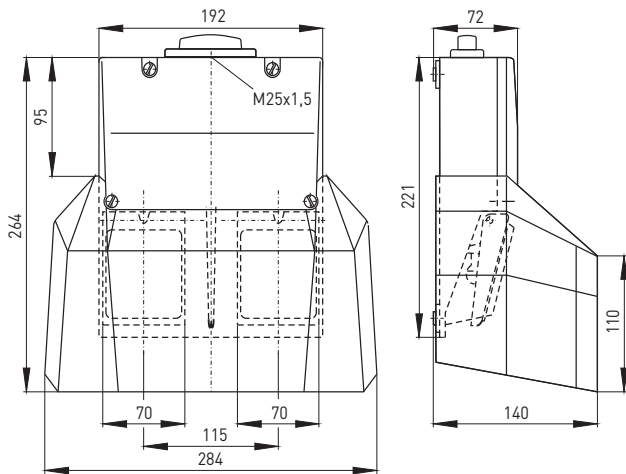
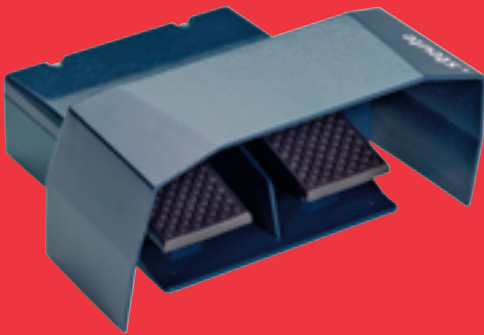
# Safe wireless system sWave®-safe

## // Series RF GFS 2 SW2.4-safe

### Features/options

- Metal enclosure
- Available on request with special finish in RAL colour tones
- sWave® technology
- Point-to-Point connection
- Pairing via internal push-button

## // RF GFS 2 SW2.4-SAFE



Wireless set  
RF GFS 2 SW2.4-safe

Material Number  
1329082

### Note

A set consists of a wireless foot switch, a wireless receiver, a magnetic base antenna, a charging device and a pairing cable.

## Technical data

Standards	EN 60947-5-1; EN 61000-6-2; EN 61000-6-3; EN 61326-3-1; EN 13849-1; EN 61784-3
Enclosure	aluminium die-cast, enamel finish, RAL 5011
Pedal	glass-fibre reinforced thermoplastic
Degree of protection	IP 67 to IEC/EN 60529
Transmission interval	<50 ms
Synchronisation after sleep mode	max. 8 s
Current consumption active	approx. 35 mA
Current consumption	sniff mode: approx. 12 mA; sleep mode: approx. 1 mA
Voltage supply	Lithium ion battery, 3.7 V / 2.25 Ah
Battery life	after 300 charging cycles 80 % residual capacity
Ambient temperature	-20 °C ... +65 °C
Mechanical life	> 1 million operations

### Specifications of wireless module

Frequency	2.4 ... 2.4835 GHz
Transmission power	3.15 mW
Data rate	max. 250 kbps
Sensing range	max. 15 m

### Safety-related data to EN ISO 13849-1

Performance Level	PL d
Category	2
T <sub>M</sub>	max. 20 years
MTTF <sub>d</sub> electronics	216 years
MTTF <sub>d</sub> with B <sub>10d</sub>	119 years
and n <sub>op</sub>	20 million
DC	378 000
PFH <sub>d</sub>	84 %
	5.28 x 10 <sup>-7</sup> 1/h

### Approvals



### Type code

RF GFS 2 SW2.4-safe

Safety switch  
 Wireless frequency 2.4 GHz  
 sWave®  
 2 pedals  
 Series  
 Wireless technology

A close-up photograph of an orange textured surface, likely a car seat or interior panel. The surface has a fine, pebbled texture. At the top, there is a black plastic component with a silver screw. Below it, a rectangular recessed area contains another silver screw. The word ".steute" is printed in white, lowercase letters on the right side of the orange surface. The bottom part of the image shows a large, curved, textured orange shape, possibly a seat cushion or backrest, which is also textured and has a silver screw visible near its top edge.

.steute

## Wireless technology 2.4 GHz

### Wireless foot switches

// **Series RF GFI SW2.4**

from page 140

// **Series RF GFSI SW2.4**

from page 141

// **Series RF GFI D SW2.4**

from page 142

// **Series RF GFSI D SW2.4**

from page 143

### Wireless hand controls

// **Series RF HB SW2.4**

from page 144

### Wireless receivers

// **Series RF RxT SW2.4**

from page 145

### Accessories

from page 146

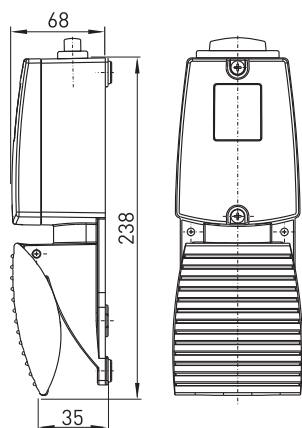
# Wireless foot switches sWave® 2.4 GHz

## // Series RF GFI SW2.4

### Features/options

- Metal enclosure
- Available on request with special finish in RAL colour tones
- sWave® technology
- Point-to-Point connection
- Pairing via internal push-button
- Frequency hopping: 32 frequencies (200 hops/s)
- Easy programming of receiver
- Transmission of battery power

### // RF GFI SW2.4



### Technical data

<b>Standards</b>	EN 60947-5-1; EN 300 440 -1 V1.3.1; EN 300 440 -2 V1.1.2; EN 301 489 -1 V1.6.1; EN 301 489 -3 V1.4.1; EN 60950; EN 50371; USA: FCC, Part 15C, single modular, FCC-Identifier: XK5-SW100AMBINT; Canada: RSS-210 Issue 7, 5158A-SW100AMBINT
<b>Enclosure</b>	aluminium die-cast, enamel finish, RAL 5011
<b>Cover</b>	aluminium die-cast, enamel finish, RAL 2004
<b>Pedal</b>	aluminium die-cast, enamel finish, RAL 5011
<b>Degree of protection</b>	IP 67 to IEC/EN 60529
<b>Transmission incl. frequency change</b>	max. 20 ms
<b>Synchronisation after sleep mode</b>	max. 200 ms
<b>Current consumption</b>	21 ... 25 mA
<b>Current consumption sleep mode</b>	approx. 56 µA
<b>Voltage supply</b>	Lithium battery type SL 2770 (replaceable)
<b>Capacity</b>	8.5 Ah / 3.6 V
<b>Battery life</b>	approx. 10 years unused, 240 days at 10 min actuations per h (8 h/d)
<b>Sensing range</b>	max. 20 m
<b>Frequency</b>	2.4 ... 2.4835 GHz
<b>Output power</b>	- 6 dBm e.i.r.p (0 dBm at 50 Ω)
<b>Input sensitivity</b>	max. -98 dBm (-104 dBm at 50 Ω)
<b>Transmission power</b>	1 mW
<b>Ambient temperature</b>	- 20 °C ... + 65 °C
<b>Mech. life</b>	> 1 million operations
<b>Approvals</b>	<b>FC IC</b>

### Wireless foot switch

RF GFI SW2.4

Spare part Lithium battery SL-2770/S

### Material Number

1187526

1202806

### Type code

**RF GFI SW2.4**

Wireless frequency 2.4 GHz  
sWave®  
Series  
Wireless technology

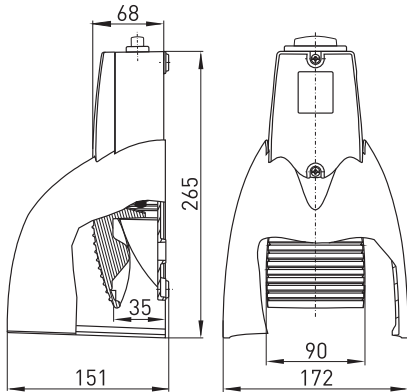
# Wireless foot switches sWave® 2.4 GHz

## // Series RF GFSI SW2.4

### Features/options

- Metal enclosure
- Available on request with special finish in RAL colour tones
- sWave® technology
- Point-to-Point connection
- Pairing via internal push-button
- Frequency hopping: 32 frequencies (200 hops/s)
- Easy programming of receiver
- Transmission of battery power

## // RF GFSI SW2.4



## Technical data

Standards	EN 60947-5-1; EN 300 440 -1 V1.3.1; EN 300 440 -2 V1.1.2; EN 301 489 -1 V1.6.1; EN 301 489 -3 V1.4.1; EN 60950; EN 50371; USA: FCC, Part 15C, single modular, FCC-Identifier: XK5-SW100AMBINT; Canada: RSS-210 Issue 7, 5158A-SW100AMBINT
Enclosure	aluminium die-cast, enamel finish, RAL 5011
Pedal	aluminium die-cast, enamel finish, RAL 5011
Protective shield	aluminium die-cast, enamel finish, RAL 2004
Degree of protection	IP 67 to IEC/EN 60529
Transmission incl. frequency change	max. 20 ms
Synchronisation after sleep mode	max. 200 ms
Current consumption	21 ... 25 mA
Current consumption sleep mode	approx. 56 µA
Voltage supply	Lithium battery type SL 2770 (replaceable)
Capacity	8.5 Ah / 3.6 V
Battery life	approx. 10 years unused, 240 days at 10 min actuations per h (8 h/d)
Sensing range	max. 20 m
Frequency	2.4 ... 2.4835 GHz
Output power	- 6 dBm e.i.r.p (0 dBm at 50 Ω)
Input sensitivity	max. -98 dBm (-104 dBm at 50 Ω)
Transmission power	1 mW
Ambient temperature	- 20 °C ... + 65 °C
Mech. life	> 1 million operations
Approvals	<b>FC IC</b>

### Wireless foot switch

RF GFSI SW2.4

Spare part Lithium battery SL-2770/S

### Material Number

1187543

1202806

### Type code

RF GFSI SW2.4

Wireless frequency 2.4 GHz  
sWave®  
Series  
Wireless technology

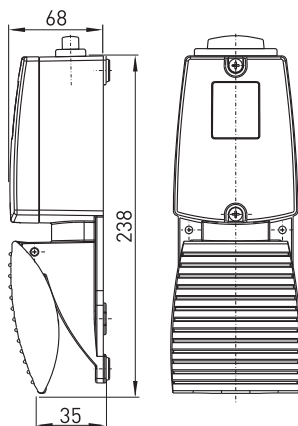
# Wireless foot switches sWave® 2.4 GHz

## // Series RF GFI D SW2.4

### Features/options

- Metal enclosure
- With pressure point
- Available on request with special finish in RAL colour tones
- sWave® technology
- Point-to-Point connection
- Pairing via internal push-button
- Frequency hopping: 32 frequencies (200 hops/s)
- Easy programming of receiver
- Transmission of battery power

## // RF GFI D SW2.4



## Technical data

<b>Standards</b>	EN 60947-5-1; EN 300 440 -1 V1.3.1; EN 300 440 -2 V1.1.2; EN 301 489 -1 V1.6.1; EN 301 489 -3 V1.4.1; EN 60950; EN 50371; USA: FCC, Part 15C, single modular, FCC-Identifier: XK5-SW100AMBINT; Canada: RSS-210 Issue 7, 5158A-SW100AMBINT
<b>Enclosure</b>	aluminium die-cast, enamel finish, RAL 5011
<b>Cover</b>	aluminium die-cast, enamel finish, RAL 2004
<b>Pedal</b>	aluminium die-cast, enamel finish, RAL 5011
<b>Degree of protection</b>	IP 67 to IEC/EN 60529
<b>Transmission incl. frequency change</b>	max. 20 ms
<b>Synchronisation after sleep mode</b>	max. 200 ms
<b>Current consumption</b>	21 ... 25 mA
<b>Current consumption sleep mode</b>	approx. 56 µA
<b>Voltage supply</b>	Lithium battery type SL 2770 (replaceable)
<b>Capacity</b>	8.5 Ah / 3.6 V
<b>Battery life</b>	approx. 10 years unused, 240 days at 10 min actuations per h (8 h/d)
<b>Sensing range</b>	max. 20 m
<b>Frequency</b>	2.4 ... 2.4835 GHz
<b>Output power</b>	- 6 dBm e.i.r.p (0 dBm at 50 Ω)
<b>Input sensitivity</b>	max. -98 dBm (-104 dBm at 50 Ω)
<b>Transmission power</b>	1 mW
<b>Ambient temperature</b>	- 20 °C ... + 65 °C
<b>Mech. life</b>	> 1 million operations
<b>Approvals</b>	<b>FC IC</b>

Wireless foot switch  
RF GFI 1S D 1S SW2.4  
Spare part Lithium battery SL-2770/S

Material Number  
on request  
1202806

<b>Type code</b>	<b>RF GFI D SW2.4</b>
	Wireless frequency 2.4 GHz
	sWave®
	with pressure point
	Series
	Wireless technology

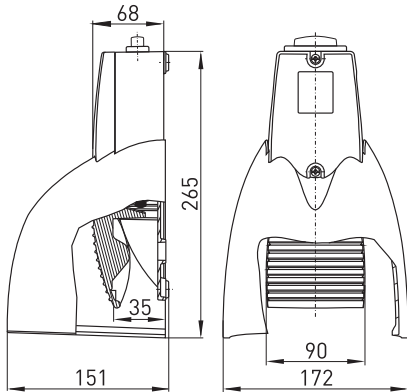
# Wireless foot switches sWave® 2.4 GHz

## // Series RF GFSI D SW2.4

### Features/options

- Metal enclosure
- With pressure point
- Available on request with special finish in RAL colour tones
- sWave® technology
- Point-to-Point connection
- Pairing via internal push-button
- Frequency hopping: 32 frequencies (200 hops/s)
- Easy programming of receiver
- Transmission of battery power

## // RF GFSI D SW2.4



## Technical data

Standards	EN 60947-5-1; EN 300 440 -1 V1.3.1; EN 300 440 -2 V1.1.2; EN 301 489 -1 V1.6.1; EN 301 489 -3 V1.4.1; EN 60950; EN 50371; USA: FCC, Part 15C, single modular, FCC-Identifier: XK5-SW100AMBINT; Canada: RSS-210 Issue 7, 5158A-SW100AMBINT
Enclosure	aluminium die-cast, enamel finish, RAL 5011
Pedal	aluminium die-cast, enamel finish, RAL 5011
Protective shield	aluminium die-cast, enamel finish, RAL 2004
Degree of protection	IP 67 to IEC/EN 60529
Transmission incl. frequency change	max. 20 ms
Synchronisation after sleep mode	max. 200 ms
Current consumption	21 ... 25 mA
Current consumption sleep mode	approx. 56 µA
Voltage supply	Lithium battery type SL 2770 (replaceable)
Capacity	8.5 Ah / 3.6 V
Battery life	approx. 10 years unused, 240 days at 10 min actuations per h (8 h/d)
Sensing range	max. 20 m
Frequency	2.4 ... 2.4835 GHz
Output power	- 6 dBm e.i.r.p (0 dBm at 50 Ω)
Input sensitivity	max. -98 dBm (-104 dBm at 50 Ω)
Transmission power	1 mW
Ambient temperature	- 20 °C ... + 65 °C
Mech. life	> 1 million operations
Approvals	<b>FC IC</b>

Wireless foot switch  
RF GFSI 1S D 1S SW2.4  
Spare part Lithium battery SL-2770/S

Material Number  
1281792  
1202806

### Type code

**RF GFSI D SW2.4**

Wireless frequency 2.4 GHz  
sWave®  
with pressure point  
Series  
Wireless technology

Wireless hand controls sWave® 2.4 GHz  
 // Series RF HB SW2.4-4CH

Features/options

- Thermoplastic enclosure
- sWave® technology
- Keypad with four push-buttons and LED display
- Surrounding sealing (shock protection)
- With lanyard loop on the enclosure
- Power supply by Lithium battery
- Easy programming of receiver
- Output signal can be individually configured at the receiver

// RF HB SW2.4



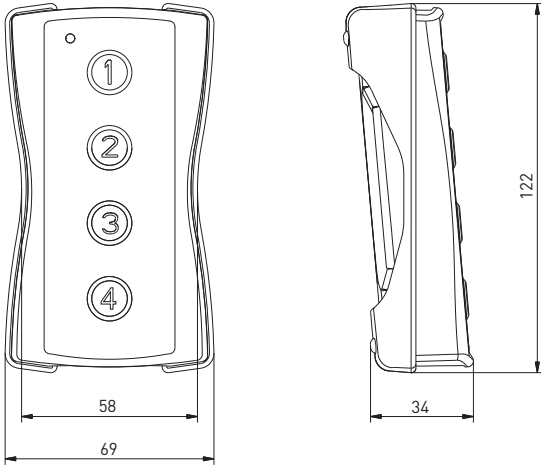
Technical Data

<b>Standards</b>	EN 60947-5-1; EN 61000-6-2; EN 61000-6-3; EN 300440, EN 301489, EN 60950; USA: FCC, Part 15C, single modular, FCC-Identifier: XK5-SW100AMBINT; Canada: RSS-210 Issue 7, 5158A-SW100AMBINT
<b>Enclosure</b>	ABS
<b>Degree of protection</b>	IP 54 to IEC/EN 60529
<b>Protocol</b>	sWave®
<b>Ambient temperature</b>	0 °C ... +50 °C
<b>Voltage supply</b>	3 x AAA 1.5 V battery
<b>Capacity</b>	1.2 Ah
<b>Rated operating current I<sub>e</sub></b>	active: 25 mA, Sleep: 100 µA
<b>Frequency</b>	2.4... 2.4835 GHz
<b>Data rate</b>	250 kbps
<b>Interface data rate</b>	115.2 kBaud (UART)
<b>Sensing range</b>	10 m (with integrated antenna)
<b>Output power</b>	- 6 dBm e.i.r.p (0 dBm at 50 Ω)
<b>Input sensitivity</b>	max. -98 dBm (-104 dBm at 50 Ω)
<b>Antenna</b>	internal ceramic antenna
<b>Modulation type</b>	2-FSK, MSK

Approvals



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Wireless hand controls  
RF HB SW2.4

Material Number  
1365610

Type code **RF HB SW2.4**

RF HB SW2.4  
 Wireless frequency 2,4 GHz  
 sWave®  
 Hand control device  
 Wireless technology



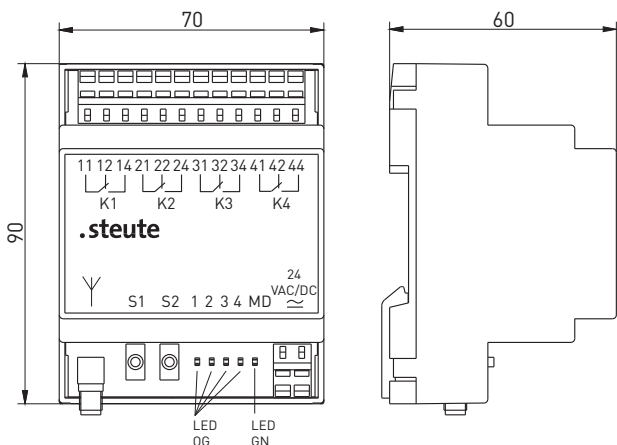
# Wireless receiver sWave® 2.4 GHz

## // Series RF RxT SW2.4-4W

### Features/options

- sWave® technology
- 4 potential free relay outputs
- 4 change-over contacts, max. 6 A
- LEDs for indication of switching state
- SMA plug-in connector for external antenna

## // RF RXT SW2.4



Wireless receiver  
 RF RxT SW2.4-4W 24 VAC/DC  
 RF RxT SW2.4-4W-VAL 24 VAC/DC

Material Number  
 1317999  
 1187208

## Technical data

<b>Standards</b>	EN 300 440 -1 V1.3.1; EN 300 440 -2 V1.1.2; EN 301 489 -1 V1.6.1; EN 301 489 -3 V1.4.1; EN 60950; EN 50371; USA: FCC, Part 15C, single modular, FCC-Identifier: XK5-SW100AMBINT; Canada: RSS-210 Issue 7, 5158A-SW100AMBINT
<b>Mounting</b>	DIN rail mounting
<b>Connection</b>	terminals with CAGE CLAMP WAGO Series 236: 0.08 ... 2.5 mm <sup>2</sup> AWG 28-12, AWG 12: THHN, THWN, stripping length 5 ... 6 mm/ 0.22 in
<b>Degree of protection</b>	IP 20 to IEC/EN 60529
<b>Rated operating current I<sub>e</sub></b>	max. 0.21 A
<b>Rated operating voltage U<sub>e</sub></b>	24 VDC -15 % ... +10 %
<b>Inputs</b>	2 transmitters per receiver
<b>Outputs</b>	4 change-over contacts (Relays), K4 is used as validate relay
<b>I<sub>e</sub>/U<sub>e</sub> of output contacts</b>	6 A / 250 VAC; 2 A / 24 VDC
<b>Utilisation category</b>	AC-15; DC 13
<b>Frequency</b>	2.4 ... 2.4835 GHz
<b>Output power</b>	- 6 dBm e.i.r.p (0 dBm at 50 Ω)
<b>Input sensitivity</b>	max. -98 dBm (-104 dBm at 50 Ω)
<b>Display</b>	green LED for operating state, yellow LED for switching conditions
<b>EMC rating</b>	acc. to EMC directive
<b>Degree of pollution</b>	2 per DIN VDE 0110
<b>Ambient temperature</b>	0 °C ... +55 °C
<b>Storage and transport-temperature</b>	-25 °C ... +85 °C
<b>Note</b>	inductive loads (contactors, relays etc.) are to be suppressed by suitable circuitry.
<b>Approvals</b>	

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### Type code

RF RxT SW2.4-4W

4 Relais outputs  
 Wireless frequency 2.4 GHz  
 sWave®  
 Wireless receiver  
 Wireless technology

RF magnet antenna with SMA plug-in connector available as accessory material No. 1186917

// RF magnet antenna 2.4 GHz



**Features/options**

- RF magnet antenna with straight SMA plug-in connector without ferrite core
- Cable length 1 m
- Order unit: 1 piece

**Antennas**

RF Magnet antenna 2.4 GHz

**Material Number**

1186917

**Note**

The antenna must be mounted on a metal plate of min. 250 x 250 mm size.

// RF SMA antenna socket



**Features/options**

- RF SMA antenna socket with straight SMA plug-in connector
- Cable length 0.5 m
- Order unit: 1 piece

**Antenna sockets**

RF SMA antenna socket

**Material Number**

1185712

// RF SMA antenna extension



**Features/options**

- RF SMA antenna extension cable with straight SMA plug-in connector
- Cable length 3 m
- Order unit: 1 piece

**Antenna extensions**

RF SMA antenna extension cable 3 m

**Material Number**

1186734

## // Antenna arrangement

### Arrangement of receiver and switch antenna

Optimum mounting



Possible mounting



Unsuitable mounting



## // 24 VDC power supply



### Features/options

- 24 VDC power supply for wireless receivers RF Rx ...

### Power supplies

Power supply 24 VDC

Material Number

1188751





Image sources:  
Fotostudio Udo Kowalski, Wuppertal  
[www.fotodesignkowalski.com](http://www.fotodesignkowalski.com)  
[www.fotolia.de](http://www.fotolia.de)  
[www.istockphoto.com](http://www.istockphoto.com)

steute develops and manufactures safe switchgear for demanding and critical application. Besides a comprehensive standard range of products for »Wireless, Automation, Extreme and Meditec« applications, we also and increasingly develop customised switchgear for extreme conditions in all four business fields. Some examples: emergency pullwire

switches for the mining industry, position switches for industrial automation and control panels for laser surgery. Our head office is in Löhne, Westphalia, Germany; worldwide sales are conducted through steute's subsidiaries and trading partners.

**steute**  
**Schaltgeräte GmbH & Co. KG**  
**Brückenstraße 91**  
**32584 Löhne, Germany**  
**Phone + 49 (0) 57 31 7 45-0**  
**Fax + 49 (0) 57 31 7 45-200**  
**E-mail [info@steute.com](mailto:info@steute.com)**  
**[www.steute.com](http://www.steute.com)**