

.steute

Wireless



// SAFE SWITCHGEAR FOR DEMANDING
AND CRITICAL APPLICATIONS

Catalogue



6 The Company

PRODUCTS

12 RADIO TECHNOLOGY 868 MHZ



14 Radio receivers / Radio repeater

- 14 Series RF Rx EN868-1W
- 15 Series RF Rx EN868-4W
- 16 Series RF Rx EN868-2W-RS232
- 17 Radio Repeater RF RxT EN868-1K



18 Wireless multifunction handles

- 18 Series RF TG
- 19 Series RF TGM



20 Wireless position switches

- 20 Series RF 10 H
- 22 Series RF 95
- 28 Series RF 96
- 34 Series RF 41
- 44 Series RF 98



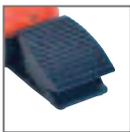
48 Wireless command devices

- 48 Series RF BF 72
- 52 Series RF BF 94
- 56 Series RF 95 RS SW



60 Wireless pull-wire switches

- 60 Series RF 95 WH/90°
- 61 Series RF 41 Z



62 Wireless foot switches

- 62 Series RF KF
- 63 Series RF GFI
- 64 Series RF GFSI



66 Wireless magnetic sensors

- 66 Series RF RC 10
- 67 Series RF GS

68 Accessories

72 RADIO TECHNOLOGY 2.4 GHZ



74 Radio receiver

74 Series RF RxT SW 2.4



76 Wireless foot switches

76 Series RF GFI SW 2.4

77 Series RF GFSI SW 2.4

78 Accessories



// 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 radio 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, GOST).

Meditec

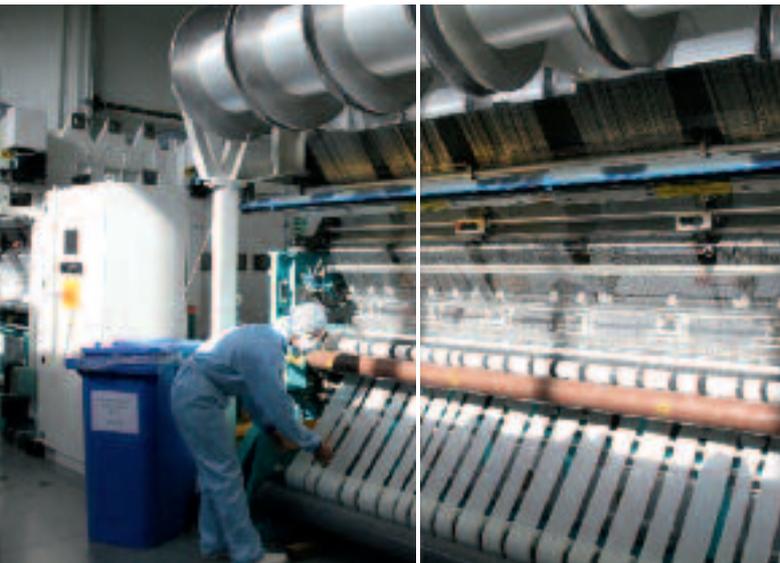
A comprehensive range of standard and customised foot and hand controls for medical devices, meeting the highest ergonomic and availability requirements. Produced in accordance with the certified EN ISO 13485 quality management system for medical products.

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 RADIO 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 radio 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. Radio interference from other wireless systems affects the radio 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 radio standards

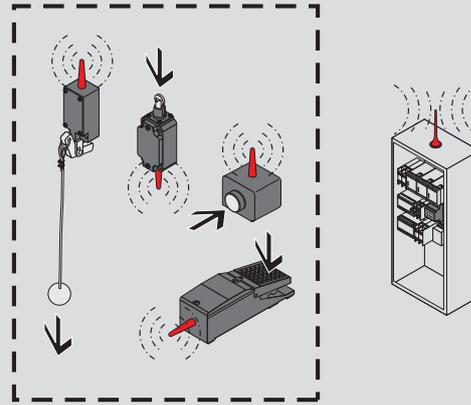
The rapidly growing demand has led to continual expansion of our range. At the beginning, we used available radio standards. However, they limited the application of radio technology in several fields. That is why, in a first step, the steute developers adapted these standards to suit the requirements of its customers. In a second step, steute then developed its own radio 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 radio 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.

// THE FUTURE INDUSTRIAL AUTOMATION



To a large degree, the efficiency and reliability of industrial production plants depend on the availability of manifold information. Today, this information, concerning for example material flow, maintenance parameters or production parameters, is usually provided by wired sensors. However, wiring involves limitations regarding

- flexibility (conversions, expansions)
- application (vehicles, moveable or rotating parts) or
- availability of information (only at the end of the cable).

These limitations can be overcome by applying radio technology to transmit the data. The wireless connection should not be viewed as a mere cable replacement, however, but as opening up opportunities for the decisive improvement of the entire system process with regard to cost and quality. Crucial success factors for broad wireless solutions in the production environment are:

- a. the availability of fail-safe radio communication
- b. the availability of maintenance-free and thus self-sufficient, non-battery radio sensors or actuators
- c. the profitability of these wireless solutions.

steute wireless on 2.4 GHz

High demands are made of a wireless radio system designed to control sensors/actuators. Since an additional request means that the radio system needs to be applicable worldwide, it can only be used on the 2.45 GHz ISM-band. For this frequency range, a number of standard components are available. A further advantage, considering the relatively high operating frequency, is that typical industrial sources of interference, such as arcs or spot welding machines, frequency converters, switching power supplies or induction heaters, do not affect the radio systems. Wireless system solutions, often based on the IEEE standards 802.15.1/Bluetooth or 802.15.4/Zigbee, soon to become established, cannot be applied here owing to the short cycle periods required.

A new system with crucial advantages

In order to offer operators a reliable and practical radio technology, steute has developed a new radio standard especially for the machinery and process plant industry. Based on years of experience with different radio technologies, this system represents a new standard. It is a system with crucial advantages: low power consumption, quick link connection, less expensive.

Much lower power consumption – short connection time.

The system works on the globally accessible 2.4 GHz band and is split into 32 channels. At max. 25 mA, the power consumption is up to 60% lower than with other radio standards. Another advantage of the steute wireless technology is a sleep mode function, which requires only 6 μ A of current. By touching a switching function, the system is activated and the radio data link is realized in less than 200 ms (typically 50 to 100 ms). The user does not notice anything, yet benefits from a much longer battery lifespan.

All requirements for industrial applications are met

The new radio standard was developed especially for the requirements of an industrial environment. It meets high safety standards; the signal transmission is carried out reliably, even in unfavourable ambient conditions.

steute wireless 868 MHz

At the lower levels of the control hierarchy, realization of self-sufficient systems is necessary, since here the greatest customer benefits are realized.

Our industrial switching devices are based on the innovative EnOcean radio technology. The sensor modules made by EnOcean use tiny amounts of energy to record sensor values and transmit them by radio. At just 50 μ WS, a standard EnOcean radio module can easily transmit a signal over a distance of 300m (outdoors). The secret is the signal duration; the entire process is initiated, carried out and finished in just 16 milliseconds.

In order to operate these sensor modules, steute has developed an energy converter which generates the energy required to operate the modules from its own linear movement. The energy converter is maintenance-free and has a lifespan of far more than 1 million switching cycles. For special cases, where an energy generator cannot be applied owing to special mechanical requirements, durable batteries with a lifetime of up to 10 years can be utilized. Contact us for your requirements profile.

The signal transmission is carried out on the royalty-free SRD (short range devices) band at 868 MHz, up to 10 mW transmission power. Actuation of the steute device spontaneously transmits a very short telegram containing an individual 32-bit ident number, as well as instructions for use. A backup protocol, as well as multiple transmission of this information guarantee highest transmission safety. As an additional safety feature, a periodic status signal is sent to detect interferences in the system in time.

// WE DESIGN SELF-SUFFICIENT SWITCHGEAR

This is how the transmission works

Technical details transmitter

Function

Multifunction handle switch:
On actuation a radio telegram is sent. The processed radio signal is required in order to unlock a solenoid interlock.

Function

Position switch / Foot switch:
A radio telegram is sent on actuation.

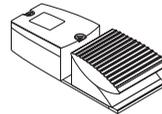
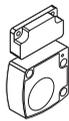
Function

Pull-wire switch:
A radio telegram is sent when the wire is pulled.

Power supply: Solar cells/electrodyn. energy generator



Radio switchgear

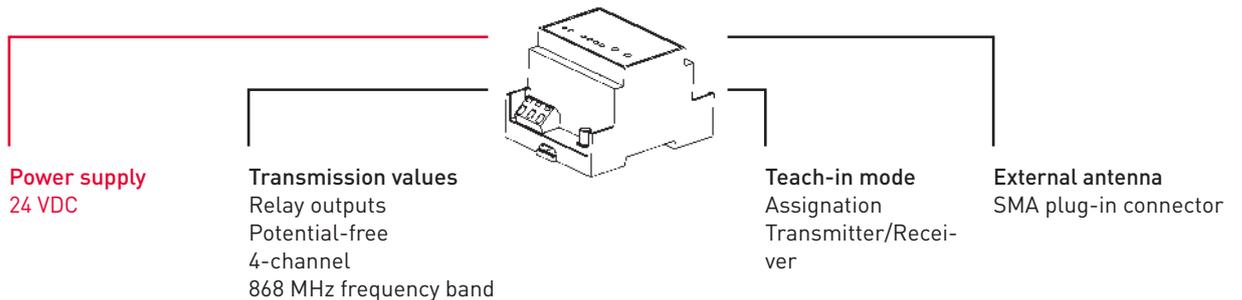


Switch is actuated

Contact is closed

High signal at receiver

High signal at receiver





steute

Radio technology 868 MHz

Radio receivers/repeater

Series RF Rx EN868-1	14
Series RF Rx EN868-4	15
Series RF Rx EN868-2-RS232	16
Series RF RxT EN868-1K	17

Wireless multifunction handles

Series RF TG	18
Series RF TGM	19

Wireless position switches

Series RF 10	20
Series RF 95	22
Series RF 96	28
Series RF 41	34
Series RF 98	44

Wireless command devices

Series RF BF 72	48
Series RF BF 94	52
Series RF 95	56

Wireless pull-wire switches

Series RF 95 WH/90°	60
Series RF 41 Z	61

Wireless foot switches

Series RF KF	62
Series RF GFI	63
Series RF GFSI	64

Wireless magnetic sensors

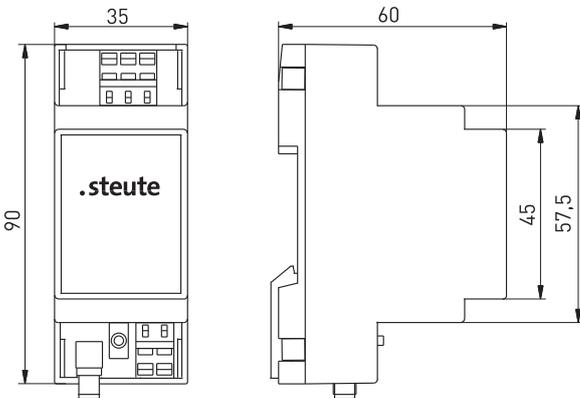
Series RF RC 10	66
Series RF GS M25	67

Accessories	68
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Radio receivers

// Series RF Rx EN868-1W

// RF RX EN868-1W



Order Number

- RF Rx EN868-1W 24 VDC order-No. 90590001,
- RF Rx EN868-PNP 24 VDC order-No. 90590003,
- RF Rx EN868-NPN 24 VDC order-No. 90590002
- RF Rx EN868-1W 24 VAC/DC order-No. 90590005

Features/options

- Thermoplastic enclosure
- EnOcean standard
- 1-channel: potential-free relay outputs
- DC version: 1 change-over contacts, NPN- or PNP output
- AC version: 1 change-over contacts
- 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; EN 61000-6-3; EN 60068-2-6; EN 60068-2-27; EN 301 489-1; EN 301 489-3; EN 300 220-3
Number of channels	1
Mounting	DIN rail mounting
Connection	terminals with CAGE CLAMP WAGO Series 236: 0.08 ... 2.5 mm ² AWG 28-14 (incl. conductor ferrules)
Degree of protection	IP 20 per EN 60529
Inputs	1 radio channel, max. 10 transmitters per channel
Outputs	1 change-over contact (Relay), NPN or PNP (transistor)
Rated operating current I_e	max. 0.22A AC, 0.08A DC
Rated operating voltage U_e	24 VAC/DC -15% ... +10%
I_e/U_e of output contacts	6A / 250 VAC; 2A / 24 VDC
Utilisation category	AC-15; DC-13
U_i	250 VAC
U_{imp}	2.5 kV
Frequency	868.3 MHz
Display	green LED for control voltage, yellow LED for switching conditions
Switching frequency	approx. 9000 telegrams at repetitions/h
Degree of pollution	2 per DIN VDE 0110
Ambient temperature	0 °C ... +55 °C
Storage and transport-temperature	-25 °C ... +85 °C
Vibration resistance	NO contact 20g, NC contact 5g
Schock resistance	max. 100g
External antenna	always required for optimum sensing range
Note	inductive loads (contactors, relays etc.) are to be suppressed by suitable circuitry.

Type code

RF Rx EN868-1W

Change-over contact (NPN,
PNP transistor output)
Radio frequency 868 MHz
EnOcean standard
Radio receiver
Radio technology

RF magnet antenna with SMA plug-in connector available as accessory, order-No. 01.08.0386.

Mobile field strength indicator EPM 300 for radio field planning is available, order-No. 90598005.

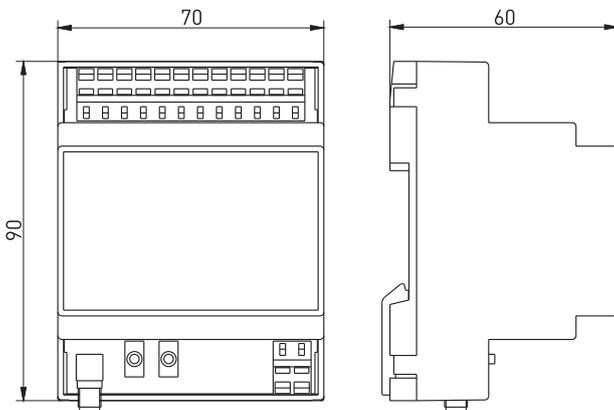
Radio receivers

// Series RF Rx EN868-4

Features/options

- Thermoplastic enclosure
- EnOcean standard
- 4-channel: potential-free relay outputs
- 4 NO contacts, max. 16 A, 4 change-over contacts, max. 8 A
- Transmitter/receiver assignment by teaching mode
- LEDs for indication of switching state
- SMA plug-in connector for external antenna

// RF RX EN868-4W



Order Number

- RF Rx EN868-4W order-No. 90590006

Technical Data

Standards	EN 60947-5-1; EN 61000-6-2; EN 60068-2-6; EN 60068-2-27; EN 301 489-1; EN 301 489-3; EN 300 220-3
Standards	4
Mounting	DIN rail mounting
Connection	terminals with CAGE CLAMP WAGO Series 236: 0.08 ... 2.5 mm ² AWG 28-14 (incl. conductor ferrules)
Degree of protection	IP 20 per EN 60529
Inputs	4 radio channels, max. 10 transmitters per channel
Outputs	4 change-over contacts (Relays)
Rated operating current I _e	max. 0.25A AC, 0.1A DC
Rated operating voltage U _e	24 VAC/DC -15% ... +10%
I _e /U _e of output contacts	6A / 250 VAC; 2A / 24 VDC
Utilisation category	AC-15; DC-13
U _i	250 VAC
U _{imp}	2.5 kV
Radio frequency	868.3 MHz
Display	green LED for supply voltage, yellow LED for switching conditions
Switching frequency	approx. 9000 telegrams at repetitions/h
Degree of pollution	2 per DIN VDE 0110
Ambient temperature	0 °C ... +55 °C
Storage and transport- temperature	-25 °C ... +85 °C
Vibration resistance	NO contact 20g, NC contact 5g
Schock resistance	max. 100g
External antenna	always required for optimum sensing range
Note	inductive loads (contactors, relays etc.) are to be suppressed by suitable circuitry.

15

Type code

RF Rx EN868-4W

4 change-over contacts
Radio frequency 868 MHz
EnOcean standard
Radio receiver
Radio technology

RF magnet antenna with SMA plug-in connector available as accessory, order-No. 01.08.0386.

Mobile field strength indicator EPM 300 for radio field planning is available, order-No.90598005.

Radio repeater

// Series RF RxT EN868-1K

Features/options

- Thermoplastic enclosure
- EnOcean standard
- LEDs for indication of switching state
- 868 MHz frequency band
- 35 mm enclosure
- SMA plug-in connector for external antenna

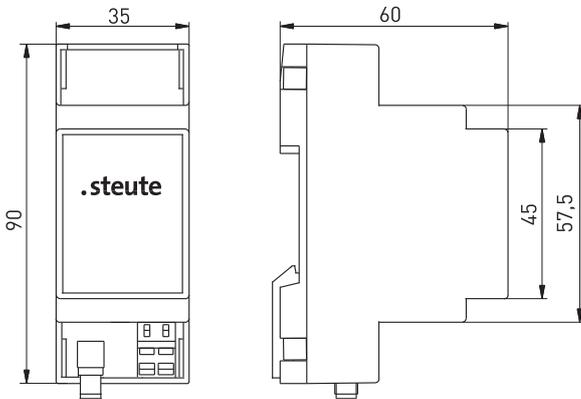
// RF RXT EN868-1K



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 300 220-3
Number of channels	1
Mounting	DIN rail mounting
Connection	terminals with CAGE CLAMP WAGO Series 236: 0.08 ... 2.5 mm ² AWG 28-14 (incl. conductor ferrules)
Degree of protection	IP 20 per EN 60529
Rated operating voltage U_e	24 VDC -15 % ... +20 %
Rated operating current I_e	max. 0.08 A DC
Frequency	868.3 MHz
Display	green LED for control voltage, orange LED: confirmation of telegram
Switching frequency	approx. 9000 telegrams at repetitions/h
Degree of pollution	2 per DIN VDE 0110
Ambient temperature	0 °C ... +55 °C
Storage and transport-temperature	-25 °C ... +85 °C
Schock resistance	max. 100g
External antenna	always required for optimum sensing range

17



Order Number

- RF RxT EN868-1K order-No. 90590004

Type code

RF Rx EN868-1K

1-channel,
simple cascading
Radio frequency 868 MHz
EnOcean standard
Radio repeater
Radio technology

RF magnet antenna with SMA plug-in connector available as accessory, order-No. 01.08.0386.

Mobile field strength indicator EPM 300 for radio field planning is available, order-No.90598005.

Wireless multifunction handles

// Series RF TG

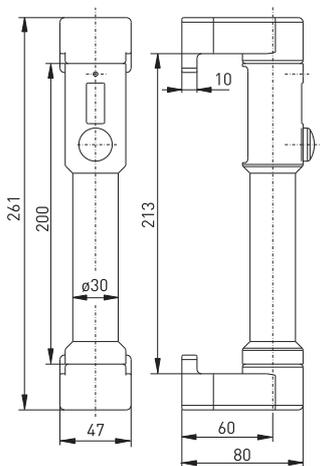
Features/options

- Thermoplastic enclosure
- Enabling push button
- Integrated solar cell, no battery/rechargeable battery required
- Output signal can be individually configured at the receiver
- EnOcean-protocol
- Data rate 120 kbps
- No wiring and pipe laying required
- Multi-network capable
- Easy programming of receiver

Technical Data

Standards	EN 60947-5-1; EN 61000-6-2; EN 301 489-1; EN 301 489-3; EN 300 220-3
Enclosure	glass-fibre reinforced thermoplastic POM
Degree of protection	IP 67 per EN 60529
Switching system	push button
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
Bandwidth channel	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

// RF TG



Order Number
- RF TG EN868 order No. 97955914

Type code

RF TG EN868

Radio frequency 868 MHz
EnOcean standard
Multifunction handle
Radio technology

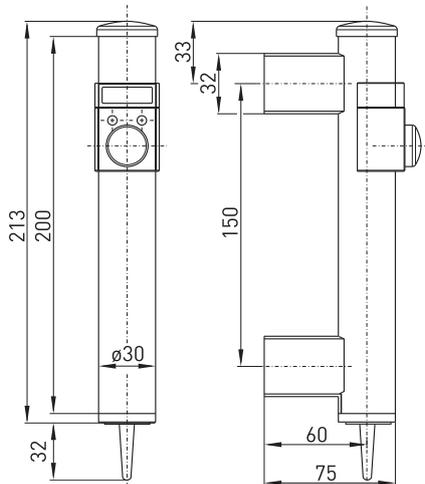
Wireless multifunction handles

// Series RF TGM

Features/options

- Metal enclosure
- Enabling push button
- Integrated solar cell, no battery/rechargeable battery required
- Output signal can be individually configured at the receiver
- EnOcean-protocol
- Data rate 120 kbps
- No wiring and pipe laying required
- Multi-network capable
- Easy programming of receiver

// RF TGM



Order Number

- RF TGM EN868 order No. 97955001

Technical Data

Standards	EN 60947-5-1; EN 61000-6-2; EN 301 489-1; EN 301 489-3; EN 300 220-3
Enclosure	stainless steel V2A (14301) or Aluminium anodised, aluminium black anodised
Protection class	IP 67 per EN 60529
Switching system	push button
Protocol	EnOcean
Ambient temperature	-20 °C ... +65 °C
Switching frequency	approx. 6000 telegrams at repetitions/h
Voltage supply	Solar cell
Frequency	868.3 MHz
Transmission power	max. 10 mW
Data rate	120 kbps
Bandwidth channel	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

19

Type code

RF TGM EN868

Radio frequency 868 MHz
EnOcean standard
Multifunction handle
Radio technology

Other handle lengths and several push buttons available on request.

Wireless position switches

// Series RF 10

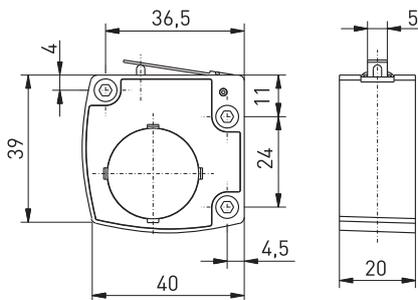
Features/options

- Thermoplastic enclosure
- Output signal can be individually configured at the receiver
- EnOcean-protocol
- Data rate 120 kbps
- No wiring and pipe laying required
- Multi-network capable
- Easy programming of receiver
- Mechanical variant

Technical Data

Standards	EN 60947-5-1
Enclosure	thermoplastic, Polyamid PA 66
Degree of protection	IP 67 per IEC 60529
Protocol	EnOcean
Ambient temperature	- 20 °C ... + 65 °C
Switching frequency	approx. 9000 telegrams at repetitions/h
Voltage supply	Lithium-battery
Frequency	868.3 MHz
Transmission power	max. 10 mW
Data rate	120 kbps
Channel bandwidth	280 kHz
Sensing range	max. 150 m outside, max. 30 m inside
Mechanical life	> 1 million operations
Actuating time	min. 80 ms
Note	no status signal available

// RF 10



Order Number

- RF 10 H EN868 order No. 10120101

Type code

RF 10 H EN868

Radio frequency 868 MHz
EnOcean standard
Actuator H
Series
Radio technology

PRODUCTION PROCESS
ASSEMBLY OF COMPONENTS



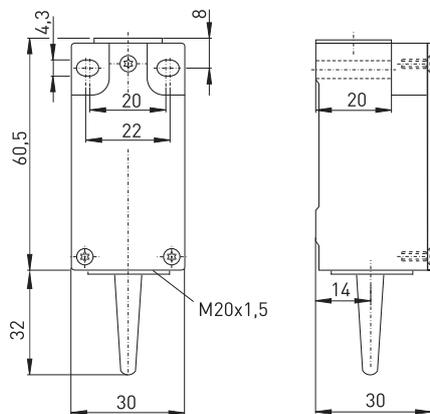
Wireless position switches

// Series RF 95

Features/options

- Thermoplastic enclosure
- To EN 50 047
- Output signal can be individually configured at the receiver
- EnOcean-protocol
- Data rate 120 kbps
- No power supply, no wiring and pipe laying required
- Multi-network capable
- Easy programming of receiver

// RF 95



Technical Data

Standards	EN 60947-5-1; EN 61000-6-2; EN 301 489-1; EN 301 489-3; EN 300 220-3
Enclosure	Glassfibre reinforced thermoplastic, self-extinguishing UL 94-V0
Cover	Glassfibre reinforced thermoplastic, self-extinguishing UL 94-V0
Protection class	IP 67 per EN 60529
Protocol	EnOcean
Ambient temperature	-20 °C ... +65 °C
Switching frequency	approx. 9000 telegrams at repetitions/h
Voltage supply	Electrodynamim energy generator
Frequency	868.3 MHz
Transmission power	max. 10 mW
Data rate	120 kbps
Bandwidth channel	280 kHz
Sensing range	max. 300 m outside, max. 30 m inside
Mechanical life	> 1 million operations
Actuating time	min. 80 ms
Note	no status signal available

Type code

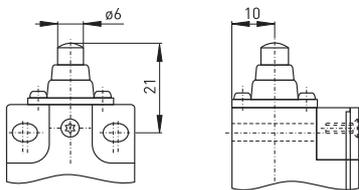
RF 95 WR EN868

Radio frequency 868 MHz
 EnOcean standard
 Actuator R (H, D, DS, etc. ...)
 Watertight collar
 Series
 Radio technology

Wireless position switches

// Series RF 95, actuators

// Plunger W



Features/options

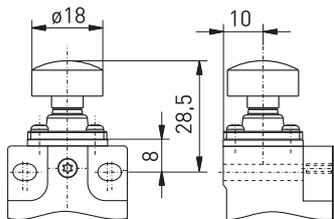
- Actuator type B per DIN EN 50 047
- Watertight collar for protection against penetration of dirt

Order number

- RF 95 W EN 868 order No. 95902901

23

// Cap WK



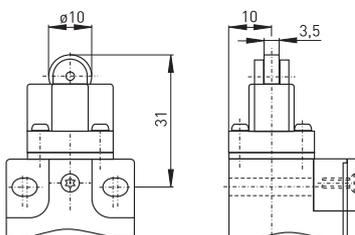
Features/options

- Suitable for manual actuation

Order number

- RF 95 WK EN868 order No. 95902902

// Roller plunger R



Features/options

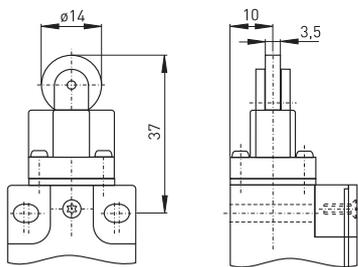
- R: actuator type C per DIN EN 50 047
- Wear-resistant thermoplastic roller
- Metal roller available on request
- Actuator head can be repositioned by 4 x 90°

Order Number

- RF 95 R EN868 order-No. 95909901

Wireless position switches
 // Series RF 95, actuators

// Long Roller plunger RL



Features/options

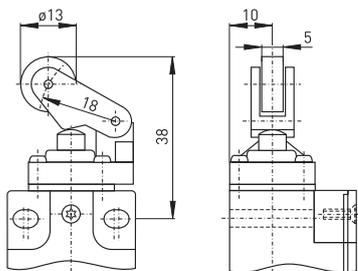
- Wear-resistant thermoplastic roller
- Metal roller available on request
- Actuator can be repositioned by 90°

Order Number

- RF 95 RL EN 868 order No. 95911001

24

// Roller lever WH



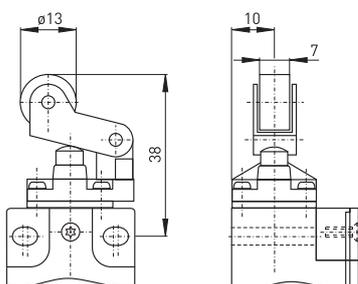
Features/options

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

Order Number

- RF 95 WH EN 868 order No. 95914001

// Metal roller lever WHM



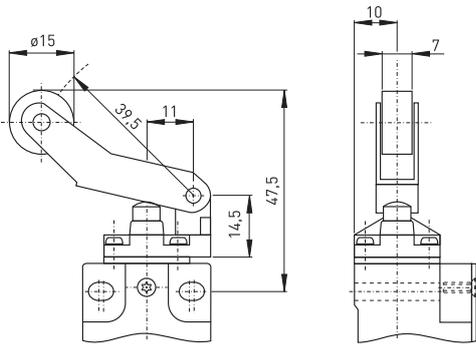
Features/options

- Actuating speed 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 thermoplastic roller
- Actuator head can be repositioned by 4 x 90°
- Metal roller available on request

Order Number

- RF 95 WHM EN 868 order No. 95914902

// Long metall roller lever WHLM



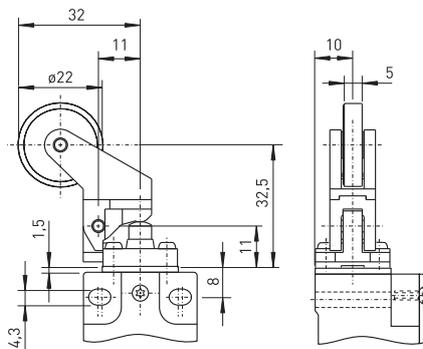
Features/options

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

Order Number

- RF 95 WHLM EN868 order No. 95916001

// Thermoplastic roller lever 4K



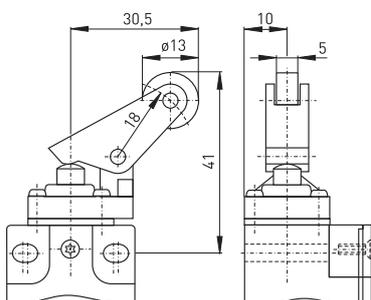
Features/options

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

Order Number

- RF 95 4K EN868 order No. 95964001

// Parallel roller lever WPH



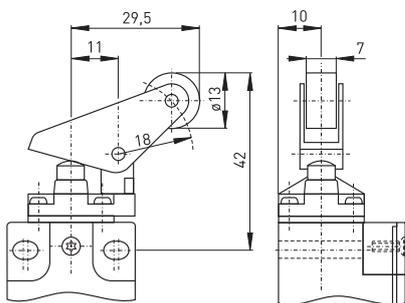
Features/options

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

Order Number

- RF 95 WPH EN868 order No. 95920002

// Metal parallel roller lever WPHM



Features/options

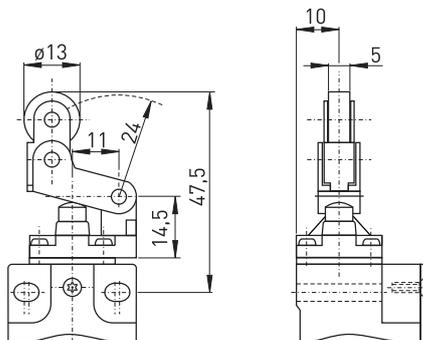
- Actuating speed 0.5 m/s with a vertical actuating angle of $\alpha = 30^\circ$
- Watertight collar for protection against penetration of dirt
- Wear-resistant thermoplastic roller
- Actuator head can be repositioned by $4 \times 90^\circ$
- Actuation from below parallel to plunger axis
- Metal roller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

Order Number

- RF 95 WPHM EN868 order No. 95920001

26

// Rocking offset roller lever WHKM



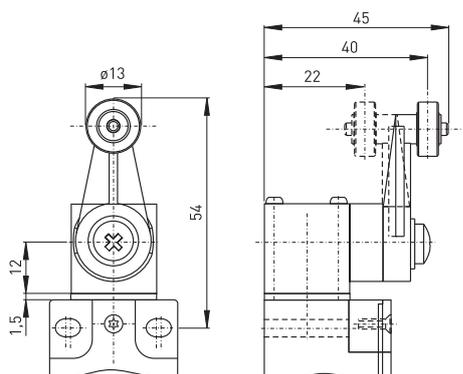
Features/options

- Actuating speed 0.5 m/s with a vertical actuating angle of $\alpha = 30^\circ$
- Watertight collar for protection against penetration of dirt
- Wear-resistant thermoplastic roller
- Actuator head can be repositioned by $4 \times 90^\circ$
- Actuation only possible from one side
- Free movement of actuator from other side
- Metal roller available on request

Order Number

- RF 95 WHKM EN868 order No. 95918001

// Rocking roller lever D



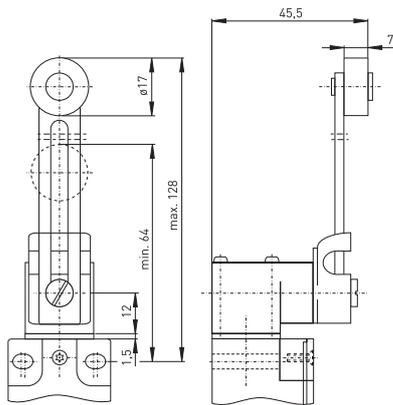
Features/options

- Lever angle adjustable in 10° steps
- Wear-resistant thermoplastic roller
- Actuator head can be repositioned by $4 \times 90^\circ$
- Metal roller available on request

Order Number

- RF 95 D EN868 order No. 95921901

// Adjustable rocking lever DS



Features/options

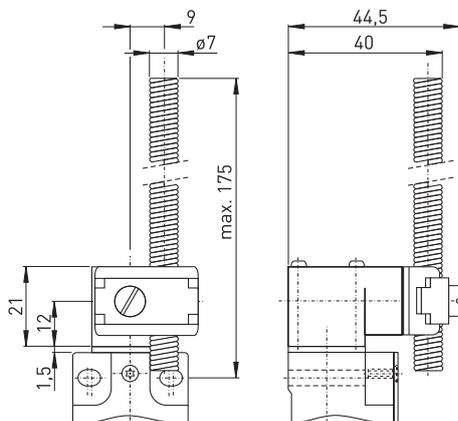
- Position of roller can be adjusted
- Wear-resistant thermoplastic roller
- Actuator can be repositioned by 4 x 90°
- Metal roller available on request

Order Number

- RF 95 DS EN868 order No. 95929001

27

// Spring-rod lever DF



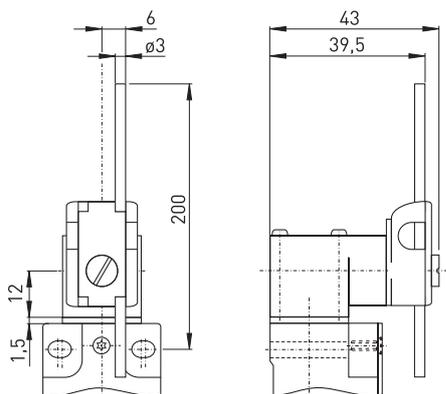
Features/options

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

Order Number

- RF 95 DF EN868 order No. 95927901

// Rod lever DD



Features/options

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

Order Number

- RF 95 DD EN868 order No. 95925001

Wireless position switches

// Series RF 96

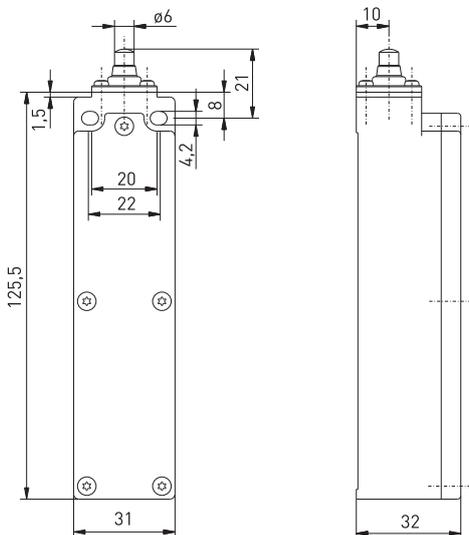
Features/options

- Thermoplastic enclosure
- Mounting dimensions to DIN EN 50 047
- Output signal can be individually configured at the receiver
- EnOcean-protocol
- Data rate 120 kbps
- No power supply, no wiring and pipe laying required
- Multi-network capable
- Easy programming of receiver

Technical Data

Standards	EN 60947-5-1; EN 61000-6-2; EN 301 489-1; EN 301 489-3; EN 300 220-3
Enclosure	Glassfibre reinforced thermoplastic, self-extinguishing UL 94-V0
Cover	Glassfibre reinforced thermoplastic, self-extinguishing UL 94-V0
Degree of protection	IP 67 per EN 60529
Protocol	EnOcean
Ambient temperature	- 20 °C ... + 65 °C
Switching frequency	max. 9000 telegrams at repetitions/h
Voltage supply	Lithium battery (replaceable)
Capacity	ca. 8.5 Ah
Frequency	868.3 MHz
Transmission power	max. 10 mW
Modulation principle	ASK
Telegram type	RPS type 2
Data rate	120 kbps
Channel bandwidth	280 kHz
Sensing range	max. 300 m outside, max. 30 m im inside
Mechanical life	> 1 million operations
Actuating time	min. 80 ms
Note	status signal adjustable ex factory, transmission of battery voltage

// RF 96



Type code

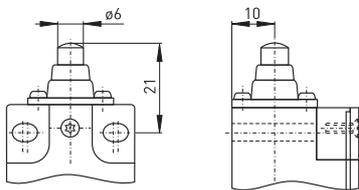
RF 96 WH EN868

| 868 MHz radio frequency
 | EnOcean standard
 | Actuator H (R, D, DS, etc. ...)
 | Watertight collar
 | Series
 | Radio technology

Wireless position switches

// Series RF 96, actuators

// Plunger W



Features/options

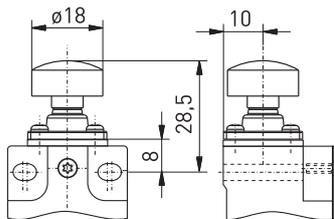
- Actuator type B per DIN EN 50 047
- Watertight collar for protection against penetration of dirt

Order Number

- RF 96 W EN868 order No. 66020201

29

// Cap WK



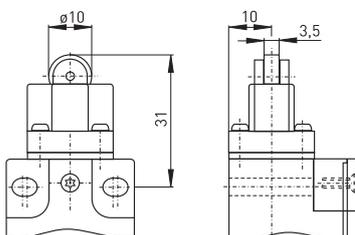
Features/options

- Suitable for manual actuation

Order Number

- RF 96 WK EN868 order No. 66080201

// Roller plunger R



Features/options

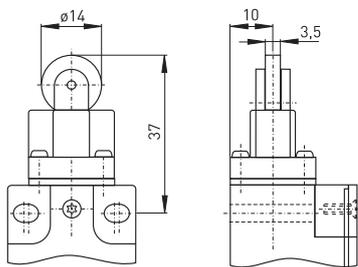
- R: actuator type C per DIN EN 50 047
- Wear-resistant thermoplastic roller
- Metal roller available on request
- Actuator head can be repositioned by 4 x 90°

Order Number

- RF 96 R EN868 order No. 66090201

Wireless position switches
 // Series RF 96, actuators

// Long roller plunger RL



Features/options

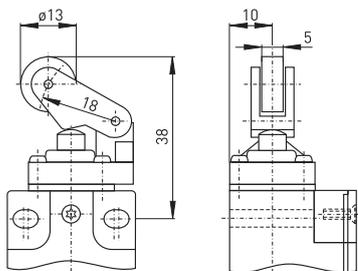
- Wear-resistant thermoplastic roller
- Metal roller available on request
- Actuator head can be repositioned by $4 \times 90^\circ$

Order Number

- RF 96 RL EN868 order No. 66110201

30

// Roller lever WH



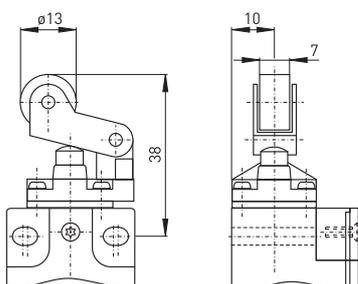
Features/options

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

Order Number

- RF 96 WH EN868 order No. 66140201

// Metal roller lever WHM



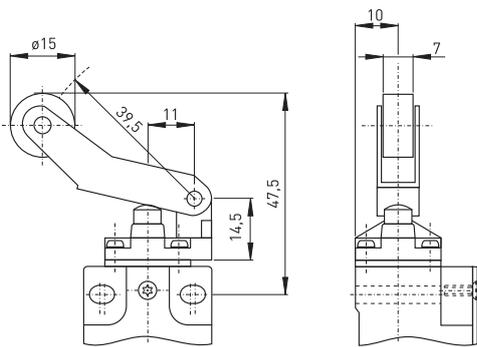
Features/options

- Actuating speed 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 thermoplastic roller
- Actuator head can be repositioned by $4 \times 90^\circ$
- Metal roller available on request

Order Number

- RF 96 WHM EN 868 EN868 order No. 66140202

// Long metal roller lever WHLM



Features/options

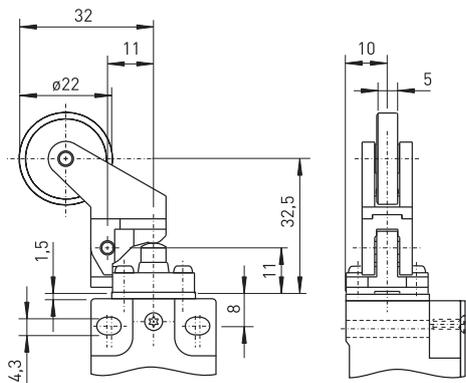
- Actuating speed 0.5 m/s with a vertical actuating angle of $\alpha = 40^\circ$
- Watertight collar for protection against penetration of dirt
- Wear-resistant thermoplastic roller
- Actuator head can be repositioned by 4 x 90°
- Metal roller available on request

Order Number

- RF 96 WHLM EN868 order No. 66160201

31

// Thermoplastic roller lever 4K



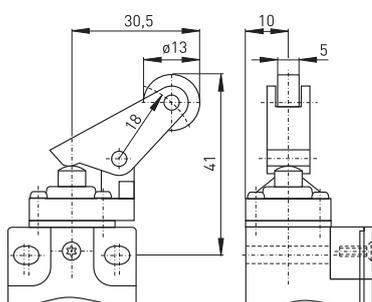
Features/options

- Actuating speed 0.5 m/s with a vertical actuating angle of $\alpha = 40^\circ$
- Wear-resistant thermoplastic roller
- Actuator head can be repositioned by 4 x 90°
- Metal roller available on request

Order Number

- RF 96 4K EN868 order No. 66640201

// Parallel roller lever WPH



Features/options

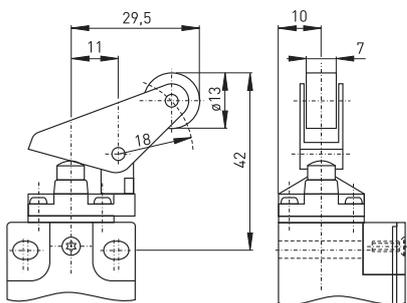
- Actuating speed 0.5 m/s with a vertical actuating angle of $\alpha = 30^\circ$
- Watertight collar for protection against penetration of dirt
- Wear-resistant thermoplastic roller
- Actuator head can be repositioned by 4 x 90°
- Actuation from below parallel to plunger axis
- Metal roller available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

Order Number

- RF 96 WPH EN868 order No. 66200201

Wireless position switches
 // Series RF 96, actuators

// Metal parallel roller lever WPHM



Features/options

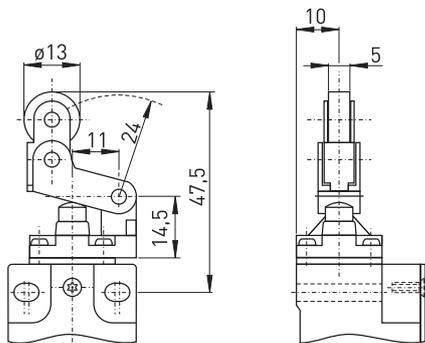
- Actuating speed 0.5 m/s with a vertical actuating angle of $\alpha = 30^\circ$
- Watertight collar for protection against penetration of dirt
- Wear-resistant thermoplastic roller
- Actuator head can be repositioned by $4 \times 90^\circ$
- Actuation from below parallel to plunger axis
- Metal roller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

Order Number

- RF 96 WPHM EN868 order No. 66200202

32

// Rocking offset roller lever WHKM



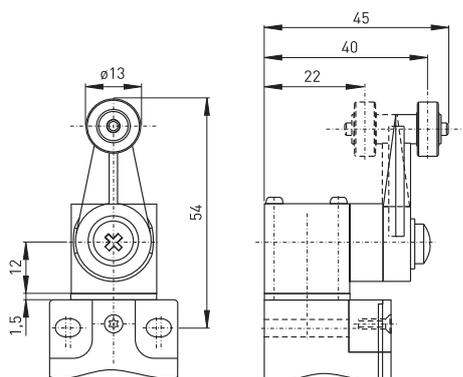
Features/options

- Actuating speed 0.5 m/s with a vertical actuating angle of $\alpha = 40^\circ$
- Watertight collar for protection against penetration of dirt
- Wear-resistant thermoplastic roller
- Actuator head can be repositioned by $4 \times 90^\circ$
- Actuation only possible from one side
- Free movement of actuator from other side
- Metal roller available on request

Order Number

- RF 96 WHKM EN868 order No. 66180201

// Rocking roller lever D



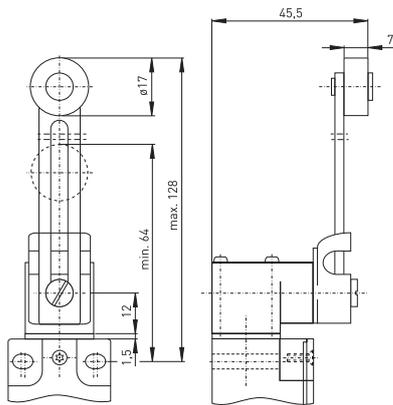
Features/options

- Lever angle adjustable in 10° steps
- Wear-resistant thermoplastic roller
- Actuator head can be repositioned by $4 \times 90^\circ$
- Metal roller available on request

Order Number

- RF 96 D EN868 order No. 66210201

// Adjustable rocking roller lever DS



Features/options

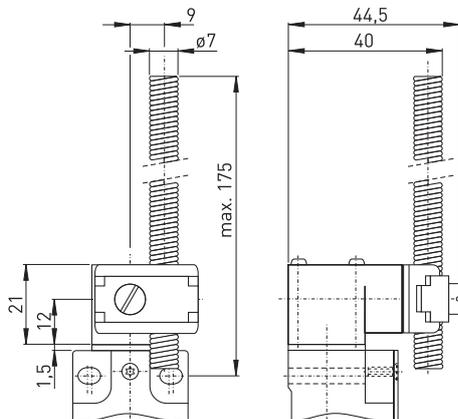
- Lever angle adjustable in 10° steps
- Length of roller lever adjustable
- Wear-resistant thermoplastic roller
- Actuator can be repositioned by $4 \times 90^\circ$
- Metal roller available on request

Order Number

- RF 96 DS EN868 order No. 66290201

33

// Spring-rod lever DF



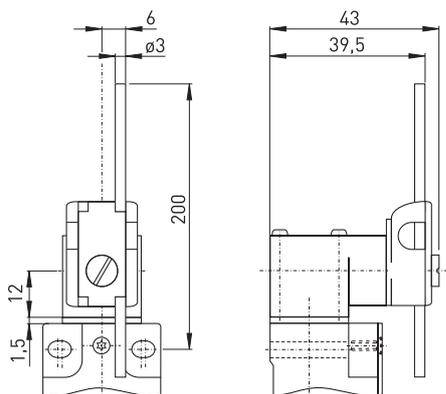
Features/options

- Lever angle adjustable in 10° steps
- Actuator can be repositioned by $4 \times 90^\circ$

Order Number

- RF 96 DF EN868 order No. 66270201

// Spring-rod lever DD



Features/options

- Lever angle adjustable in 10° steps
- Actuator can be repositioned by $4 \times 90^\circ$

Order Number

- RF 96 DD EN868 order No. 66250201

Wireless position switches

// Series RF 41

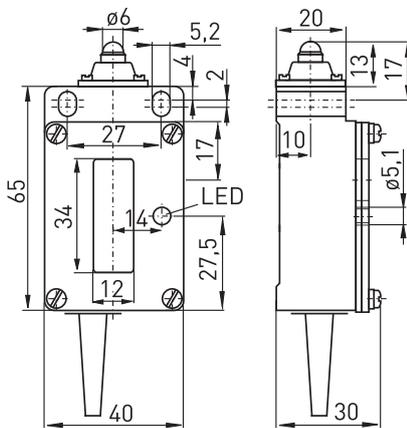
Features/options

- Integrated solar cell, no battery/rechargeable battery required
- Output signal can be individually configured at the receiver
- EnOcean-protocol
- Data rate 120 kbps
- No wiring and pipe laying required
- Multi-network capable
- Easy programming of receiver

Technical Data

Standards	EN 60947-5-1; EN 61000-6-2; EN 301 489-1; EN 301 489-3; EN 300 220-3
Enclosure	Aluminium die-cast, enamelled
Cover	Glassfibre reinforced thermoplastic
Protection class	IP 65 per 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
Bandwidth channel	280 kHz
Sensing range	max. 300 m outside, max. 30 m inside
Mechanical life	> 1 million operations
Power consumption in sleep mode	approx. 25 nA
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 adjustable ex factory

// RF 41



Type code

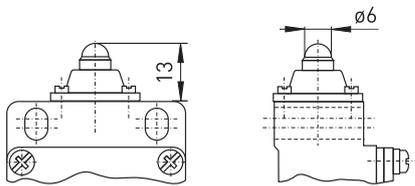
RF 41 WH EN868

868 MHz radio frequency
EnOcean standard
Actuator H (R, TK, D, etc. ...)
Watertight collar
Series 41
Radio technology

Wireless position switches

// Series RF 41, actuators

// Plunger



Features/options

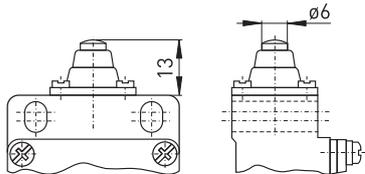
- Actuating speed 0.5 m/s with a vertical actuating angle of $\alpha = 20^\circ$
- Vertical or actuation from side possible
- Actuator with built-in stainless steel ball

Order Number

- RF 41 EN868 order No. 41901908

35

// Plunger with watertight collar W



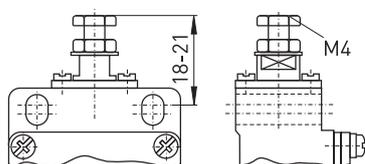
Features/options

- Actuating speed 0.5 m/s with a vertical actuating angle of $\alpha = 0^\circ$
- Watertight collar for protection against penetration of dirt

Order Number

- RF 41 W EN868 order No. 41902902

// Adjustable plunger ST



Features/options

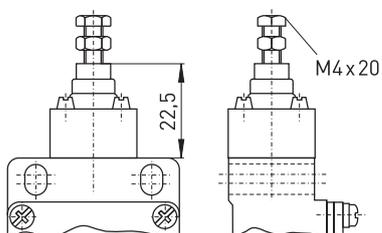
- Actuating speed 0.5 m/s with a vertical actuating angle of $\alpha = 0^\circ$
- Length-adjustable metal plunger via M4 screw
- For fine adjustment of switching travel

Order Number

- RF 41 ST EN868 order No. 41905901

Wireless position switches // Series RF 41, actuators

// Adjustable plunger collar WST



Features/options

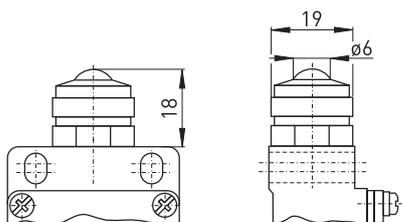
- Actuating speed 0.5 m/s with a vertical actuating angle of $\alpha = 0^\circ$
- Length-adjustable metal plunger via M4 screw
- For fine adjustment of switching travel
- Watertight collar for protection against penetration of dirt

Order Number

- RF 41 WST EN868 order No. 41906901

36

// Ball plunger KU



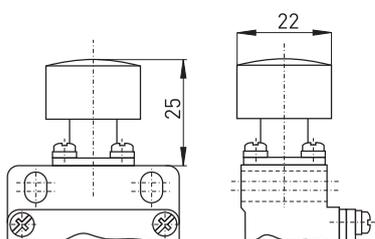
Features/options

- Actuating speed 0.5 m/s with a vertical actuating angle of $\alpha = 20^\circ$
- Vertical or actuation from side possible
- Actuator with built-in stainless steel ball

Order Number

- RF 41 KU EN868 order No. 41903901

// Cap WK



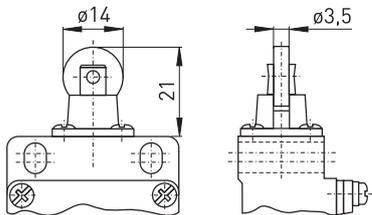
Features/options

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

Order Number

- RF 41 WK EN868 order No. 41908901

// Roller plunger R



Features/options

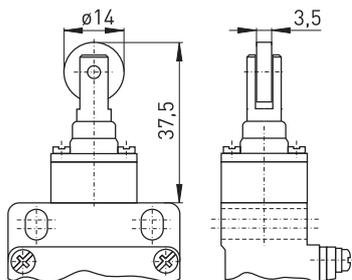
- Actuating speed 0.5 m/s with a vertical actuating angle of $\alpha = 30^\circ$
- Metal roller
- Actuator can be repositioned by 90°

Order Number

- RF 41 R EN868 order No. 41909903

37

// Roller plunger collar WR



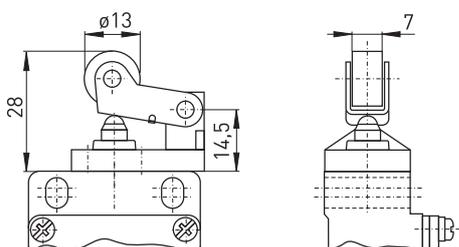
Features/options

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

Order Number

- RF 41 WR EN868 order No. 41910902

// Roller lever H



Features/options

- Actuating speed 0.5 m/s with a vertical actuating angle of $\alpha = 40^\circ$ and $\beta = 25^\circ$
- Thermoplastic roller
- Actuator head 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.

Order Number

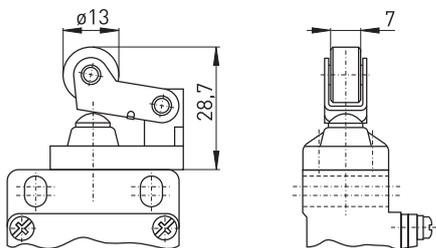
- RF 41 H EN868 order No. 41913907

Wireless position switches // Series RF 41, actuators

Note

Actuation of H, WH, HL and WHL actuators from the left should be avoided, since this reduces the mechanical life of the position switch.

// Roller lever with collar WH



Features/options

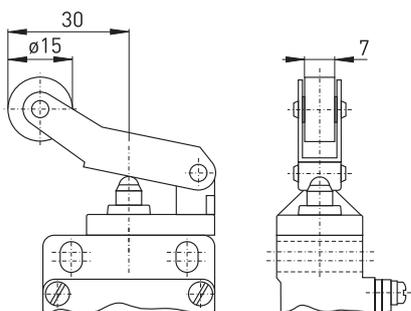
- Actuating speed 0.5 m/s with a vertical actuating angle of $\alpha = 40^\circ$ and $\beta = 25^\circ$
- Thermoplastic roller
- Actuator head can be repositioned by $4 \times 90^\circ$
- Watertight collar for protection against penetration of dirt
- Metal roller available on request
- Actuation from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

Order Number

- RF 41 WH EN868 order No. 41914902,

38

// Long roller lever HL



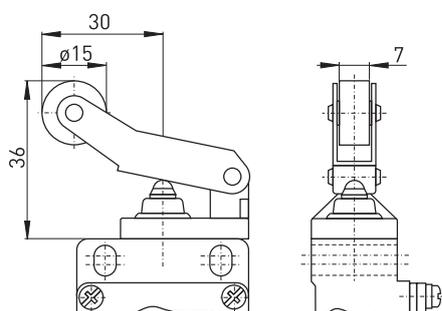
Features/options

- Actuating speed 0.5 m/s with a vertical actuating angle of $\alpha = 40^\circ$ and $\beta = 30^\circ$
- Thermoplastic roller
- Actuator head 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.

Order Number

- RF 41 HL EN868 order No. 41915901,

// Long roller lever collar WHL



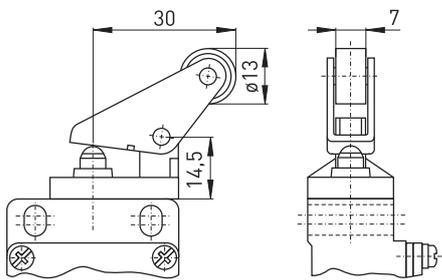
Features/options

- Actuating speed 0.5 m/s with a vertical actuating angle of $\alpha = 40^\circ$ and $\beta = 30^\circ$
- Thermoplastic roller
- Actuator head 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.

Order Number

- RF 41 WHL EN868 order No. 41916901

// Parallel roller lever PH



Features/options

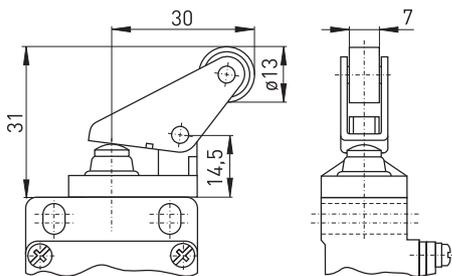
- Actuating speed 0.5 m/s with a vertical actuating angle of $\alpha = 30^\circ$
- Actuation from below parallel to plunger axis
- Thermoplastic roller
- Actuator head can be repositioned by 4 x 90°
- Metal roller available on request

Order Number

- RF 41 PH EN868 order No. 41919901

39

// Parallel roller lever collar WPH



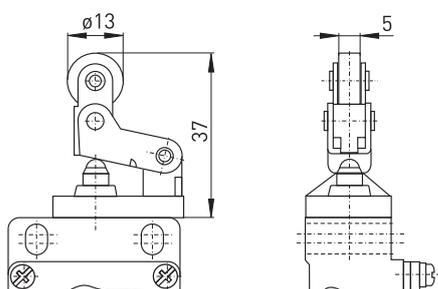
Features/options

- Actuating speed 0.5 m/s with a vertical actuating angle of $\alpha = 30^\circ$
- Actuation from below parallel to plunger axis
- Thermoplastic roller
- Actuator head can be repositioned by 4 x 90°
- Watertight collar for protection against penetration of dirt
- Metal roller available on request

Order Number

- RF 41 WPH EN868 order No. 41920901

// Rocking offset roller lever HK



Features/options

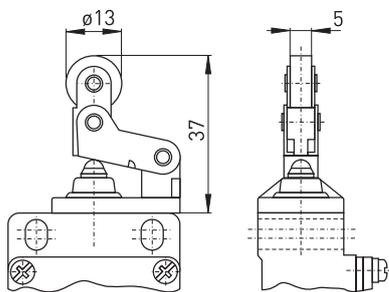
- Actuating speed 0.5 m/s with a vertical actuating angle of $\alpha = 40^\circ$
- Actuation only possible from one side
- Free movement of actuator from other side
- Thermoplastic roller
- Actuator head can be repositioned by 4 x 90°
- Metal roller available on request

Order Number

- RF 41 HK EN868 order No. 41917901

Wireless position switches // Series RF 41, actuators

// Rocking offset roller lever collar WHK



Features/options

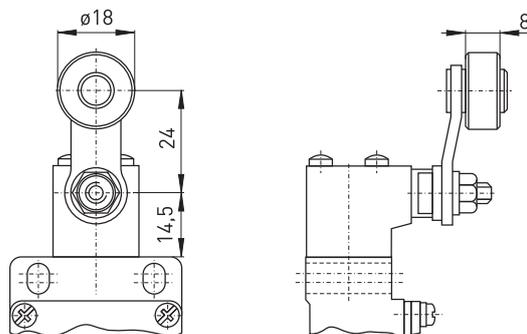
- Actuating speed 0.5 m/s with a vertical actuating angle of $\alpha = 40^\circ$
- Actuation only possible from one side
- Free movement of actuator from other side
- Wear-resistant thermoplastic roller
- Actuator head can be repositioned by $4 \times 90^\circ$
- Watertight collar for protection against penetration of dirt
- Metal roller available on request

Order Number

- RF 41 WHK EN868 order No. 41918901

40

// Rocking lever D



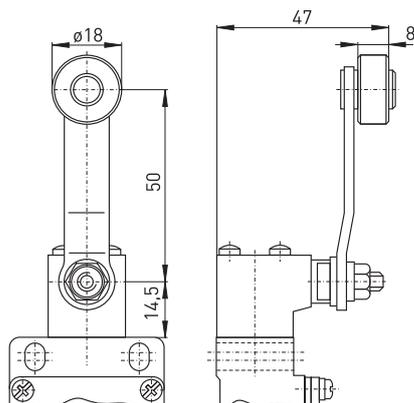
Features/options

- Actuating speed 0.5 m/s with a vertical actuating angle of $\alpha = 45^\circ$
- Wear-resistant thermoplastic roller
- Lever angle adjustable in 10° steps
- Actuator can be repositioned by 180°
- Metal roller available on request

Order Number

- RF 41 D EN868 order No. 41921901,

// Long rocking lever DL



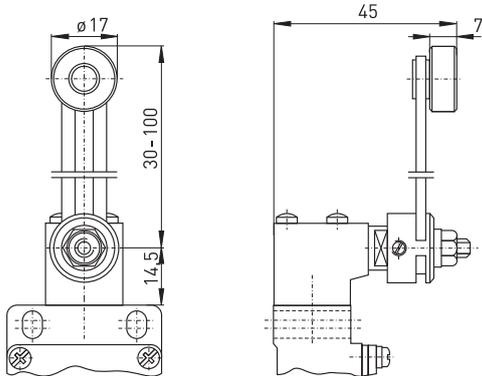
Features/options

- Actuating speed 0.5 m/s with a vertical actuating angle of $\alpha = 45^\circ$
- Wear-resistant thermoplastic roller
- Lever angle adjustable in 10° steps
- Actuator can be repositioned by 180°
- Metal roller available on request

Order Number

- RF 41 DL EN868 order No. 41923901

// Adjustable Rocking lever DS



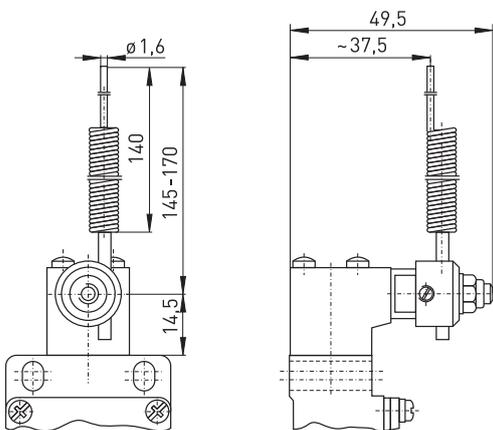
Features/options

- Actuating speed 0.5 m/s with a vertical actuating angle of $\alpha = 45^\circ$
- Wear-resistant thermoplastic roller
- Lever angle adjustable in 10° steps
- Actuator can be repositioned by 180°
- Metal roller available on request

Order Number

- RF 41 DS EN868 order No. 41929901

// Spring-rod lever DF



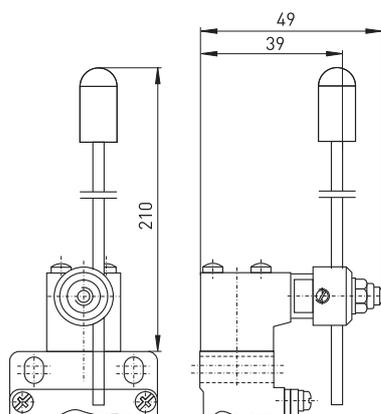
Features/options

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

Order Number

- RF 41 DF EN868 order No. 41927901

// Rod lever DD



Features/options

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

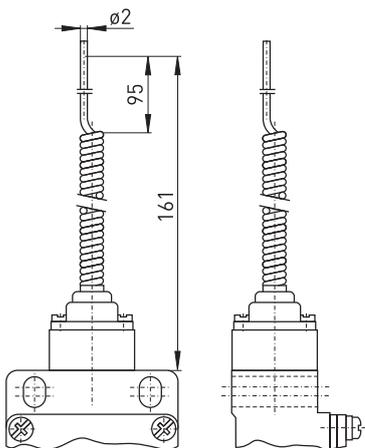
Order Number

- RF 41 DD EN868 order No. 41925901

Wireless position switches

// Series RF 41, actuators

// Long spring rod TL



Features/options

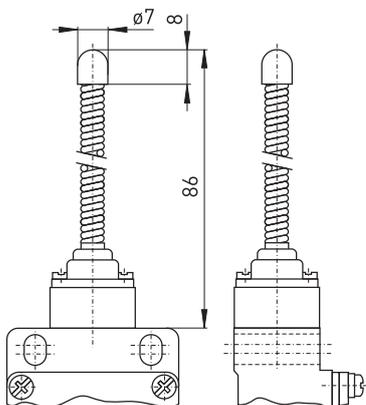
- Spring rods can be actuated from all directions
- Spring rod can be shortened 30 mm in actuating area
- Exact linear actuation not necessary
- Elasticity of the springs allows for deflection above the max. switching angle

Order Number

- RF 41 TL EN868 order No. 41932901

42

// Spring rod with steel tip TF



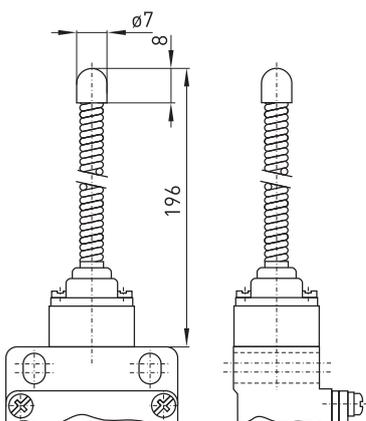
Features/options

- With rounded steel tip
- Can be actuated from all directions
- Elasticity of the springs allows for deflection above the max. switching angle

Order Number

- RF 41 TF EN868 order No. 41934902

// Spring rod with steel tip TFL



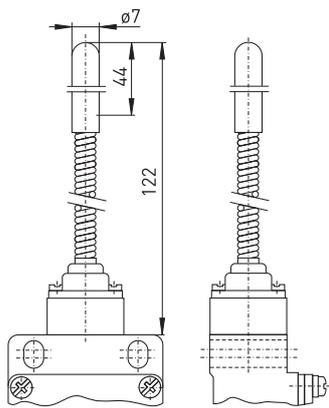
Features/options

- With rounded steel tip
- Can be actuated from all directions
- Elasticity of the springs allows for deflection above the max. switching angle

Order Number

- RF 41 TFL EN868 order No. 41938901

// Spring rod with plastic tip TK



Features/options

- Wear-resistant thermoplastic tip
- Can be actuated from all directions
- Elasticity of the springs allows for deflection above the max. switching angle

Order Number

- RF 41 TK EN868 order No. 41936901

Wireless position switches

// Series RF 98

Features/options

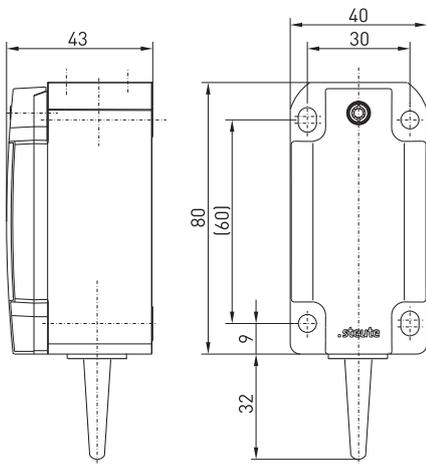
- Output signal can be individually configured at the receiver
- EnOcean-protocol
- Data rate 120 kbps
- No power supply, no wiring and pipe laying required
- Multi-network capable
- Easy programming of receiver

// RF 98



Technical Data

Standards	EN 60947-5-1; EN 61000-6-2; EN 301 489-1; EN 301 489-3; EN 300 220-3
Enclosure	Aluminium die-cast, enamelled
Cover	Aluminium, enamelled
Protection class	IP 67 per 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
Bandwidth channel	280 kHz
Sensing range	max. 300 m outside, max. 30 m inside
Mechanical life	> 1 million operations
Actuating time	min. 80 ms
Note	no status signal available



Type code

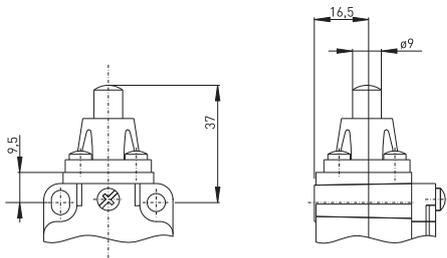
RF 98 R EN868

Radio frequency 868 MHz
EnOcean standard
Actuator R (W, R, D ...)
Series
Radio technology

Wireless position switches

// Series RF 98, actuators

// Plunger W



Features/options

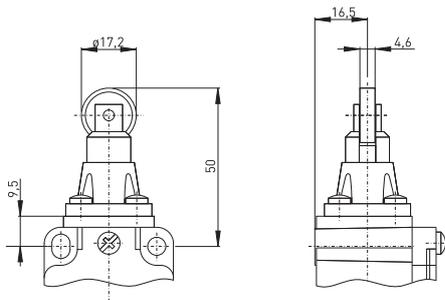
- Actuator type B to DIN EN 50 041
- Actuating speed 0.5 m/s with a vertical actuating angle of $\alpha = 0^\circ$

Order Number

- RF 98 W EN868 order No. 93901001

45

// Roller plunger R



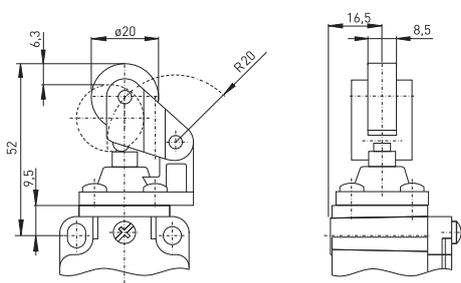
Features/options

- Actuator type B to DIN EN 50 041
- Actuating speed 0.5 m/s with a vertical actuating angle of $\alpha = 0^\circ$

Order Number

- RF 98 R EN868 order No. 93909001

// Roller lever WH



Features/options

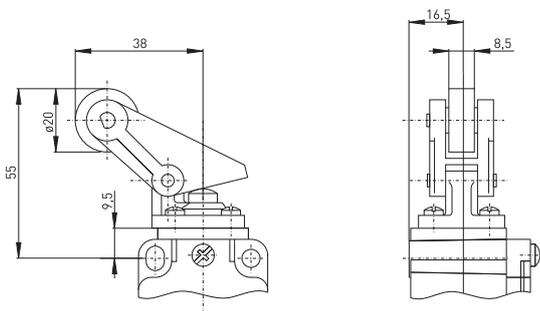
- Actuating speed 0.5 m/s with a vertical actuating angle of $\alpha = 30^\circ$
- Actuation to switch from right
- Wear-resistant thermoplastic roller
- Actuator head can be repositioned by $4 \times 90^\circ$

Order Number

- RF 98 WH EN868 order No. 93913001

Wireless position switches
 // Series RF 98, actuators

// Angled roller lever WPH



Features/options

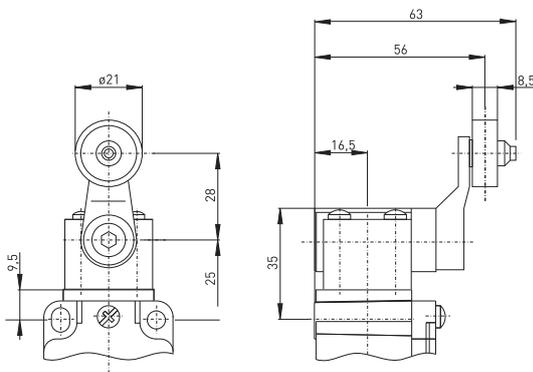
- Actuating speed 0.5 m/s with a vertical actuating angle of $\alpha = 30^\circ$
- Actuation parallel to switch from below
- Wear-resistant thermoplastic roller
- Actuator head can be repositioned by $4 \times 90^\circ$

Order Number

- RF 98 WPH EN868 order No. 93919001

46

// Rocking roller lever D



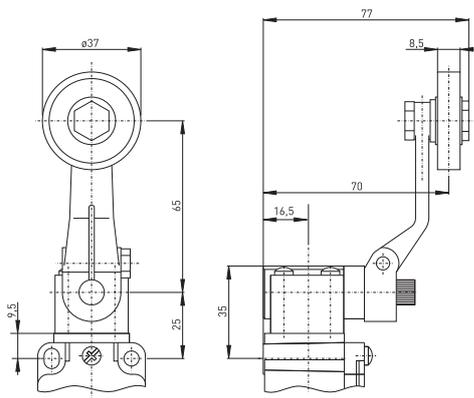
Features/options

- Actuator type A to DIN EN 50 041
- Actuating speed 0.5 m/s with a vertical actuating angle of $\alpha = 30^\circ$
- Wear-resistant thermoplastic roller
- Actuator head can be repositioned by $4 \times 90^\circ$

Order Number

- RF 98 D EN868 order No. 93921001

// Long rocking roller lever DL



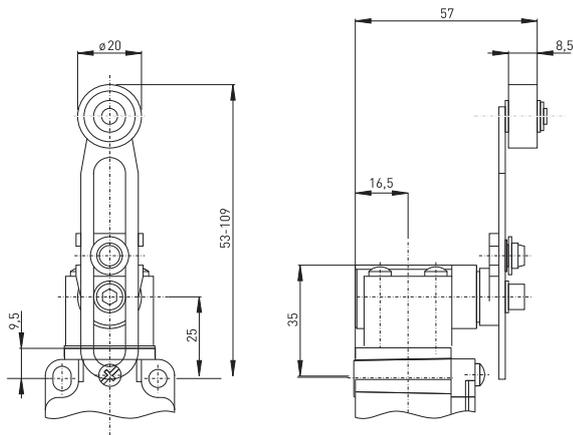
Features/options

- Actuating speed 0.5 m/s with a vertical actuating angle of $\alpha = 30^\circ$
- Wear-resistant thermoplastic roller
- Actuator head can be repositioned by $4 \times 90^\circ$

Order Number

- RF 98 DL EN868 order No. 93923001,

// Adjustable rocking lever DS



Features/options

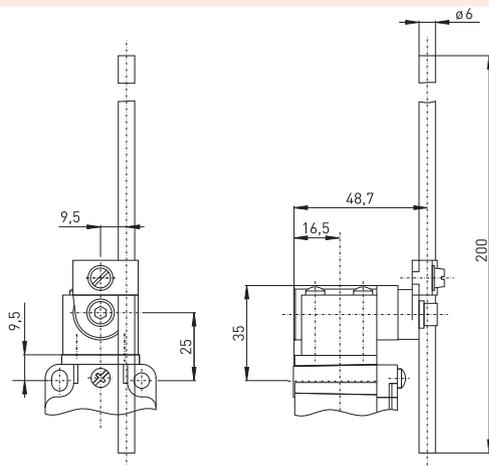
- Actuating speed 0.5 m/s with a vertical actuating angle of $\alpha = 30^\circ$
- Wear-resistant thermoplastic roller
- Actuator head can be repositioned by $4 \times 90^\circ$

Order Number

- RF 98 DS EN868 order No. 93929001

47

// Rod lever DD



Features/options

- Actuating speed 0.5 m/s with a vertical actuating angle of $\alpha = 30^\circ$
- Actuator type D to EN 50041

Order Number

- RF 98 DD EN868 order No. 93925001

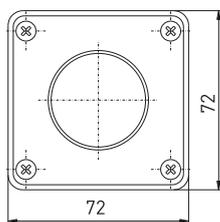
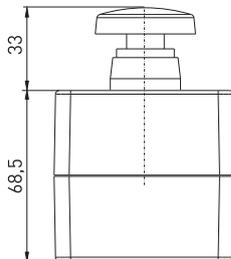
Wireless command devices

// Series RF BF 72

Features/options

- Output signal can be individually configured at the receiver
- EnOcean-protocol
- Data rate 120 kbps
- No power supply, no wiring and pipe laying required
- Multi-network capable
- Easy programming of receiver

// RF BF 72



Technische Daten

Standards	EN 60947-5-1; EN 61000-6-2; EN 301 489-1; EN 301 489-3; EN 300 220-3
Enclosure	Thermoplastic, Polyamid PA 66
Protection class	IP 65 per 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
Bandwidth channel	280 kHz
Sensing range	max. 300 m outside, max. 30 m inside
Mech. life	> 1 million operations
Actuating time	min. 80 ms
Note	No status signal

Alternative voltage supply	Lithium battery approx. 2.2 Ah
Note	status signal (configurable ex works)

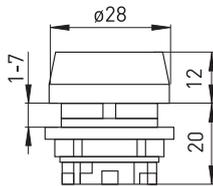
Type code

RF BF 72 RS SW EN868

Radio frequency
868 MHz
EnOcean standard
Actuator RS SW
(different pushbuttons
available)
Series
Command device
Radio technology

Wireless command devices
// Series RF BF 72, actuators

// Push-button RT



Features/options

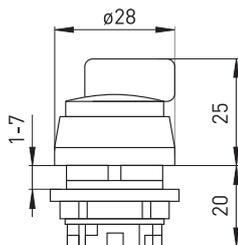
- IP 67 for actuators with diaphragm
- Available with actuator made of stainless steel

Order Number

- RF BF 72 RT EN868 order No. 69955101

49

// Control switch RST



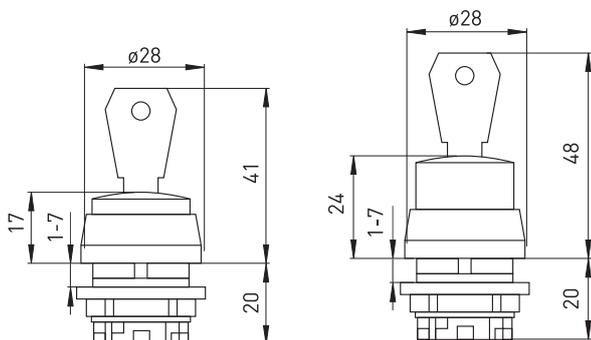
Features/options

- RST with spring return
- Available with actuator made of stainless steel

Order Number

- RF BF 72 RSTA 0 <- I EN868 order No. 69957102

// Key switch RSSA



Features/options

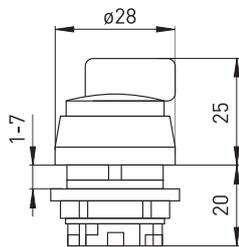
- RSSA key switch with safety cylinder lock (locks against turning)
- Standard version always has same key number
- Available in different versions
- Available with actuator made of stainless steel

Order Number

- RF BF 72 RSSA 14 EN868 order No. 69958101

Wireless command devices
// Series RF BF 72, actuators

// Selector switch RW



Features/options

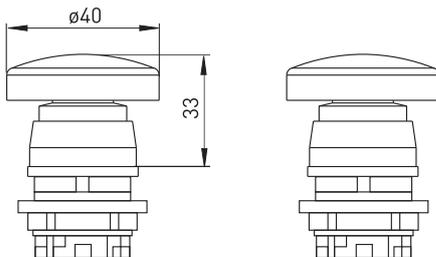
- Available with actuator made of stainless steel

Order Number

- RF BF 72 RWA 0<-I EN868 order No. 69957101

50

// Push-button RS SW



Features/options

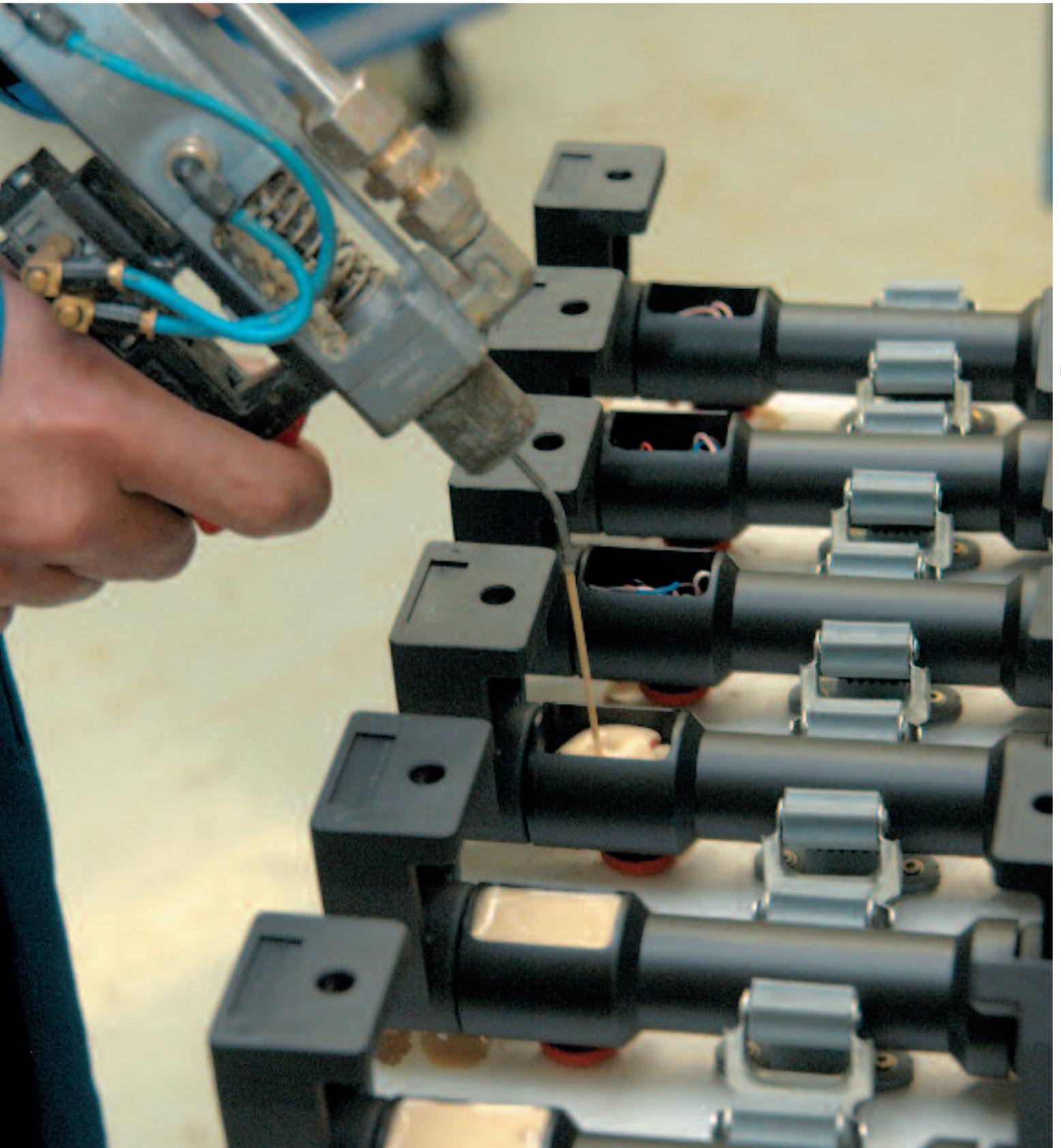
- Available with actuator made of stainless steel

Order Number

- RF BF 72 RS SW EN868 order No. 69969101

- RF BF 72 RS SW EN868-Li Best.-Nr. 69969201
with Battery

PRODUCTION PROCESS
MOULDING OF MULTIFUNCTION HANDLES



Wireless command devices

// Series RF BF 94

Features/options

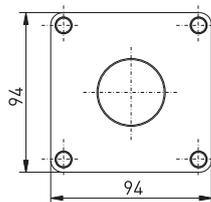
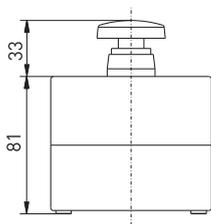
- Output signal can be individually configured at the receiver
- EnOcean-protocol
- Data rate 120 kbps
- No power supply, no wiring and pipe laying required
- Multi-network capable
- Easy programming of receiver

// RF BF 94



Technical data

Standards	EN 60947-5-1; EN 61000-6-2; EN 301 489-1; EN 301 489-3; EN 300 220-3
Enclosure	Thermoplastic, Polyamid PA 66
Protection class	IP 65 per 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
Bandwidth channel	280 kHz
Sensing range	max. 300 m outside, max. 30 m inside
Mech. life	> 1 million operations
Actuating time	min. 80 ms
Note	no status signal available



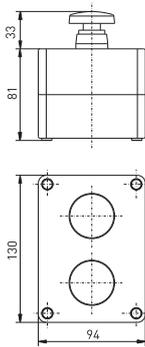
Type code

RF BF 94 RS SW EN868

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

Wireless command devices
// Series RF BF 94, actuators

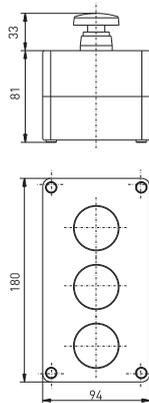
// 2 Push-buttons



Features/options

- Available with two actuators
- Available in different versions

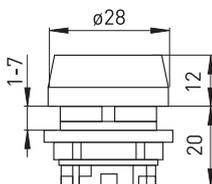
// 3 Push-buttons



Features/options

- Available with three actuators
- Available in different versions

// Push-button RT



Features/options

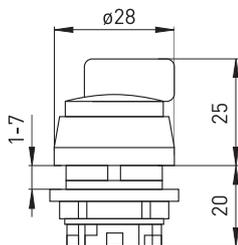
- IP 67 for actuators with diaphragm
- Available with actuator made of stainless steel

Order Number

- RF BF 94 RT EN868 order No. 69155101

Wireless command devices
// Series RF BF 94, actuators

// Control switch RST



Features/options

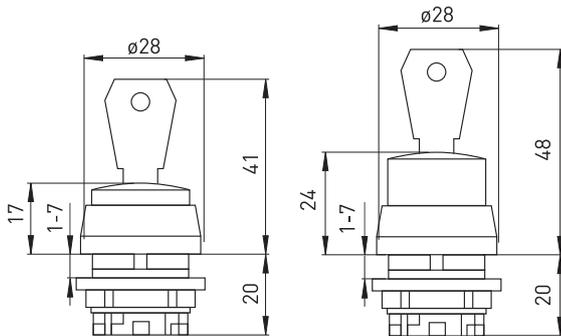
- RST with spring return
- Available with actuator made of stainless steel

Order Number

- RF BF 94 RSTA 0<-I EN868 order No. 69157101

54

// Key switch RSSA



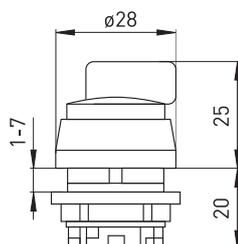
Features/options

- RSSA key switch with safety cylinder lock (locks against turning)
- Standard version always with the same key number
- Available in different versions
- Up to 20 lock combinations available on request

Order Number

- RF BF 94 RSSA 14 EN868 order No. 69158101

// Selector switch RW



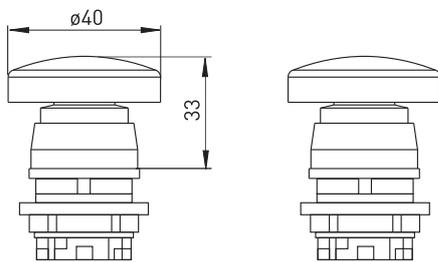
Features/options

- Available with actuator made of stainless steel

Order Number

- RF BF 94 RWA 0<-I EN868 order No. 69157102

// Taster RS SW



Features/options

- Available with actuator made of stainless steel

Order Number

- RF BF 94 RS SW EN868 order No. 69169101

Wireless command devices

// Series RF 95

Features/options

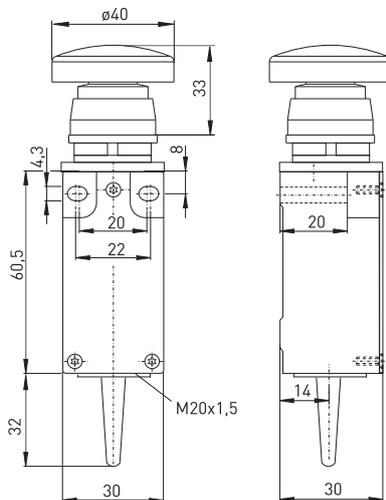
- Mountings to EN 50 047
- Output signal can be individually configured at the receiver
- Data rate 120 kbps
- No power supply, no wiring and pipe laying required
- Multi-network capable
- Easy programming of receiver

// RF 95 RS SW



Technical Data

Standards	EN 60947-5-1; EN 61000-6-2; EN 301 489-1; EN 301 489-3; EN 300 220-3
Enclosure	Glassfibre reinforced thermoplastic, self-extinguishing UL 94-V0
Cover	Glassfibre reinforced thermoplastic, self-extinguishing UL 94-V0
Degree of protection	IP 67 per 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
Bandwidth channel	280 kHz
Sensing range	max. 300 m outside, max. 30 m inside
Actuating time	min. 80 ms
Mechanical life	> 1 million operations
Note	no status signal available



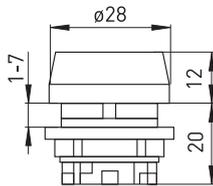
Type code

RF 95 RS SW EN868

868 MHz radio frequency
EnOcean standard
Actuator RS SW (different pushbuttons available)
Series
Radio technology

Wireless command devices
// Series RF 95, actuators

// Push-button RT



Features/options

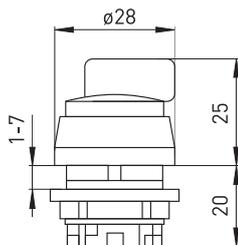
- IP 65 for actuators RT
- IP 67 for actuators with diaphragm M
- Available with actuator made of stainless steel

Order Number

- RF 95 RT EN868 order No. 95955002

57

// Control switch RST



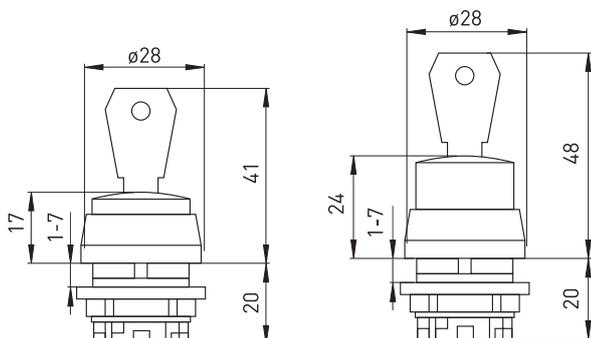
Features/options

- IP 65
- RST with spring return
- Available with actuator made of stainless steel

Order Number

- RF 95 RSTA 0<-I EN868 order No. 95957901

// Key switch RSSA



Features/options

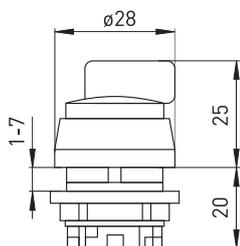
- IP 65
- RSSA key switch with safety cylinder lock (locks against turning)
- Standard version always has same key number

Order Number

- RF 95 RSSA 14 EN868 order No. 95958901

Wireless command devices
// Series RF 95, actuators

// Selector switch RW



Features/options

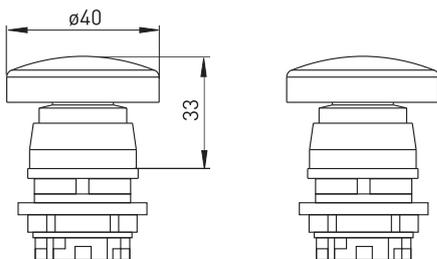
- Available with actuator made of stainless steel

Order Number

- IP 65
- RF 95 RWA 0<-I EN868 order No. 95957001

58

// Push-button RS SW



Features/options

- IP 65
- Available with actuator made of stainless steel

Order Number

- RF 95 RS SW EN868 order No. 95955001
(SW = push button »black«)
- RF 95 RS GE EN868 order No. 95956002
(GE = push button »yellow«)

QUALITY MANAGEMENT

LIFE TEST OF A PUSH BUTTON ON A HANDLE SWITCH



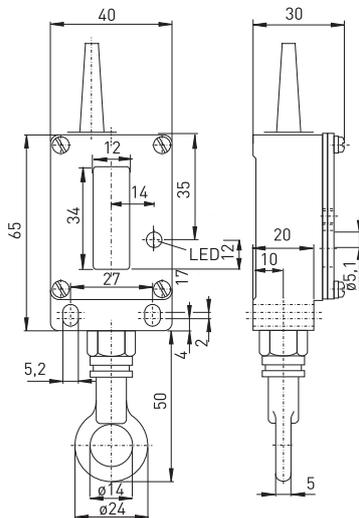
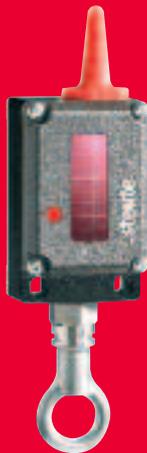
Wireless pull-wire switches

// Series RF 41 Z

Features/options

- Metal enclosure
- Integrated solar cell, no battery/rechargeable battery required
- Serial data output, output signal high on actuation
- EnOcean-protocol
- Data rate 120 kbps
- No wiring and pipe laying required
- Multi-network capable
- Easy programming of receiver

// RF 41 Z



Order Number

- RF 41 Z EN868 order No. 41941901
- RF 41 WZ EN868 order No. 41942901

Technical Data

Standards	EN 60947-5-1, EN 61000-6-2, EN 301 489-1, EN 301 489-3, EN 300 220-3
Enclosure	Aluminium die-cast, enamelled
Cover	Glassfibre reinforced thermoplastic
Protection class	IP 65 per 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
Bandwidth channel	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

61

Type code

RF 41 WZ EN868

RF 41 WZ EN868
 868 MHz radio frequency
 EnOcean standard
 Actuator Z
 Watertight collar
 Series 41
 Radio technology

Wireless foot switches

// Series RF KF

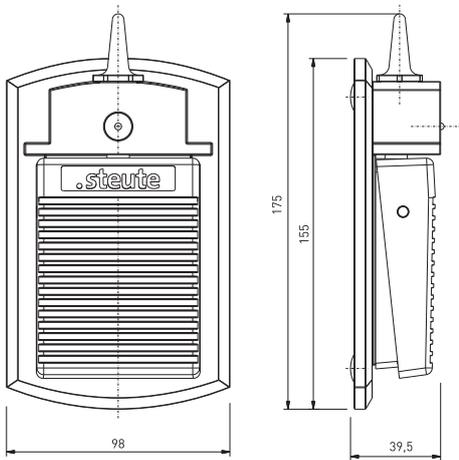
Features/options

- Metal console, thermoplastic pedal
- Output signal can be individually configured at the receiver
- EnOcean-protocol
- Data rate 120 kbps
- No wiring and pipe laying required, powered by a lithium ion battery
- Multi-network capable
- Easy programming of receiver

Technical Data

Standards	EN 60947-5-1; EN 61000-6-2; EN 301 489-1; EN 301 489-3; EN 300 220-3
Enclosure	zinc die cast console, RAL 9005
Pedal	glass-fibre reinforced thermoplastic (PA 66)
Degree of protection	IP 67 per EN 60529
Protocol	EnOcean
Ambient temperature	-20 °C ... +65 °C
Switching frequency	approx. 9000 telegrams at repetitions/h
Voltage supply	lithium ion battery
Frequency	868.3 MHz
Transmission power	max. 10 mW
Data rate	120 kbps
Bandwidth channel	280 kHz
Sensing range	max. 300 m outside, max. 30 m inside
Mechanical life	> 1 million operations
Actuating time	min. 80 ms
Note	status signal (configurable ex works)

// RF KF



Order Number

- RF KF EN868 order No. 88191901

Type code

RF KF EN868

868 MHz radio frequency
EnOcean standard
Series
Radio technology

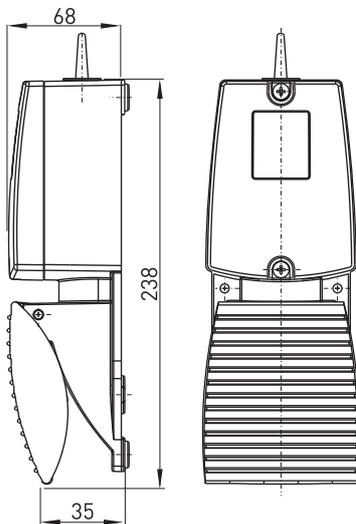
Wireless foot switches

// Series RF GFI

Features/options

- Available with special finish in RAL colour tones
- Output signal can be individually configured at the receiver
- Data rate 120 kbps
- No power supply, no wiring and pipe laying required
- Multi-network capable

// RF GFI



Order Number

- RF GFI EN868 order No. 53191001

Technical Data

Standards	EN 60947-5-1; EN 61000-6-2; EN 301 489-1; EN 301 489-3; EN 300 220-3
Enclosure	aluminium die-cast, enamel finish, RAL 5011
Cover	aluminium die-cast, enamel finish, RAL 2004
Pedal	aluminium die-cast, enamel finish, RAL 5011
Protection class	IP 67 per 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
Bandwidth channel	280 kHz
Sensing range	max. 300 m outside, max. 30 m inside
Mechanical life	> 1 million operations
Actuating time	min. 80 ms
Note	no status signal available

63

Type code

RF GFI EN868

868 MHz radio frequency
EnOcean standard
Series
Radio technology

Wireless foot switches

// Series RF GFSI

Features/options

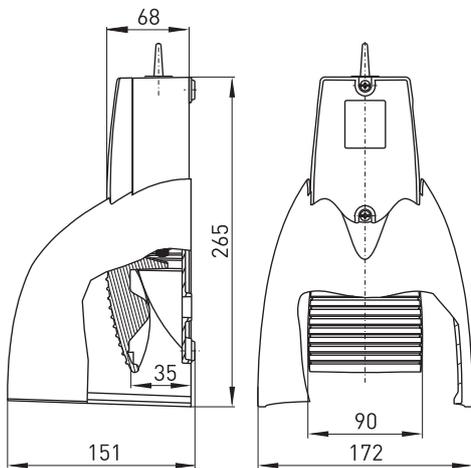
- With protective shield
- Available with special finish in RAL colour tones
- Output signal can be individually configured at the receiver
- Data rate 120 kbps
- No power supply, no wiring and pipe laying required
- Multi-network capable

// RF GFSI



Technical data

Standards	EN 60947-5-1; EN 61000-6-2; EN 301 489-1; EN 301 489-3; EN 300 220-3
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 per EN 60529
Protocol	EnOcean
Ambient temperature	-20 °C ... +65 °C
Switching frequency	approx. 9000 telegrams/h
Voltage supply	Electrodynamic energy generator
Frequency	868.3 MHz
Transmission power	max. 10 mW
Data rate	120 kbps
Bandwidth channel	280 kHz
Sensing range	max. 300 m outside, max. 30 m inside
Mechanical life	> 1 million operations
Actuating time	min. 80 ms
Note	no status signal available



Order Number

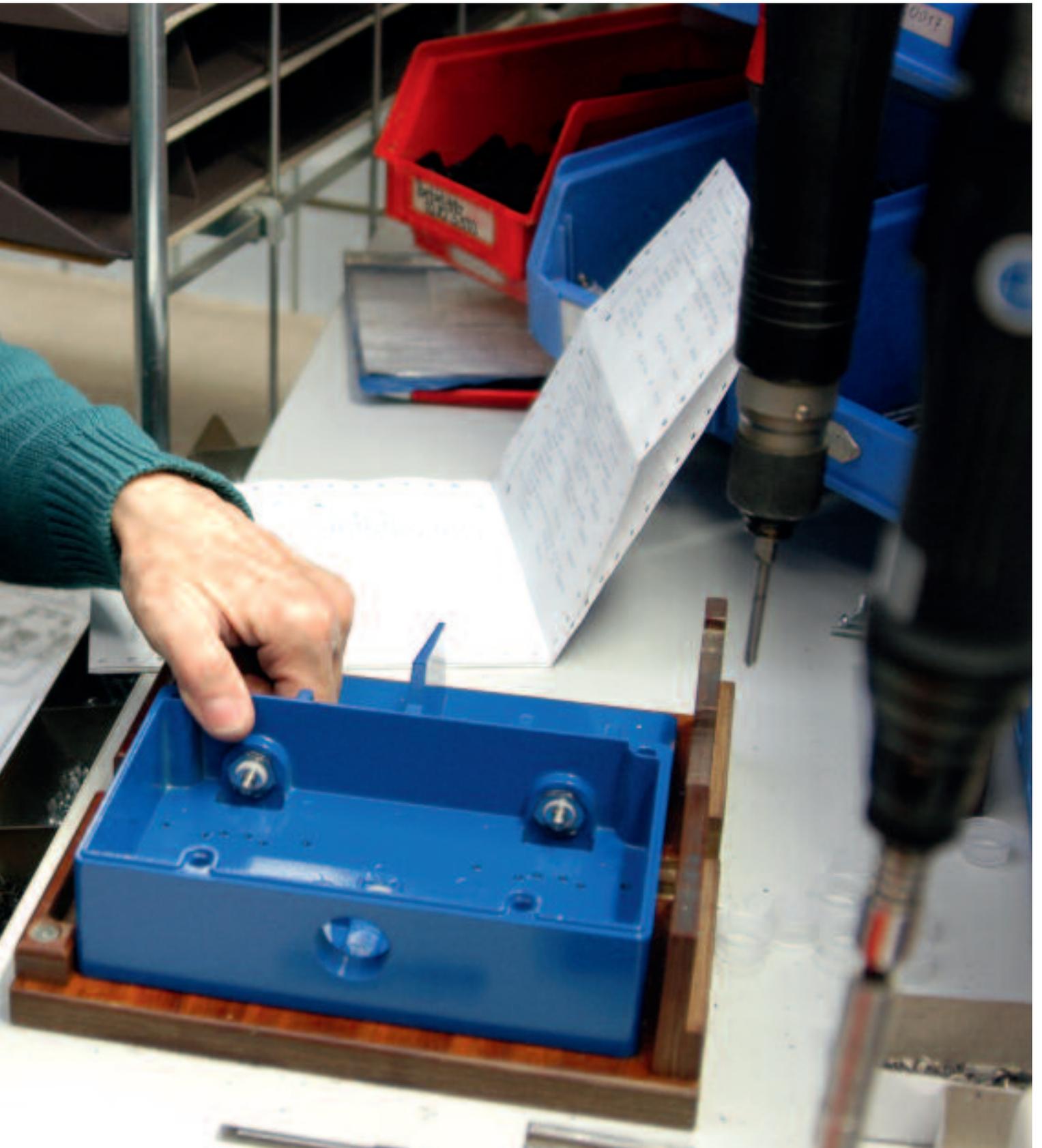
- RF GFSI EN868 order No. 53291001

Type code

RF GFSI EN868

868 MHz radio frequency
EnOcean standard
Series
Radio technology

PRODUCTION PROCESS
ASSEMBLY OF A FOOT SWITCH



Wireless magnetic sensors

// Series RF RC 10

Features/options

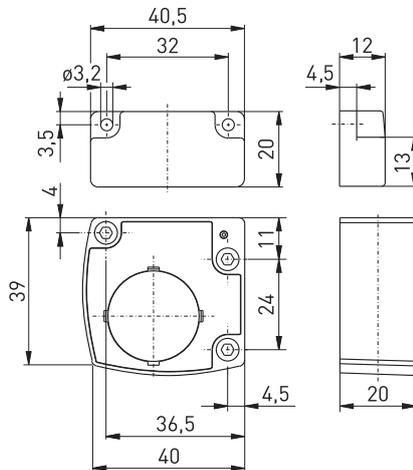
- Thermoplastic enclosure
- Output signal can be individually configured at the receiver
- EnOcean-protocol
- Data rate 120 kbps
- No power supply, no wiring and pipe laying required
- Multi-network capable
- Easy programming of receiver
- Non-contact variant

// RF RC 10



Technical Data

Standards	EN 60947-5-1
Enclosure	thermoplastic, Polyamid PA 66
Degree of protection	IP 67 per IEC 60529
Protocol	EnOcean
Ambient temperature	- 20 °C ... + 65 °C
Switching frequency	approx. 9000 telegrams at repetitions/h
Voltage supply	Lithium-battery CR 2032 (replaceable)
Frequency	868.3 MHz
Transmission power	max. 10 mW
Data rate	120 kbps
Channel bandwidth	280 kHz
Sensing range	max. 150 m outside, max. 30 m inside
Mechanical life	> 1 million operations
Actuating time	min. 80 ms
Note	no status signal available RF actuator required as accessory



Order Number

- RF RC 10 EN868 order No. 10720101
- MC 4 order No. 05.00.8225

Type code

RF RC 10 EN868

Radio frequency 868 MHz
EnOcean standard
Series
Magnetic sensor
Radio technology

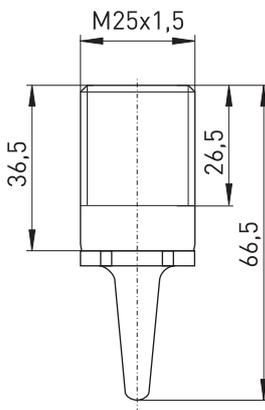
Wireless magnetic sensors

// Series RF GS M25 EN868

Features/options

- Magnetic sensor based on GMR effect
- M25 thread
- Output signal can be individually configured at the receiver
- EnOcean protocol
- Data rate 120 kbps
- No power supply, no wiring and pipe laying required
- Multi-network capable

// RF GS M25 EN868



Technische Daten

Standards	EN 60947-5-1, EN 61000-6-2, EN 301 489-1, EN 301 489-3, EN 300 220-3
Enclosure	Thermoplastic
Protection class	IP 67 per EN 60529
Protocol	EnOcean
Ambient temperature	- 20 °C ... + 65 °C
Sensing range	> 20 mm
Hysteresis	< 1 mm
Switching frequency	approx. 9000 telegrams at repetitions/h
Standby current	1.5 µA
Voltage supply	Battery CR 1632, 140 mAh, not replaceable
Frequency	868.3 MHz
Transmission power	max. 10 mW
Data rate	120 kbps
Bandwidth channel	280 kHz
Sensing range	max. 300 m outside, max. 30 m inside
Mechanical life	> 1 million operations
Actuating time	min. 80 ms
Note	no status signal available; Actuator required as accessory

67

Order Number

- RF GS M25 EN868 order No. 22580101
- Actuator M 100 N order No. 05.00.8201

Type code

RF GS M25 EN868

868 MHz radio frequency
EnOcean
M25 thread
Series
Radio technology

// Remote sender R 101



Features/options

- 2 channels
- 4 push-buttons / 4 functions
- Order unit: 1 piece

Order Number

- R 101 order No. 01.08.0282

// Field strength indicator EPM 300



Features/options

- Mobile field strength indicator EPM 300 for link range testing
- To measure and indicate the electrical field strength
- Battery not included, requires AA/LR06 cell
- Repeater mode can be selected

Order Number

- EPM 300 order No. 90598005

// RF Magnet antenna



Features/options

- RF magnet antenna with straight SMA plug-in connector without ferrite core
- Cable length 2.5 m
- Order unit: 1 piece

Order Number

- RF Magnet antenna order No. 01.08.0386

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 0.5 m extension cable
- Order unit: 1 piece

Order Number

- RF Magnet antenna order No. 90598001

// RF SMA antenna extension



Features/options

- RF SMA antenna extension cable with straight SMA plug-in connector
- Cable length 3 m or 5 m
- Order unit: 1 piece

Order Number

- RF SMA antenna extension cable 3 m order No. 90598002
- RF SMA antenna extension cable 5 m order No. 90598004

// RF Sperrtopf antenna



Features/options

- RF Sperrtopf 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
- Order unit: 1 piece

Order Number

- RF Sperrtopf antenna order No. 90598003
- RF SMA N antenna connecting cable 5 m order No. 90598004
- RF SMA N antenna connecting cable 10 m order No. 90598008

// RF Magnet antenna

Arrangement of receiver and switch antenna

Optimum mounting



Possible mounting

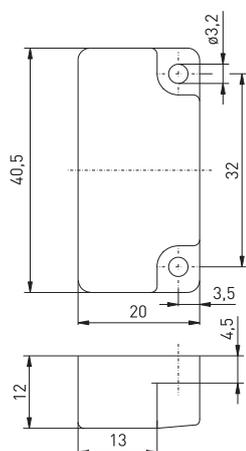


Unsuitable mounting



70

// MC 4 actuator



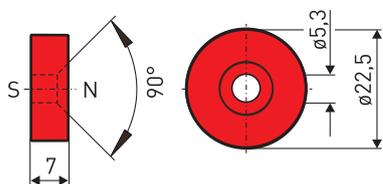
Features/options

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

Order Number

- MC 4 actuator order No. 05.00.8225

// M100 N actuator



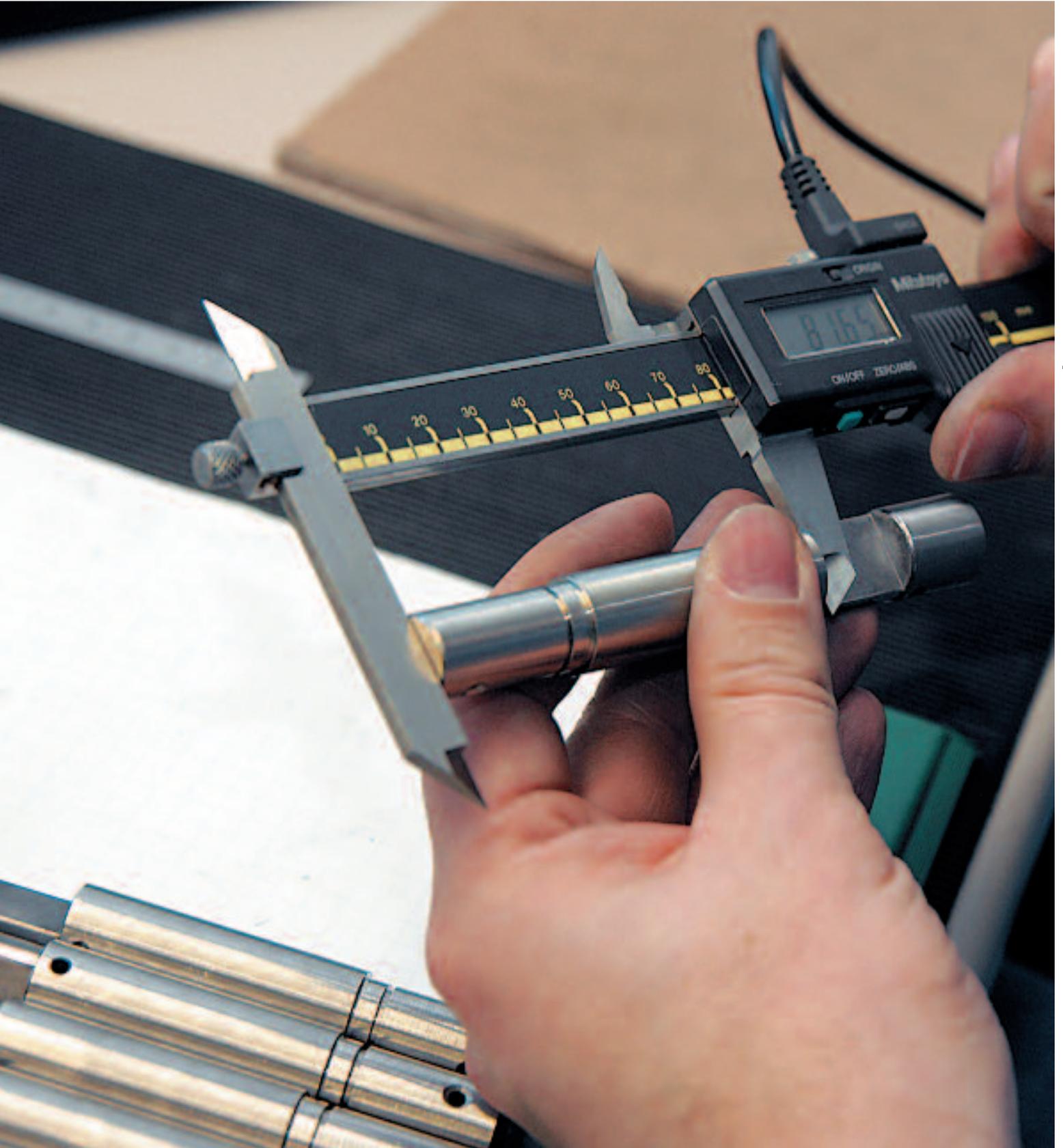
Features/options

- M 100 N actuator for wireless magnetic sensor RF GS M25
- Order unit: 1 piece

Order Number

- M 100 N actuator order No. 05.00.8201

QUALITY MANAGEMENT
INCOMING COMPONENTS INSPECTION





.steute

Radio technology 2.4 GHz

Radio receivers

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

from page 74

Wireless foot switches

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

from page 76

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

from page 77

Accessories

from page 78

Radio receivers

// Series RF RxT SW2.4-4W

// RF RXT SW2.4

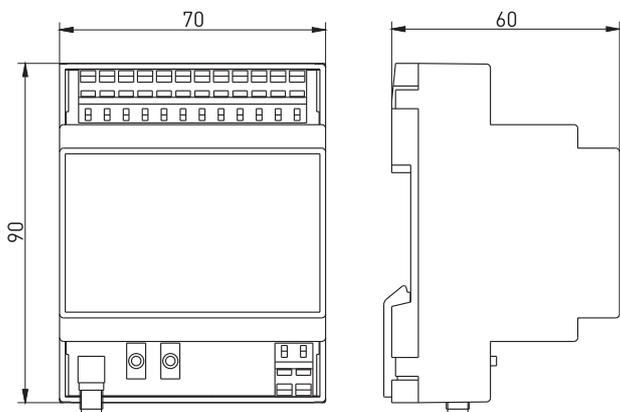


Features/options

- 4 channel: potential free relay output
- 4 change-over contacts, max. 10 A
- LEDs for signalisation of switching conditions
- SMA-plug-in connector for external antenna

Technical data

Standards	FCC Part 15.247/ IC RSS-210, 2,4 GHz; 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; IEC 60601-1; IEC 60601-1-2
Mounting	DIN rail mounting
Connection	clamps with CAGE CLAMP WAGO Series 236: 0.08 ... 2.5 mm ² AWG 28-14 (incl. conductor ferrules)
Degree of protection	IP 20 per IEC/EN 60529
Operating voltage U_e	24 VDC -15 % ... +10 %
Operating current I_e	max. 0.21 A
Inputs	2 transmitters per receiver
Outputs	4 change-over contacts (Relays)
I_e/U_e of output contacts	6A / 250 VAC; 2A / 24 VDC
Utilisation category	AC-15; DC 13
Frequency	2.4 ... 2.4835 GHz
Display	green LED for control voltage, yellow LED for switching conditions
Interference resistance	per EMC directive
Degree of pollution	2 per DIN VDE 0110
Ambient temperature	0 °C ... +55 °C
Storage and transport-temperature	-25 °C ... +85 °C
Vibration resistance	NO contact 20g, NC contact 5g
Schock resistance	max. 100g
Note	inductive loads (contactors, relays etc.) are to be suppressed by suitable circuitry.



Order Number

- RF RxT SW 2.4-4W order No. 90590011

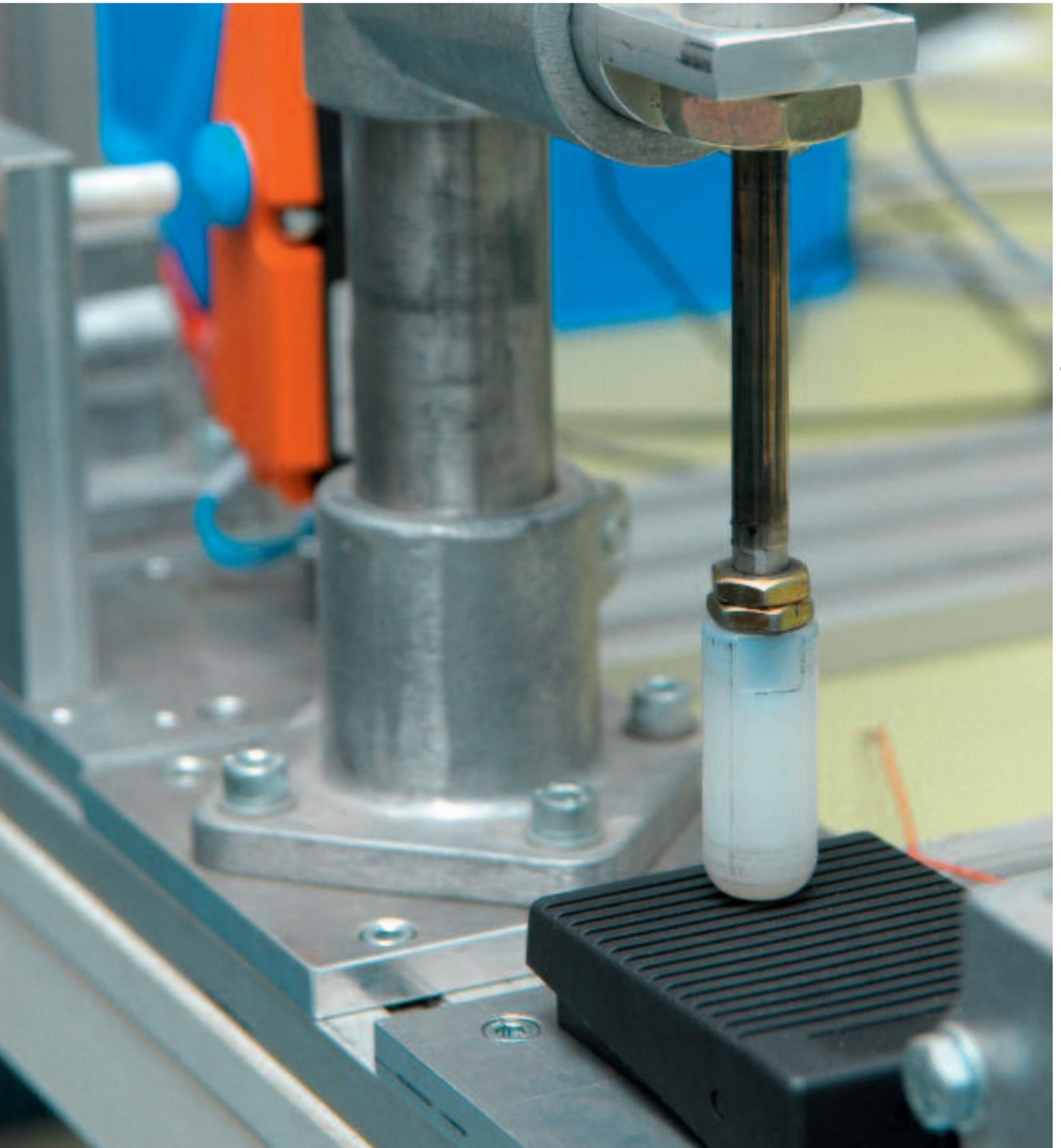
Type code

RF RxT SW2.4-4W

4 Relais outputs
Radio frequency 2.4 GHz
Radio receiver
Radio technology

RF magnet antenna with SMA plug-in connector available as accessory order-No. 01.08.0409

QUALITY MANAGEMENT
LIFE TEST OF A FOOT SWITCH PEDAL



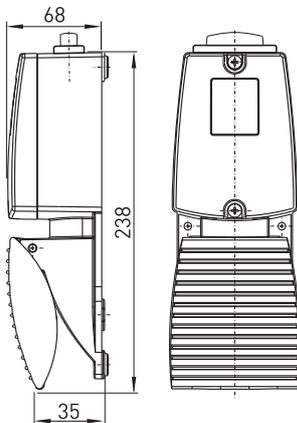
Wireless foot switches

// Series RF GFI SW2.4

Features/options

- Available with special finish in RAL colour tones
- 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

Standards	FCC Part 15.247/ IC RSS-210, 2,4 GHz; 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
Enclosure	Aluminium diecast, enamel finish, RAL 5011
Cover	Aluminium diecast, enamel finish, RAL 2004
Pedal	Aluminium diecast, enamel finish, RAL 5011
Protective shield	-
Protection class	IP 67 per EN 60529
Transmission incl. frequency change	max. 20 ms
Synchronisation after sleep mode	max. 200 ms
Power consumption	21 ... 25 mA
Power consumption sleep mode	approx. 56 µA
Voltage supply	Lithium battery, type SL 2770 3.6 V/8.5 Ah
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
Transmission power	1 mW
Ambient temperature	- 20 °C ... + 65 °C
Mech. life	> 1 million operations

Order Number

- RF GFI SW 2.4 order No. 53191002

Type code

RF GFI SW2.4

Radio frequency 2.4 GHz
Series
Radio technology

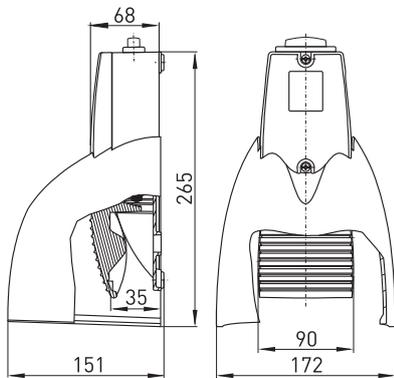
Wireless foot switches

// Series RF GFSI SW2.4

Features/options

- Available with special finish in RAL colour tones
- 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	FCC Part 15.247/ IC RSS-210, 2,4 GHz; 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
Enclosure	Aluminium diecast, enamel finish, RAL 5011
Pedal	Aluminium diecast, enamel finish, RAL 5011
Protective shield	Aluminium diecast, enamel finish, RAL 2004
Protection class	IP 67 per EN 60529
Transmission incl. frequency change	max. 20 ms
Synchronisation after sleep mode	max. 200 ms
Power consumption	21 ... 25 mA
Power consumption sleep mode	approx. 56 µA
Voltage supply	Lithium battery, type SL 2770 3.6 V/8.5 Ah
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
Transmission power	1 mW
Ambient temperature	-20 °C ... +65 °C
Mech. life	> 1 million operations

77

Order Number

- RF GFSI SW 2.4 order No. 53291002

Type code

RF GFSI SW2.4

Radio frequency 2.4 GHz
Series
Radio technology

// RF magnet antenna 2.4 GHz



Features/options

- RF magnet antenna with straight SMA plug-in connector without ferrite core
- Cable length 2.5 m
- Order unit: 1 piece

Order Number

- RF Magnet antenna order No. 01.08.0386

Note

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

// RF SMA Antenneneinbaubuchse



Features/options

- RF SMA antenna socket with 0.5 m extensia cable
- Order unit: 1 piece

Order Number

- RF Magnet antenna order No. 90598001

// RF SMA Antennenverlängerung



Features/options

- RF SMA antenna extension cable with straight SMA plug-in connector
- Cable length 3 or 5 m
- Order unit: 1 piece

Order Number

- RF SMA antenna extension cable 3 m order No. 90598002

// RF magnet antenna

Arrangement of receiver and switch antenna

Optimum mounting



Possible mounting



Unsuitable mounting





Notizen

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.

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