BERNSTEIN

DETECT

We make
safety happen.

Wireless Receiver

WR

Inhalt

1. Introduction

This operating manual is intended to familiarise you with the WR... wireless receivers and their connection to the WT... transmitter units. Please read it thoroughly and carefully before use in order to fully understand its contents and make full use of the functions.

2. Target audience

The operating instructions are intended for the following persons:

- Qualified specialists who plan and develop machines and systems and are familiar with occupational safety and accident prevention regulations.
- Qualified specialists who install and commission foot and position switches in machines and systems.

3. Intended use

The wireless receivers described in this operating manual are suitable for receiving signals from battery-free wireless transmitters. Up to 28 wireless transmitters can be assigned to each of the 4 independent relay outputs. Each relay has 5 configurable operating modes for switching electrical consumers. A safety function is not guaranteed.

4. Safety instructions

⚠ Danger

Personal safety and property protection are not guaranteed!
The devices described here are not suitable for safeguarding health or life-saving measures or property.
In these cases, approved safety switches must be used.
Improper installation or tampering can result in serious or fatal injuries.
Therefore, it is essential to observe the following points:
Only install and commission the product once you have read and understood this document.

- The device may only be installed and commissioned by qualified personnel who are familiar with the applicable regulations on occupational safety and accident prevention, in accordance with these operating instructions.
- No more devices than those described in this operating manual may be connected to the device or system. The electrical connection may only be carried out by qualified personnel in accordance with the applicable electrical standards and wiring regulations such as IEC/EN 60204-1, ANSI/NFPA 79 or NEC (National Electrical Code) and all relevant local regulations.
- Observe the regulations applicable in your country, especially with regard to protective measures.
- Do not use the device in safety applications that are intended to prevent dangerous situations for people and equipment.
- Do not use the device in environments where continuous temperature changes occur and condensation may form inside the device.
- Do not use the device in work areas that are not compatible with the device's IP rating.
- Do not install the device in the presence of combustible dust or gas.
- Do not use the device outside the permissible operating temperature limits.
- Do not use the device in the presence of corrosive chemicals that could damage the device's hardware.
- Use the device in full compliance with applicable standards.
- Follow the installation instructions and observe the operating limits.
- The manufacturer accepts no liability for improper use, failure to observe the instructions for use, installation and maintenance by unqualified personnel, or failure to carry out functional tests.

5. Product description / identification

5.1 Identification by article number

The article number of the wireless receiver can be found below the name on the label.

Please quote this number in all correspondence and orders to BERNSTEIN AG.

5.2 Identification by type designation

WR-868

WR-902

WR stands for the device type „Wireless Receiver“
The number after the hyphen indicates the reception frequency.
(Receiver for 868 MHz transmitters or receiver for 902 MHz transmitters)

6. Function

BERNSTEIN AG offers foot switches, position switches and cable pull switches equipped with EnOcean wireless transmitters that are compatible with the wireless receivers.

When activated, these switches send a wireless signal which activates the assigned relay output of the wireless receiver.

6.1 Available relay operating modes

6.1.1 Impulse modes

Each time the transmitter is activated, a signal is sent to the connected relay. The output signal lasts for 1 second and is not maintained.

6.1.2 Hold mode / Bistable

Each time the transmitter is activated, the status of the coupled relay changes. The signal is maintained until a new signal is received from one of the coupled transmitters.

6.1.3 Reverse pulse mode

Each actuation/release of the transmitter corresponds to a signal from the coupled relay. The output signal has a duration of 1 s and is not maintained.

6.1.4 Reverse hold mode / bistable

Each actuation/release of the transmitter corresponds to a status change of the coupled relay. The signal is maintained until a new signal is received from one of the coupled transmitters, which is generated by actuation or release.

6.1.5 Two-stage mode

Each actuation of the transmitter closes the associated relay output until the transmitter is released again. The relay status corresponds to the actual position of the actuator. If one of the release signals is lost, a new release signal is sent to restore the correct operating cycle. Wait 5 seconds between successive presses and releases to ensure maximum transmission reliability. In this operating mode, each relay may only be present in one paired transmitter.

6.2 Application notes for the different operating modes

The pulse modes (6.1.1 and 6.1.3) were developed to send a start or power signal to a control unit, for example to start a machine or open an automatic door.

The continuous operation modes (6.1.2 and 6.1.4) were developed to keep the signal active for a certain period of time and, for example, to control the lighting of an area or the start of a production line until a switch-off signal is received.

The reverse operating modes (6.1.3 and 6.1.4) were developed to receive signals from battery-free pull-wire switches.

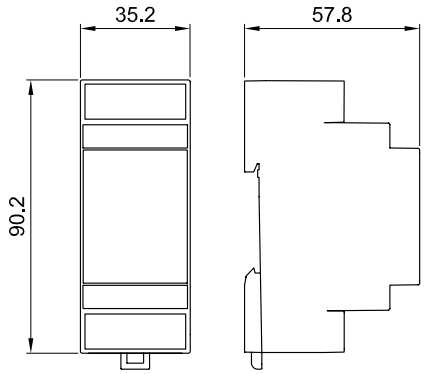
The two-stage operating mode (6.1.5) was developed to report the actual position of the actuator to the transmitter with a signal function for a specific event, such as the opening of a door or window.

Observe the restrictions on use of the device: These switches must not replace safety signals that are intended for use in emergencies on machines or systems or that ensure the functional safety of the system.

7. Technical data

Operating data		
Rated operating voltage	U_e	24 V_{DC}
Rated operating voltage range	U_B	20,4 V_{DC} - 26,4 V_{DC}
Rated operating current	I_e	≤ 500 mA_{DC}
Rated insulation voltage	U_i	AC 250 V
Switching frequency		
1 transmitter signal per relay output		3600 cycles / hour
2 to 28 simultaneous transmitter signals per relay output		1800 cycles / hour
1 transmitter per relay output in two-stage mode (see 6.1.5 on page 4)		720 cycles / hour
Mechanical life		1 x 10^6 switching operations
B10d		2 x 10^6 switching operations
Output data		
Output contact		Electromechanical relay in NO configuration
Rated insulation voltage	U_i	250 V_{AC}
Rated impulse withstand voltage	U_{imp}	2,5 kV
Conv. thermal current	I_{the}	10 A
Utilisation category acc. to EN 60947-5-1		AC-15 DC-13; U_e / I_e: 250 V_{AC} / 3 A
Category of use acc. to UL508		CLASS II – Overvoltage Category III
Feedback circuit 60-61		Query of a normally closed contact of the load switch
Operating and environmental conditions		
Housing		Plastic
Mount		Quick fastening for mounting rail according to DIN 50022
Ambient air temperature		0 °C ... + 55 °C The upper temperature limit required by UL508 from UL is +40 °C.
Connection		Screw terminals for solid or stranded wire conductors with ferrules Conductor cross-sections: 0,5 – 1,5 mm^2; stripping or cable connection length: 7
Protection type		IP20 acc. to EN 60529 (only for use in control cabinets)

8. Dimensions



9. Installation instructions

9.1 Antenna

During normal operation, the receiver must be equipped with a wireless frequency antenna that is approved in accordance with the relevant directives and suitable for receiving signals at 868 MHz (WR-868) or 902 MHz (WR-902).

The antenna must be screwed onto the SMA socket on the wireless receiver.

The antenna must be used to ensure the device's rated power output.
BERNSTEIN AG provides accessories for proper use – see „11. Accessories“ on page 9.

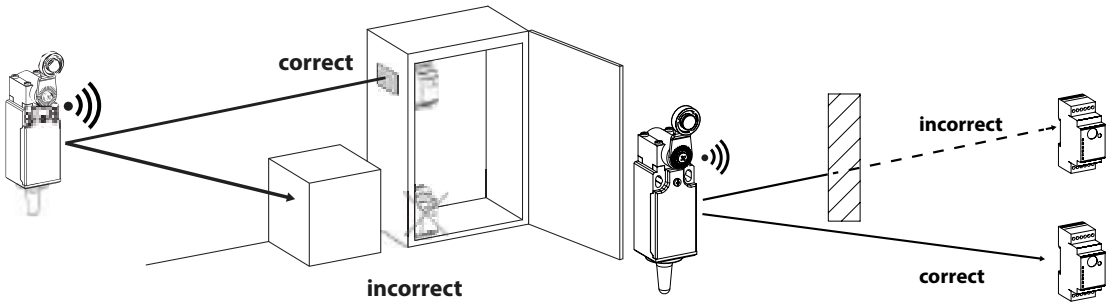
Further details can be found on the website www.bernstein.eu.

9.2 Notes on the operating range

As these are wireless signals, they are electromagnetic waves whose signal strength can decrease on the way from the transmitter to the receiver. This means that the signal strength in both the electric and magnetic fields decreases in inverse proportion to the square of the distance (E,H ~1/r^2) In addition to distance, metallic parts, e.g. wall coverings, metal foils for thermal insulation or metal-coated safety glass, can also be sources of interference. All these materials can reflect the wireless signal and reduce its range. A shadow area can form behind them: even if the waves can penetrate these obstacles, they still have an effect on the range.

An example of signal attenuation by different materials:

Material	Signal attenuation through the material
Metal parts	50 % ... 100 %
Concrete walls	70 % ... 80 %
Brick walls	50 % ... 70 %
Drywall	30 % ... 45 %
Windows Glass windows or wooden panelling	10 % ... 20 %

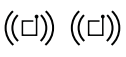


NOTE: The values in this table are purely indicative. Actual values may vary depending on the thickness and specific composition of the material to be penetrated by the signal.

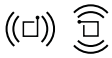
9.3 Typical operating distances

- **Operation in open space without obstacles:** approximately 80 metres
- **Operation in industrial environments:** approximately 30 metres
- **Operation in industrial environments with structural obstacles** (e.g. drywall, metal shelving): approximately 20 metres, provided the receiver is correctly installed with an antenna.
- **Industrial environments with significant structural obstacles:** less than 10 metres, especially if
  - the receiver is mounted behind a shielding wall,
  - the receiver is installed in a corner of the room, or
  - a suitable antenna has not been installed correctly.

9.4 Antenna alignments



Ideal conditions



Acceptable conditions

Unsuitable conditions

10. Mounting

10.1 Mechanical

Mount the wireless receiver on a top-hat rail in a control cabinet using the quick-mounting system.

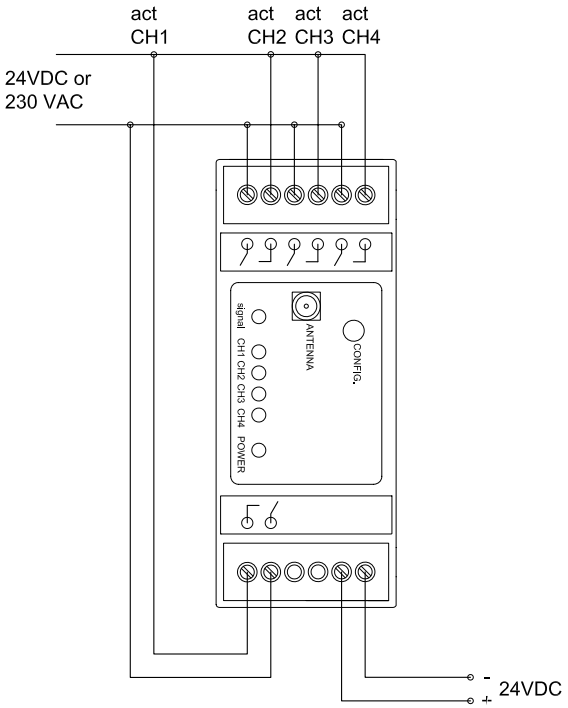
It is recommended to install the wireless receiver at a distance of at least 50 cm from all high-frequency interference sources (PCs, audio or video equipment, etc.) or other transmission sources (GSM, WI-FI, etc.).

The wireless transmitter can be installed at any distance from these sources. Only use installation cables with a maximum length of 3 m to connect the wireless receiver.

10.2 Wiring

Before starting the wiring, ensure that the supply voltage to the device is switched off. After completing the wiring, check that the terminals are free of foreign objects and that all connected cables are firmly connected to the terminals. During and after installation, ensure that the wired conductors are not pulled down. Improper pulling force on the device can cause dangerous damage.

Before starting up the device, make sure that the supply values match the values specified here: 24 V_{DC} (-15 %...+10 %) – max. 0,5 A



10.3 Switch-on procedure

Switch on the device by applying the rated operating voltage of 24 V_{DC} schalten Sie das Gerät ein. The LEDs CH1 – CH2 – CH3 – CH4 light up. When they go out, this indicates that the device is ready for operation.

10.4 Presetting the wireless receiver

When using the device for the first time and when a complete reset is required:

1. Perform the switch-on procedure.
2. Press and hold the CONFIG button for longer than 15 seconds.
3. Three simultaneous flashes of the CH1 – CH2 – CH3 – CH4 LEDs indicate that the default settings have been correctly applied and the device has been reset.
4. Switch the device off and on again to enter operating mode.

NOTE: The PRESET function deletes all associated wireless transmitters and the corresponding assignments to the relay outputs from the device memory. In addition, all relays are set to pulse mode.

10.5 Pairing wireless transmitters

(How to connect the wireless battery-free transmitters to the receiver unit)

When pairing the transmitters, ensure that no battery-free transmitters with the same Enocean transmission protocol are operating in the vicinity of the area. Otherwise, the receiver will not function properly during phase 4 of this pairing process.

Up to 28 transmitters can be assigned to each relay output. All transmitters assigned to the same relay have the same assigned command function.

1. Perform the switch-on procedure.
2. Press and hold the CONFIG button for between 5 and 10 seconds.
3. After releasing the button, the LEDs CH1 – CH2 – CH3 – CH4 flash simultaneously, indicating that the pairing menu has been called up.
4. Press the wireless transmitter that is to be paired with the receiver: if the signal has been received and identified correctly, the CH1 and CH4 LEDs will flash simultaneously once.
5. Press the CONFIG button within 2 seconds as many times as the number of relay outputs you want to assign to the previously activated transmitter.
6. After 2 seconds without operation, the selected LED flashes to indicate that the transmitter has been correctly connected to the selected relay output.
7. If you do not want to pair any more transmitters, switch the receiver off and on again to enter operating mode.
8. If you want to pair additional transmitters, repeat this process from step 4 for all transmitters you want to assign.
9. Once all required transmitters have been paired, switch the receiver off and then on again to enter operating mode.

NOTE: To delete a previously assigned transmitter, press the CONFIG button in step 4 of this pairing process while all relays are off. If no action is taken after 2 seconds, the CH1 – CH2 – CH3 – CH4 LEDs will flash simultaneously, indicating that the transmitter has been deleted from the receiver's memory.

10.6 Setting the relay operating mode

1. Perform the switch-on procedure.
2. Press and hold the CONFIG button for between 10 and 15 seconds.
3. After releasing the button, the LEDs CH1 – CH2 – CH3 – CH4 flash twice simultaneously, indicating that the menu for setting the operating mode has been called up.
4. Press the CONFIG button repeatedly until the desired LED lights up (the number of the LED indicates the relay for which you want to set the operating mode).
5. After 2 seconds without any operation, the CH4 LED will start flashing rapidly: Now you can select the operating mode for the selected relay.
6. Press the CONFIG button as many times as required for the desired operating mode:
   - Press the CONFIG button once: Pulse mode
   - Press the CONFIG button twice: Continuous mode
   - Press the CONFIG button three times: Pulse return mode
   - Press the CONFIG button four times: Return continuous operation
   - Press the CONFIG button five times: Two-stage mode
7. After 2 seconds without operation, the LEDs CH1 – CH2 – CH3 – CH4 flash twice to indicate the setting of the selected operating mode.
8. If you do not want to set any further relays, switch the receiver off and then on again to enter operating mode.
9. If you want to set additional relays, repeat this process from step 4 for all relays you want to configure.
10. Once all the required relays have been set, switch the receiver off and on again to enter operating mode.

11. Accessories

Antennas	
6079100004	RA1-868
6079100005	RA2-868
6079100006	RA1-902
6079100007	RA2-902
Receiver unit	
6079100008	WR-868
6079100009	WR-902
Foot switches	
6061500582	F1-868
6061000583	F1-868 UN
6061500584	F1-902
6061000585	F1-902 UN
Position switches	
6081000139	IN73-868 SM
6081000140	IN73-902 SM
6087000133	MN78-868 SM
6087000134	MN78-902 SM
6081000141	IN73-868 M20
6081000142	IN73-902 M20
6087000135	MN78-868 M20
6087000136	MN78-902 M20
Rope pull switches	
6081000143	IN73-868 RP
6081000144	IN73-902 RP

12. Maintenance

The switchgear is maintenance-free.

To ensure trouble-free and long-lasting operation, checks must be carried out at regular intervals:

- secure fit of all components
- safe switching function

If any defects are found, the entire receiver and/or transmitter must be replaced. Repair is not provided for.

13. Disclaimer

The manufacturer's liability shall lapse in the event of non-compliance with the instructions (intended use, safety instructions, installation and connection by trained personnel, testing for safe operation).

14. EU conformity

EU/UK-Konformitätserklärung / EU/UK-Declaration of Conformity / UE/UK-Déclaration de conformité

Diese Konformitätserklärung entspricht der europäischen Norm DIN EN ISO/IEC 17050-1: Konformitätsbewertung – Konformitätserklärung von Anbietern – Teil 1: Allgemeine Anforderungen. Die Grundlage der Kriterien sind internationale Dokumente, insbesondere ISO/IEC-Leitfaden 22, 1982, Informations on manufacturer's declaration of conformity with standards or other technical specifications. Die deutsche Sprachfassung ist die Originalkonformitäts-erklärung. Bei anderen Sprachen handelt es sich um die Übersetzung der Original-konformitätserklärung.

This Declaration of Conformity is suitable to the European Standard EN ISO/IEC 17050-1: Conformity assessment – Supplier's declaration of conformity – Part 1: General requirements. The basis for the criteria has been found in international documentation, particularly in: ISO/IEC Guide 22, 1982, Informations on manufacturer's declaration of conformity with standards or other technical specifications. The original Declaration of Conformity is the German language version. Other languages are a translation of the original Declaration of Conformity.

Cette déclaration de conformité correspond au Norme Européenne EN ISO/ IEC 17050-1: Évaluation de la conformité – Déclaration de conformité du fournisseur – Partie 1: Exigences générales. La base des directives sont des documents internationaux répondant à ISO/IEC-Guide 22, 1982, Informations on manufacturer's declaration of conformity with standards or other technical specifications. La version allemande est la langue d'origine de la déclaration de conformité. Les autres langues ne sont qu'une traduction de la déclaration de conformité en langue allemande.

Wir / We / Nous

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erklären in alleiniger Verantwortung, dass das (die) Produkt(e):
declare under our sole responsibility that the product(s):
déclarons sous notre seule responsabilité que le(s) produit(s):

Drahtloser Empfänger / Wireless Receiver

Typ / Type:	**Artikelnummer / Item No. :**
WR-868	**6079100008**
WR-902	**6079100009**

mit folgenden Richtlinien übereinstimmt (übereinstimmen):

is (are) in conformity with the following directives:
est (sont) conforme(s) aux directives européennes:

EU Richtlinie / EU Directive / UE Diréctive
RED-Richtlinie / RED-Directive 2014/53/EU
RoHSIII 2011/65/EU; 2015/863

UK Richtlinie / UK Directive / UE Diréctive
Radio Equipment Regulations 2017: 2017 No. 1206
The Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment Regulations 2012: 2012 No. 3032

Dies wird nachgewiesen durch die Einhaltung folgender Norm(en):

This is documented by the accordance with the following standard(s):
Notre justification est l'observation de la (des) norme(s) suivante(s):

ETSI EN 303 446-2 V1.2.0 ; EN 60947-5-1 :2017 ;
ETSI EN 301 489-3 V2.1.1 ; ETSI EN 301 489-1 V2.2.0 ;
ETSI EN 220-2 V3.1.1 ; ETSI EN 300 220-1 V3.1.1 ; EN IEC 63000 :2018

Porta Westfalica, 2025-10-28
(Ort und Datum der Ausstellung)
(Place and date of issue)
(Date et lieu)

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PROTECT We keep safe your visions.

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