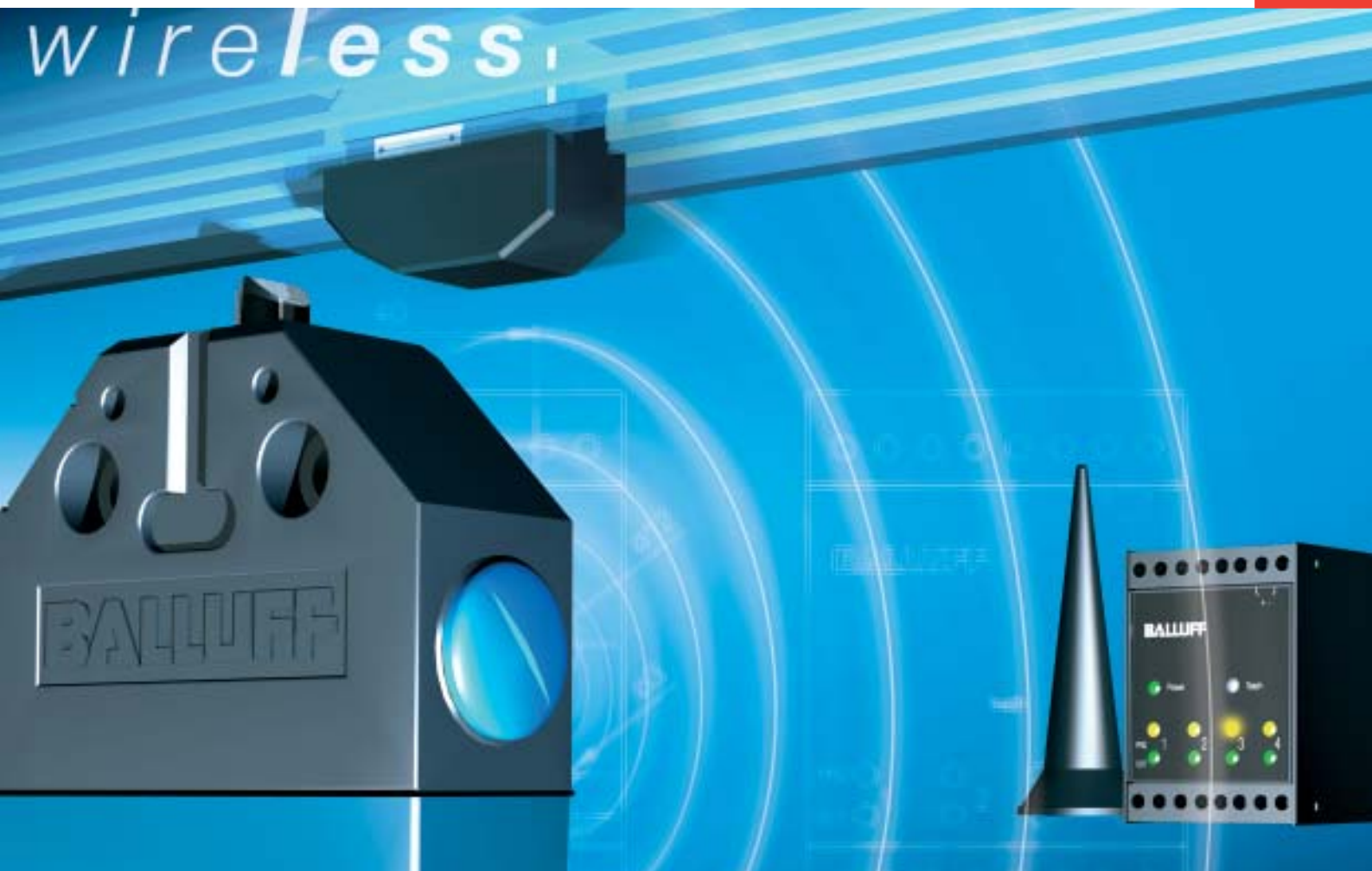
BALLUFF

# Wireless Transmission System BWT

... single position switches with wireless technology




**Balluff Wireless Transmission System BWT**

Balluff GmbH has expanded their product line of electromechanical wireless single position switches with a complete RF transceiver solution for the license-free 868 MHz ISM band. License-free means the system requires no permits or connection fees.

The wireless single position switches are mechanically actuated, by a cam for example. The use of wireless signal transmission eliminates cables and wires to and from the electro-mechanical wireless single position switches. Power is self-generated, making any external energy supply or battery unnecessary.

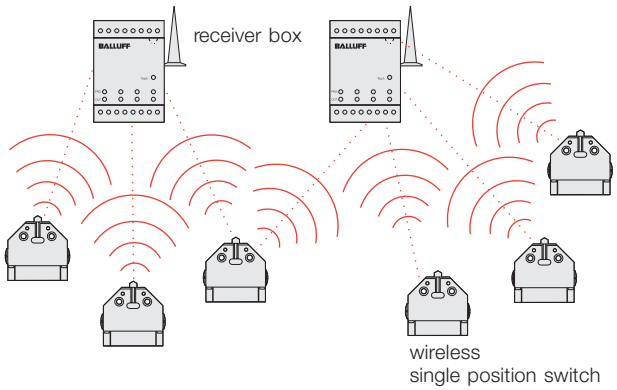
The electromechanical wireless single position switch can be adapted quickly and individually to applications or changing physical conditions. The system works with multiple receivers at the same time for network-like operation. Additional benefits to the new system include simple installation and programming as well as freedom from maintenance. Features that make the electromechanical wireless single position switches an attractive solution in industry. Possible applications include drag chains, rotary indexing tables, grippers or specialty machine building.

Balluff offers a custom, comprehensive range of accessories such as antennas, repeaters, power supplies, cams and cam trays for the electro-mechanical wireless single position switch.

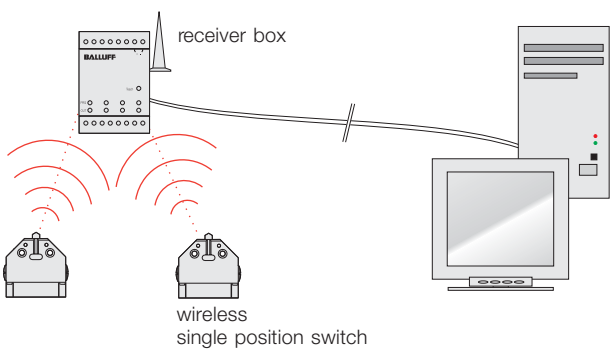
**Advantages**

- Multiple receivers can be used at the same time
- No battery
- No cables
- No cumbersome wiring
- Easy to install
- Simple programming
- Multi-network capable
- Serial data output

**Multi-network capable**




**Serial data output**



# Electromechanical Wireless Single Position Switches

Series F 60
per DIN 43693

**Transmitter (BNS)**

- 868 MHz operating frequency
- Unidirectional (in direction of receiver only)
- Electro-generated power
- 14 protocol bytes
- 32-bit ID number for a single station
- 4.3 billion transmitters possible
- 3 protocols per send procedure
- Duty cycle 1 %
- Degree of protection IP 67
- ≥ 1 million switching operations
- All plunger types available

**Ranges**

- Approx. 40 m corridors, up to 100 m in halls
- Approx. 20 m through max. 5 walls (plaster board/dry wood)
- Approx. 10 m through max. 2 walls (tile/aerated concrete)

**Wireless single position switches per DIN 43693 for standard applications**

- Mounting and function dimensions per DIN 43693
- Dual-chamber system with IP 67 protection: wear-free membrane with hermetic sealing from plunger mechanism and switch chamber
- Maintenance-free, self-lubricating plunger guide with slide bearing
- Plunger not rotatable, approach direction cannot be changed

**Wireless single position switches with anticrystallization chisel plunger**

- With chisel plungers only
- For use with aggressive, resinifying liquid media
- In dry areas with very fine chip presence

Ordering example:
**BNS 819-FD-60-W13**

**BNS 819-F_-60-W1_**

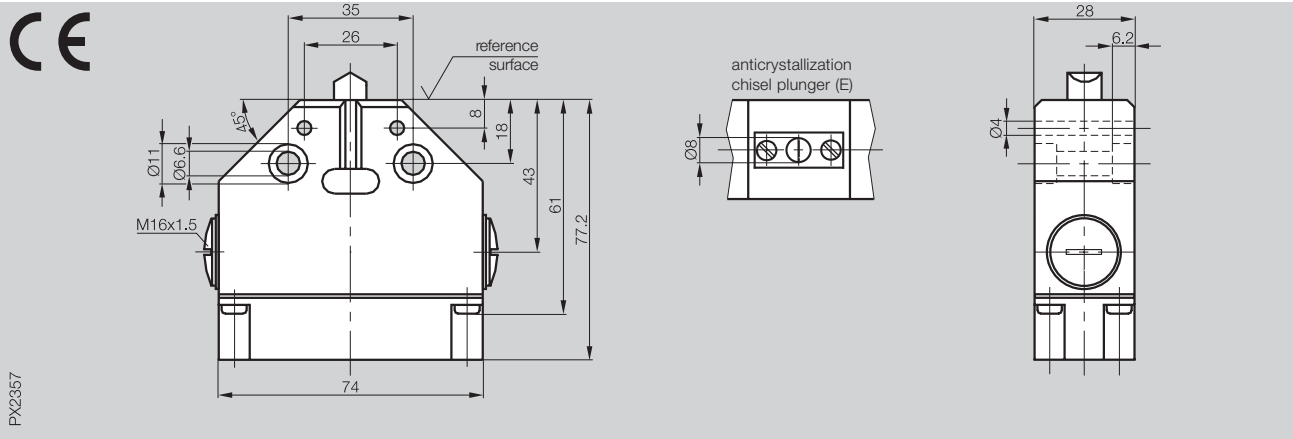
**Plunger style**

- **D** Chisel
- **K** Ball
- **R** Roller
- **L** Roller bearing
- **E** Anticrystallization chisel plunger

**Approach direction**

- **3** lengthwise, parallel to mounting surface
- **5** crossways, 90° to mounting surface

| Type | Wireless single position switches per DIN 43693 |
|---|---|




| | |
|---|---|
| Plunger style | chisel (**D**), ball (**K**), roller (**R**), roller bearing (**L**) or anticrystallization plungers (**E**) |
| Plunger material | stainless steel, contact surfaces induction hardened |
| Housing material | cast aluminum, corrosion-resistant, anodized finish |
| Ambient temperature range | –0...+70 °C |
| Degree of protection per IEC 60529 | IP 67 |

| | |
|---|---|
| With switch element | **BWT T1-185-01** |
| Ordering code | BNS 819-F_-60-W1_ |

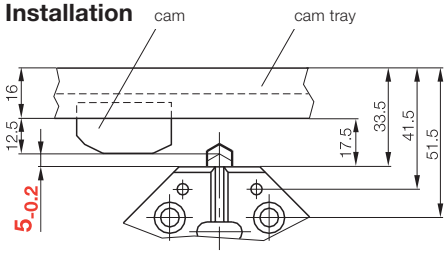
**Switch element**

| | |
|---|---|
| Wireless frequency | 868 MHz |
| Switching principle | snap switch<br>electro-generated power production,<br>14-byte protocol, duty cycle 1 %,<br>3 protocols per send procedure |

**Mechanical data**

| | | |
|---|---|---|
| Plunger point to reference surface | | 8 mm |
| Switchpoint to reference surface | | 5 mm |
| Maximum plunger travel | | 3.3 mm |
| Switching actuating force on plunger | | min. 20 N |
| Switching frequency | | max. 60/min |
| Approach velocity | plunger D, E | 40 m/min |
| | plunger K | 10 m/min |
| | plunger R | 60 m/min |
| | plunger L | 120 m/min |
| Repeatability | | ±0.2 mm |
| Shock load | | max. 100 g |
| Vibration | | 10...55 Hz ±1.5 mm |

**Installation**



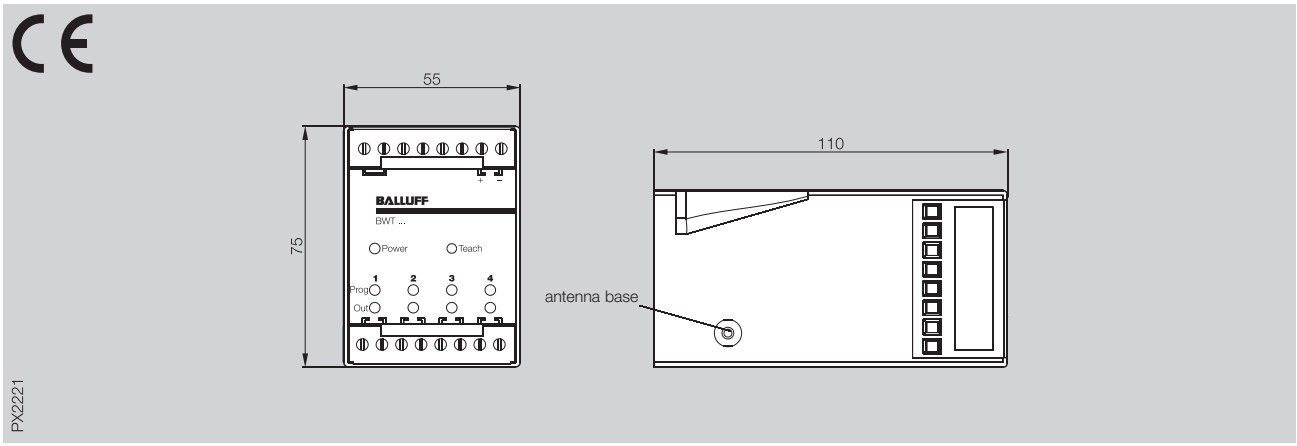

**Caution!**
To ensure switching function, the dimension $5_{-0.2}$ is especially critical.

Photo credit: MCM

**Receiver box**

- Teach-in function
- Approx. 0.5 m range limit in programming mode for more resistance to false signals
- Programming jumper for protection from unintended teach-in
- LED's for visualizing programming
- LED's for indicating switching states
- 4 outputs – normally open or normally closed
- Antenna socket for SMB plug
- Degree of protection IP 20
- DIN rail mount

| Type | Receiver Box for Wireless Transmission System BWT |
|---|---|




| Ordering code | BWT R1-4R1D-101-T |
|---|---|
| **Electrical** | |
| Rated operational voltage $U_e$ | 24 V DC |
| Supply voltage $U_B$ | 20.4...28.8 V DC |
| Ripple | ≤ 5 % of $U_e$ |
| No-load supply current $I_0$ max. | 20 mA |
| Power consumption | 1.5 W |
| Max. load | 2 A/30 V DC |
| Min. relay switching frequency (1 A, 30 V DC, resistive) | $2\times 10^5$ |
| **Mechanical** | |
| Housing material | PC Polycarbonate |
| Connection | clamping terminal |
| Degree of protection per IEC 60529 | IP 20 |
| Degree of contamination | 2 |
| **Ambient** | |
| Max. range | 30 m |
| Range reduction during the programming procedure | 0.5 m |
| Frequency band | 868 MHz |
| Ambient temperature range $T_a$ | +5...+65 °C |
| Utilization category | DC 13 |

Please order antenna separately!
BWT A4-01-50R-SMB-02,5

For definitions and additional multiple and single position switches, see main catalog "The Mechanical Line", the equivalent CD-ROM or DVD-ROM, or go online!

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