Profiles, push buttons, pressure cells and ground sensors for automatic doors, gates and barriers

Maintenance free, robust, tried-and-tested

- Very fast closing
- Pressure wave technology for a high standard of switching reliability
- Straightforward and robust structure
- Millions of units successfully in service

www.bircher.com
Pressure wave switches

For automatic doors, gates and barriers

Can be used wherever a reliable switching pulse is required

The highly sensitive response of the pressure wave system means that it protects people and vehicles from almost all directions. The robustness and durability of the pressure wave switch make it an impressive opening sensor as well.

Quick and reliable

Even low pressure of 3 to 4 mbar is enough to guarantee the electric contact will switch. Pressure wave switch systems are well proven and maintenance free, as well as offering a particularly good cost-performance ratio.

Types of the D1 and D3 series

Technical data see back page, measurements in mm

D1 series – small and universal

DW10

Pluggable pressure wave switch
Connections at bottom

DW10s

Pluggable pressure wave switch
Connections on the side

DW20s

Pressure wave switch with screw connections. Easily accessible screw terminals and 6.3 mm blade terminals

D1 options e.g. for DW40

210018 DW40D
Pressure closes contact, sealed pressure equalisation valve

D3 series – wide range use

Pressure wave switch with two-hole baseplate

D3-P

Types

209853

209854

D3-PB

Pressure activates the binary switch, pressure equalisation valve is sealed (briotil)
Functional principles

A pressure wave generated by the sensor reaches the pressure wave switch. The membrane deflects and the electric contact switches.

The electric contact remains switched for as long as the input pressure is above the response pressure. With the contact (K) and valve screw (V) the switch’s sensitivity can be set individually.

Reliable in every application

Situation
Bus door/Train door
Solution
- Safety: Pressure wave profile DWS
Advantages
- The pressure wave profile is very sensitive and switches quickly
- It protects against crushing and shearing, when the door is closing

Situation
Roller gate
Solution
- Opening signal: Ground sensor DGU
- Safety: Pressure wave profile DWS
Advantages
- The ground sensor is very robust and can be driven over by all kinds of vehicles
- The pressure wave profile is very sensitive and switches quickly

Situation
Barrier
Solution
- Opening signal: Ground sensor DGU
- Safety: Pressure wave profile DWS
Advantages
- The ground sensor is very robust and can be driven over by all kinds of vehicles
- The pressure wave profile is very sensitive and switches quickly

Situation
Sanitary area/explosive area
Solution
- Sensor: foot or hand-operated push button
Advantages
- Simple and safe control of electric switching procedures in damp rooms or rooms with a potentially explosive atmosphere
Pressure wave sensor

Pneumatic pressure wave profiles

Safety with profile
When a rubber profile gets an impact, the inside air volume is compressed pulsed and thereby generates a pressure wave. It passes through the connecting hose to the pressure wave switch, where it triggers a contact.

Order possibilities of the edges and rubber profiles
1. Fully assembled edge incl. of rubber and aluminium profile, e.g. DWS-C / 1000 mm
2. Only rubber profile with pneumatic connections, e.g. DWSGUMMI-C / 1000 mm
3. Made to measure rubber profile, e.g. DWSGO-C / 1000 mm
4. Made to measure aluminium profile, e.g. DWSALU-C / 1000 mm

Profile types

Technical data see back page, measurements in mm

Dimensions

<table>
<thead>
<tr>
<th>Rubber profile</th>
<th>Article no.</th>
<th>Material</th>
<th>Air cross section</th>
<th>Weight*</th>
<th>Mounting Rail</th>
</tr>
</thead>
<tbody>
<tr>
<td>DWS-D</td>
<td>210173</td>
<td>PVC black</td>
<td>77 mm²</td>
<td>0.27 kg/lfm / 0.14 kg/lfm</td>
<td>6 m</td>
</tr>
<tr>
<td>DWS-C</td>
<td>210171</td>
<td>PVC black</td>
<td>180 mm²</td>
<td>0.66 kg/lfm / 0.33 kg/lfm</td>
<td></td>
</tr>
<tr>
<td>DWS-B</td>
<td>210167</td>
<td>PVC black</td>
<td>400 mm²</td>
<td>0.75 kg/lfm / 0.42 kg/lfm</td>
<td></td>
</tr>
<tr>
<td>DWS-Bs</td>
<td>210168</td>
<td>PVC black</td>
<td>400 mm²</td>
<td>0.78 kg/lfm / 0.46 kg/lfm</td>
<td></td>
</tr>
<tr>
<td>DWS-A</td>
<td>210165</td>
<td>PVC black</td>
<td>550 mm²</td>
<td>1.3 kg/lfm / 0.8 kg/lfm</td>
<td></td>
</tr>
<tr>
<td>DWS-P</td>
<td>210175</td>
<td>PVC black</td>
<td>213 mm²</td>
<td>0.3 kg/lfm</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Aluminium profile</th>
<th>Article no.</th>
<th>Packaging unit</th>
<th>End pieces</th>
<th>Article no.</th>
</tr>
</thead>
<tbody>
<tr>
<td>DWSALUD</td>
<td>209574</td>
<td>6 m</td>
<td>DWSED</td>
<td>209154</td>
</tr>
<tr>
<td>AP-2</td>
<td>209577</td>
<td>6 m</td>
<td>DWSEC</td>
<td>208995</td>
</tr>
<tr>
<td>AP-2</td>
<td>209577</td>
<td>6 m</td>
<td>DWSEB</td>
<td>208996</td>
</tr>
<tr>
<td>AP-2</td>
<td>209577</td>
<td>6 m</td>
<td>DWSEB</td>
<td>208996</td>
</tr>
<tr>
<td>AP-1</td>
<td>209574</td>
<td>6 m</td>
<td>DWSEA</td>
<td>208997</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>DWSEC</td>
<td>208995</td>
</tr>
</tbody>
</table>

*kg/lfm = kg per lineal meter
**Pressure wave sensor**

Pneumatic ground sensor / pressure cell / push button

**Sensor for installation in the floor**

The ground sensor DGU is principally used as a control signal transmitter in automatic door and gate opening systems. It is very robust and can be driven over by all kinds of vehicles. The pressure sensitive cell DGD is frequently used as a sensor in contact floors. It is extremely robust as well and is also popular because of its flat design and ease of installation.

**Sensor for door and gate opening systems and for sanitary areas**

Pneumatic foot and hand-operated push buttons are simple, robust sensors and are specifically suitable for damp rooms or rooms with a potentially explosive atmosphere. These tried-and-tested products are easy to install and offer reliable functions.

**Ground sensor DGU**

Technical data see back page

**Type selection**

The DGU ground sensor is available in five standard overall lengths.

**Standard overall length A in mm:**
540, 1040, 1540, 2040, 3040

**Standard effective length B in mm:**
500, 1000, 1500, 2000, 3000

**Installation**

During installation care should be taken that the steel channel base is flush with the ground and only the ribbed part of the rubber profile projects above the surface.

**Installation dimensions in mm**

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>150</td>
</tr>
<tr>
<td>B</td>
<td>150</td>
</tr>
<tr>
<td>Reinforced concrete</td>
<td>40</td>
</tr>
<tr>
<td>Conduit or hose ø i 14</td>
<td>300</td>
</tr>
</tbody>
</table>

**Pressure cell DGD**

**DGD dimensions in mm**

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max. pressure load 5 t / element</td>
<td></td>
</tr>
<tr>
<td>Max. preload 40 kg / element</td>
<td></td>
</tr>
<tr>
<td>Response weight ca. 5 kg / element</td>
<td></td>
</tr>
<tr>
<td>Deformation 0.2 mm / 100 N</td>
<td></td>
</tr>
<tr>
<td>Max. deformation 1.2 mm / 600 N</td>
<td></td>
</tr>
<tr>
<td>Number of elements per system max. 8</td>
<td></td>
</tr>
<tr>
<td>Operating temperature −20° to + 70° C</td>
<td></td>
</tr>
</tbody>
</table>

**Push buttons DT**

**DT dimensions in mm**

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Foot-operated push button DTFU</td>
<td></td>
</tr>
<tr>
<td>Hand-operated push button DTFUW</td>
<td></td>
</tr>
</tbody>
</table>

- Visible plate made from chromium-nickel steel
- Black push button bellows

The DTFUW version is a hand operated push button and has an especially soft bellows.

<table>
<thead>
<tr>
<th>Type</th>
<th>JANOS</th>
</tr>
</thead>
<tbody>
<tr>
<td>DTFU</td>
<td>209979</td>
</tr>
<tr>
<td>DTFUW</td>
<td>209981</td>
</tr>
</tbody>
</table>

**Replacement part**

<table>
<thead>
<tr>
<th>JANOS</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>209689</td>
<td>Bellows to DTFU</td>
</tr>
<tr>
<td>209690</td>
<td>Bellows to DTFUW</td>
</tr>
</tbody>
</table>

*Remark: the needed pressure wave switch and the air hose are not included*
Pressure wave switches and sensors

Connection elements

Simplicity of connection
Pressure wave switches and sensors can be connected together easily and in a variety of ways. A wide range of connection pieces and hoses guarantees flexibility and reliable function appropriate to your application.

Connection elements

Measurements in mm

PVC 2/4
PVC air hose with 2/4 mm diameter, colour transparent

NEO 2/4
Neoprene air hose with 2/4 mm diameter, colour black, flame retardant

DWV
Straight air hose connection piece

DWL
Air hose connection piece with L-shape

DWT
Air hose connection piece with T-shape

A3M5
Connection piece with two 3 mm diameter connections, thread M5
Pressure wave switches

Accessories

**Maximum flexibility for installation**

Install your pressure wave switches efficiently and compactly with a plug-in base. The practical housing made from impact-resistant plastic ensures protection against environmental influences according to IP54 or IP65.

**Order possibilities**

1. Separate housing, e.g. 212865  GEHDWGK1
2. Housing incl. of pressure wave switch, e.g. 210095  DWGK1

---

Plug-in base, cover hood and housing

Measurements in mm

**DWSO plug-in base**
- Space-saving and efficient installation of DW10 and DW10s
- Spring-mounted plugs
- Easily accessible connection terminals
- Ability to connect 6.3 mm blade terminals

**GEHDWGK 1**
- Impact-resistant screw-on housing for pressure wave switch serie D1
- Protection class 65 (EN 60529)

**GEHDWGK 11/GEHD3K1**
- Impact-resistant snap-in housing for pressure wave switch serie D1 and D3
- Protection class 54 (EN 60529)
Ordering information

<table>
<thead>
<tr>
<th>Ground sensor DGU</th>
<th>Replacement rubber</th>
</tr>
</thead>
<tbody>
<tr>
<td>209932 DGU500</td>
<td>209942 DGUG500</td>
</tr>
<tr>
<td>209928 DGU1000</td>
<td>209935 DGUG1000</td>
</tr>
<tr>
<td>209929 DGU1500</td>
<td>209936 DGUG1500</td>
</tr>
<tr>
<td>209930 DGUG2000</td>
<td>209937 DGUG2000</td>
</tr>
<tr>
<td>209931 DGUG3000</td>
<td>209941 DGUG3000</td>
</tr>
</tbody>
</table>

Pressure sensitive cell DGD

<table>
<thead>
<tr>
<th>Pressure sensitive cell DGD</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>209926 DGD</td>
<td>DGD pressure sensitive cell</td>
</tr>
</tbody>
</table>

Pneumatic foot and hand-operated push buttons DT

<table>
<thead>
<tr>
<th>Pneumatic foot and hand-operated push buttons DT</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>209979 DTFU Foot-operated push button DTFU</td>
<td></td>
</tr>
<tr>
<td>209689 B-DTFU Bellows to DTFU</td>
<td></td>
</tr>
<tr>
<td>209981 DTFUW Hand-operated push button DTFUW</td>
<td></td>
</tr>
<tr>
<td>209690 B-DTFUW Bellows to DTFUW</td>
<td></td>
</tr>
</tbody>
</table>

Connection elements

<table>
<thead>
<tr>
<th>Connection elements</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>207495 PVC 2/4</td>
<td>PVC air hose, transparent, 100 m</td>
</tr>
<tr>
<td>207502 NEO 2/4</td>
<td>Neoprene air hose, black, 100 m</td>
</tr>
<tr>
<td>208930 DWV</td>
<td>Straight air hose connection piece</td>
</tr>
<tr>
<td>208929 DWL</td>
<td>Air hose connection piece with L-shape</td>
</tr>
<tr>
<td>208928 DWT</td>
<td>Air hose connection piece with T-shape</td>
</tr>
<tr>
<td>208968 A3M5</td>
<td>Connection piece with two ø 3 mm connections, thread M5</td>
</tr>
</tbody>
</table>

Accessoires

<table>
<thead>
<tr>
<th>Accessoires</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>210191 DWSO</td>
<td>Plug-in base for DW10 and DW10s</td>
</tr>
<tr>
<td>212865 GEHDWGK1</td>
<td>Impact-resistant screw-on housing for pressure wave switch serie D1</td>
</tr>
<tr>
<td>212866 GEHDWGK11</td>
<td>Impact-resistant snap-in housing for pressure wave switch serie D1, grey housing bottom</td>
</tr>
<tr>
<td>212864 GEHD3K1</td>
<td>Impact-resistant snap-in housing for pressure wave switch serie D3, black housing bottom</td>
</tr>
<tr>
<td>209364 D1CLIP</td>
<td>Mounting bracket for DW40</td>
</tr>
<tr>
<td>213966 SPK3</td>
<td>Spiral cable 3 m, 4 x 0.5 mm², PU</td>
</tr>
<tr>
<td>239889 SPK5</td>
<td>Spiral cable 5 m, 4 x 0.5 mm², PU</td>
</tr>
<tr>
<td>213967 SPK-APD</td>
<td>Connection box, surface mount, 52 x 50 x 40 mm, material ABS</td>
</tr>
</tbody>
</table>

The rubber profiles can be joined to the end pieces by using Tetrahydrofuran that can be bought at your local chemical store.

Technical data

### D1 series – DW10/DW10s/DW20s/DW40

- **Response pressure**: 2 mbar
- **Max. pressure**: 150 mbar
- **Pressure equalisation**: 110 mbar/150 mbar at 2 mbar
- **Min./max. current**: 20 mA/500 mA (ACDC ohmic)
- **Min./max. operating voltage**: 24–250 VAC, 24–50 VDC
- **Output**: NC or NO
- **Mechanical service life**: 30 million switchings
- **Ambient temperature**: –30°C to +70°C

### D3 series – D3P/D3PB

- **Response pressure**: 2 mbar
- **Max. pressure**: 500 mbar
- **Pressure equalisation**: 65 mbar/100 mbar at 2 mbar
- **Min./max. current**: 1 mA/1000 mA (ACDC ohmic)
- **Min./max. operating voltage**: 6–250 VAC, 6–50 VDC
- **Output**: Changeover switch
- **Mechanical service life**: 10 million switchings
- **Ambient temperature**: –30°C to +80°C

### Pneumatic pressure wave profiles

- **Material**: PVC
- **Profile length**: max. 6 m
- **Connection cable to PW**: max. 10 m (ø 2/4 mm)
- **Manufacturing tolerances**: ± 2 mm
- **Width/height**: ± 3 mm
- **Length up to 1000 mm**: ± 5 mm
- **Length up to 2000 mm**: ± 9 mm
- **Length up to 4000 mm**: ± 15 mm
- **Length up to 6000 mm**: ± 25 mm

### Ground sensor DGU

- **Material**: U-profile: galvanised steel, Rubber profile: EPDM
- **Connection cable to PW**: max. 10 m (ø 2/4 mm)
- **Loading capacity**: max. 2 t
- **Drive-over speed**: max. 30 km/h
- **Operating temperature**: –20°C to +60°C

### Housing GEHDWGK-1 / GEHDWGK-11

- **Material**: Impact-resistant plastic, Luran 786R, grey or black
- **Fastening**: 2 x M4 screw
- **Electrical connection**: PG-cable gland, PG11
- **Air connection**: Connection nipple ø 3 mm
- **Protection class**: IP 54 or IP 65 (EN 60529)

Note

Technical details and recommendations concerning our products are based on experience and are an aid for the orientation of the user. Details stated in our brochures and data sheets do not guarantee special properties of the products. This does not apply to special product properties confirmed by us in writing or individually. Subject to technical alterations.

BBC Bircher Smart Access

Wiesengasse 20
8222 Beringen
Switzerland

Phone +41 52 687 11 11
info@bircher.com
www.bircher.com