Innovations 2010/2011 - Control panel BDF 200

BDF 200

**Technical data**

**Standards:**
EN 60947-5-1, EN 60947-5-5

**Enclosure:**
- Enclosure material: glass-fibre reinforced thermoplastic, self-extinguishing
- Enclosure protection class: IP 65
- Cable entry: 1 x M20 for cable Ø 6...13 mm

**Ambient conditions:**
- Ambient temperature: −25 °C ... +65 °C
- Climatic resistance: to DIN EN 60068, Part 2 - 30
- Overvoltage category: III
- Degree of pollution: 3

**Contact elements:**
- Contact material: AgNi 10, gold-plated
- Control elements - protection class: IP 65
- Rated operating voltage Ue: max. 24 V
- Utilisation category: AC-15/DC-13
- Rated operating current/voltage Ie/Ue: AC-15: 2 A / 24 VAC
  DC-13: 1 A / 24 VDC
- Thermal test current Ith: 2.5 A
- Fuse rating: 2.5 A slow-blow
- Contact system: cross-point system
- Contact force: 0.5 N per contact point, 1 N per contact
- Switching of low voltages: min. 5 V / 1 mA
- Switching frequency: 1,200 s/h
- Rated insulation voltage Ui: 60 V
- Bounce time: < 2 ms at 100 mm/s operating speed
- Mech. lifetime: 1 million operations
- Switch travel: approx. 3 mm
- Resistance to shocks: 100 g, 10...200 Hz
- Wiring labels: to DIN EN 50005 or DIN EN 50013
- Actuating force at end of travel (1NC/1NO): 8 N

**Technical data**

**Illuminated pushbuttons:**
- Enclosure material: glass-fibre reinforced thermoplastic, self-extinguishing
- Illuminated pushbutton material: all-insulated
- Front collar material: plastic
- Calotte material: plastic
- Illuminated pushbutton - protection class: IP 65
- Rated operating voltage Ue: max. 24 V
- Fuse rating: 2.5 A slow-blow
- Rated insulation voltage Ue: 60 V
- Wiring labels: to DIN EN 50005 or DIN EN 50013: X1/X2

**Lamp values illuminated pushbutton:**
- Lamp fitting: Ba5S
- LED replacement: from front
- **Safety classification emergency stop command device:**
  - Standards: EN ISO 13849-1
  - B10d: 100,000
  - Mission time: 20 years
  - MTTF_B = \frac{B_{10d} \cdot \eta_{op} \cdot d_{op} \cdot t_{cycle}}{0.1 \cdot t_{op}}

**Note**

- Contact variant -20 or -11 continuous for all positions (exception: emergency stop with 1 NO / 2 NC contacts)
- Contact variants -20 or -11 cannot be combined to each other

Example:
BDF 200-NH-20-DTYE-B-LMGN

The description of the suitable control elements can be found as of page 42.

**Note**

Possible equipment of the positions 1 to 4, refer to table page 41.

**Approvals**

- under preparation

**Ordering details**

<table>
<thead>
<tr>
<th>BDF 200</th>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
<td>NH</td>
<td>Emergency stop latching pushbutton without protective collar</td>
</tr>
<tr>
<td></td>
<td>NHK</td>
<td>with protective collar</td>
</tr>
<tr>
<td>20</td>
<td>Operating element pos. 1</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>2 NO contacts</td>
<td></td>
</tr>
<tr>
<td>...</td>
<td>1 NO / 1 NC contact</td>
<td></td>
</tr>
<tr>
<td>...</td>
<td>Operating element pos. 2</td>
<td></td>
</tr>
<tr>
<td>...</td>
<td>Operating element pos. 3</td>
<td></td>
</tr>
<tr>
<td>...</td>
<td>Operating element pos. 4</td>
<td></td>
</tr>
</tbody>
</table>

Unused positions are labelled “B” and are sealed with a blanking plug in factory.
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<table>
<thead>
<tr>
<th>Control elements</th>
<th>Pos. 1</th>
<th>Pos. 2</th>
<th>Pos. 3</th>
<th>Pos. 4</th>
<th>Control panel</th>
</tr>
</thead>
<tbody>
<tr>
<td>NH</td>
<td>•</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NHK</td>
<td>•</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PT..</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td></td>
</tr>
<tr>
<td>DT..</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td></td>
</tr>
<tr>
<td>LT..</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td></td>
</tr>
<tr>
<td>LM..</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td></td>
</tr>
<tr>
<td>SWS20 SWT20</td>
<td></td>
<td>•</td>
<td>•</td>
<td></td>
<td></td>
</tr>
<tr>
<td>WS20 WS30 WT20 WT30 WTS30</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>WS21 WS31 WT21 WT31 WTS31</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Description of the control elements, as of page 42.

### Note

The colour of the upper enclosure cap basically is yellow when the emergency stop command devices NH and NHK are used. If there is no control element in position 1, the control panel is supplied with a black enclosure cap.
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NH / NHK
- Emergency stop latching pushbutton
- Mushroom-shaped plastic pushbutton, Ø 30 mm
- Pull to reset
- 1 NO contact / 2 NC contacts
- Without protective collar: ordering suffix NH
- With protective collar: ordering suffix NHK

DT..
- Pushbutton
- With concave button
- Contact surface 19 x 19 mm
- 2 NO contacts or 1 NO/1 NC contact
- Available in 6 different colours
- Prints on device on request
- Ordering suffix, refer to table below

LM..
- Illuminated device
- Illuminated surface 19 x 19 mm
- Lamp replacement from front
- Available in 5 different colours
- Prints on device on request
- Ordering suffix, refer to table below

PT..
- Mushroom-shaped pushbutton
- Contact surface 25 x 25 mm with rounded sides
- Not latching
- 2 NO contacts or 1 NO/1 NC contact
- Available in 6 different colours
- Prints on device on request
- Ordering suffix, refer to table below

LT..
- Illuminated pushbutton
- With concave button
- Contact surface 19 x 19 mm
- 2 NO contacts or 1 NO/1 NC contact
- Lamp replacement from front
- Available in 5 different colours
- Prints on device on request
- Ordering suffix, refer to table below

<table>
<thead>
<tr>
<th>Suffix</th>
<th>yellow</th>
<th>red</th>
<th>green</th>
<th>blue</th>
<th>black</th>
<th>white</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mushroom-shaped pushbutton PT..</td>
<td>PTYE</td>
<td>PTRD</td>
<td>PTGN</td>
<td>PTBU</td>
<td>PTBK</td>
<td>PTWH</td>
</tr>
<tr>
<td>Pushbutton DT..</td>
<td>DTYE</td>
<td>DTRD</td>
<td>DTGN</td>
<td>DTBU</td>
<td>DTBK</td>
<td>DTWH</td>
</tr>
<tr>
<td>Illuminated pushbutton LT..</td>
<td>LTYE</td>
<td>LTRD</td>
<td>LTGN</td>
<td>LTBU</td>
<td></td>
<td>LTWH</td>
</tr>
<tr>
<td>Signalling device LM..</td>
<td>LMYE</td>
<td>LMRD</td>
<td>LMGN</td>
<td>LMBU</td>
<td></td>
<td>LWH</td>
</tr>
</tbody>
</table>
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W..0
- Selector switch / Spring-return selector switch
- Version with standard knob, anthracite grey
- Ordering suffix, refer to table below

W..1
- Selector switch / Spring-return selector switch
- Version with long knob, anthracite grey
- Ordering suffix, refer to table below

SW.20
- Key-operated selector switch / Spring-return selector switch
- Version with high-grade cylinder lock, therefore IP 65 as well
- Ordering suffix, refer to table below

<table>
<thead>
<tr>
<th>Ordering suffix</th>
<th>Selector switch</th>
<th>Selector switch</th>
<th>Spring-return</th>
<th>Spring-return</th>
<th>Selector switch</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1 latching position</td>
<td>2 latching positions left and right of the zero position</td>
<td>1 touch position and automatic return to the zero position</td>
<td>2 touch positions left and right of the zero position and automatic return to the zero position</td>
<td>1 touch position right and automatic return to the zero position + 1 latching position left of the zero position</td>
</tr>
<tr>
<td>2 NO contacts or 1 NO/1 NC contact</td>
<td>1 NO contact for each switching position or 1 NC contact (position 1) and 1 NO contact (position 2)</td>
<td>2 NO contacts or 1 NO/1 NC contact</td>
<td>1 NO contact for each switching position or 1 NC contact (position 1) and 1 NO contact (position 2)</td>
<td>1 NO contact for each switching position or 1 NC contact (position 1) and 1 NO contact (position 2)</td>
<td></td>
</tr>
</tbody>
</table>

Standard knob
- WS20
- WS30
- WT20
- WT30
- WTS30

Long knob
- WS21
- WS31
- WT21
- WT31
- WTS31

Key-operated switch
- SW520
- SWT20
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**BDF 200-NH-11-...**

1 NO / 2 NC contacts
for emergency stop at Pos. 1

1 NO / 1 NC contact
for operating elements at Pos. 2 - 4

**BDF 200-NH-20-...**

1 NO / 2 NC contacts
for emergency stop at Pos. 1

2 NO contacts
for operating elements at Pos. 2 - 4
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**BDF 200-...11-...**

1 NO / 1 NC contact
for operating elements at Pos. 1 - 4

**Terminal configuration**

```
<table>
<thead>
<tr>
<th>Pos. 1</th>
<th>Pos. 2</th>
<th>Pos. 3</th>
<th>Pos. 4</th>
</tr>
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<tbody>
<tr>
<td></td>
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</tr>
</tbody>
</table>
```

**BDF 200-...20-...**

2 NO contacts
for operating elements at Pos. 1 - 4

**Terminal configuration**

```
<table>
<thead>
<tr>
<th>Pos. 1</th>
<th>Pos. 2</th>
<th>Pos. 3</th>
<th>Pos. 4</th>
</tr>
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</tbody>
</table>
```