



Every safety guard of a machine or plant is, besides a safety switching system, equipped with a control panel, by means of which the operator can activate for instance the emergency stop, on/off and reset functions.

Usually, these control panels are manufactured by the machine builder according to the “do-it-yourself” principle. Especially for small quantities or in companies with their own auxiliary equipment production, which only manufacture small series, this is a highly uneconomical operation, which does not always produce the desired result from the technical or aesthetical point of view.

The Schmersal Group felt a need for standardisation in this field and has developed a modular system of control panels, which can be configured according to the operator’s needs. The system is flexible and designed according to the principles of ergonomics.

Together with the safety switchgear from the Schmersal Group, the BDF series builds a complete system for the safety on the guard door – including the necessary control elements.

The BDF series was developed using the competencies of our sister company Elan. The control elements with modular design originate from their programme.

Especially the combination of the AZ 200 safety switch and the AZM 200 solenoid interlocks with the BDF series is a highly efficient configuration.

In this field, there are innovations as well, e.g. a three-point locking bar for the AZM 200 solenoid interlock, which ensures a stable locking, even on large safety guards.

| | |
|-------------------------|----|
| BDF control panel | 8 |
| Three-point locking bar | 14 |

Flexible, comp



Standard in higher – quality instead of “do-it-yourself”

The basis of the BDF series is a slim enclosure in shock-resistant plastic, which can be quickly and smoothly fitted on the customary aluminium profile systems used in mechanical engineering and which can accommodate four control elements. As the control elements are regarded, the user can choose from a comprehensive range of illuminated pushbuttons, selector switches with LED, key-operated switches and standard-compliant emergency stop command devices.

Adjustable to the user’s needs

All control elements have the same contacts. In this way, the user can choose their position on the control panel depending on the individual requirements. Also as the labelling is regarded, the BDF control panels can be adjusted to the individual needs. To this effect, labelling areas with plastic cover are provided, in which two-layer plastic identification labels can be applied.

In the course of the development, the Schmersal engineers have interviewed many customers about the desired

features and functions, which such control panel should include. The results of these surveys have been integrated in the design of the BDF series.

Customer survey as point of departure for the design

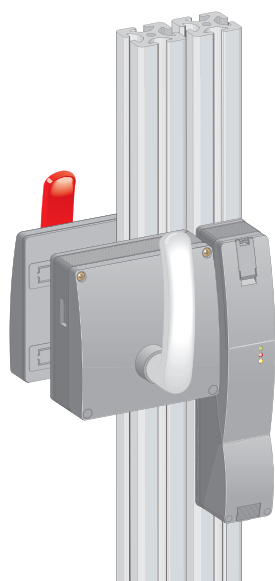
The most wanted features appeared to be a comprehensive choice of control elements and smooth fitting. Many users also preferred that the label was not applied to the switch itself, but in a separate labelling area.



act, ergonomic

As they are a separate unit, which is not linked to the door-handle or the safety switchgear, the BDF control panels can be installed in the most favourable position as ergonomics is regarded. The machine builder can even fit two control panels on top of each other or side by side.

At first, the Schmersal Group will present multiple configuration variants of the BDF series. In the next months, other modules will be successively introduced, which will simplify – amongst other things – the integration of the control elements in the safety circuit or in the control system of the machine or plant.

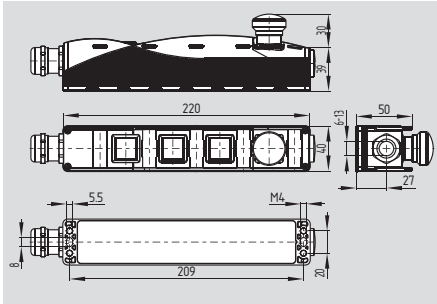


The control panel features a large field of application, especially when combined with solenoid interlocks. As ergonomics is regarded, the control panel optimally harmonises with the new generation of the AZ 200 safety switch and the AZM 200 solenoid interlock.



BDF control panel

BDF



- Slim, shock-resistant plastic enclosure
- Can be fitted onto customary aluminium profile systems
- Can be installed in the most favourable ergonomic position
- Comprehensive selection of illuminated pushbuttons, selector switches, signalling devices with LED, key-operated switches and emergency stop switches/pushbuttons
- Emergency stop, on/off and reset functions available
- The position of the switch/pushbutton on the control panel can be chosen (refer to table page 11)
- Optionally, 5 two-layer plastic identification labels can be used (engravements on request)

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: 1x 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 U_i : max. 24 V
 Utilisation category: AC-15/DC-13
 Rated operating current/voltage I_e/U_e : AC-15: 2 A / 24 VAC
 DC-13: 1 A / 24 VDC

Thermal test current I_{the} : 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 U_i : 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 / 6 ms
 Resistance to vibrations: 20 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 U_i : max. 24 V
 Fuse rating: 2.5 A slow-blow
 Rated insulation voltage U_i : 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

Approvals



Ordering details

BDF 200-①-②-③-④

| No. | Option | Description |
|-----|--------|-------------------------------|
| ① | ... | Control element in position 1 |
| ② | ... | position 2 |
| ③ | ... | position 3 |
| ④ | ... | position 4 |

Blank positions will be marked with „X“ and are sealed with a plug.

Example: BDF 200-NH-DTYE-X-LMGN

Note



Control panel


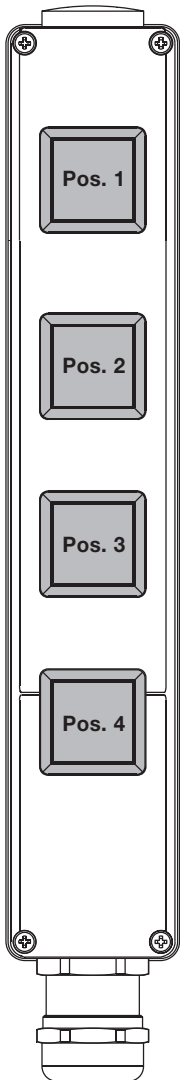







- Pos. 1
- Pos. 2
- Pos. 3
- Pos. 4

Possible equipment of the positions 1 to 4, refer to table page 11

Note

The description of the suitable control elements can be found as of page 12.

BDF control panel

| Control elements | | Pos. 1 | Pos. 2 | Pos. 3 | Pos. 4 | Control panel |
|---|-------|--------|--------|--------|--------|--|
|  | NH | • | | | |  |
| | NHK | • | | | | |
|  | PT.. | • | • | • | • | |
|  | DT.. | • | • | • | • | |
|  | LT.. | • | • | • | • | |
|  | LM.. | | • | • | • | |
|  | SWS20 | | • | • | | |
| | SWT20 | | • | • | | |
|  | WS20 | | • | • | | |
| | WS30 | | • | • | | |
| | WT20 | | • | • | | |
| | WT30 | | • | • | | |
| | WTS30 | | • | • | | |
| | WS21 | | • | • | | |
|  | WS31 | | • | • | | |
| | WT21 | | • | • | | |
| | WT31 | | • | • | | |
| | WTS31 | | • | • | | |

Description of the control elements, as of page 12

Note:

The colour of the upper enclosure cap basically is yellow when the emergency stop command devices NH and NHK are used (refer to photo page 10). If there is no emergency stop command device in position 1, the control panel is supplied with a black enclosure cap.

BDF control panel

NH / NHK



- **Emergency stop latching pushbutton**
- Mushroom-shaped plastic pushbutton, Ø 30 mm
- Pull to reset
- Without protective collar: ordering suffix **NH**
- With protective collar: ordering suffix **NHK**

DT..



- **Pushbutton**
- With concave button
- Contact surface 19 x 19 mm
- 1 NO contact
- Available in 7 different colours
- Prints on device on request
- Ordering suffix, refer to table below

LM..



- **Signalling device**
- With concave illuminated surface
- 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
- 1 NC / 1 NO contact
- Available in 7 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
- 1 NO contact
- Lamp replacement from front
- Available in 5 different colours
- Prints on device on request
- Ordering suffix, refer to table below

| Suffix | yellow | red | green | blue | black | white | grey |
|---|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
|  | PTYE | PTRD | PTGN | PTBU | PTBK | PTWH | PTGY |
|  | DTYE | DTRD | DTGN | DTBU | DTBK | DTWH | DTGY |
|  | LYE | LTRD | LTGN | LTBU | | LTWH | |
|  | LYE | LMRD | LMGN | LMBU | | LMWH | |

BDF control panel

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

| Ordering suffix | Selector switch | Selector switch | Spring-return | Selector switch | Selector switch pushbutton |
|----------------------------|-----------------|-----------------|---------------|-----------------|----------------------------|
| | | | | | |
| Standard knob | WS20 | WS30 | WT20 | WT30 | WTS30 |
| Long knob | WS21 | WS31 | WT21 | WT31 | WTS31 |
| Key-operated switch | SWS20 | | SWT20 | | |