



## BDF200-FB-NH-SWS20S1-LTYE-DTWH-G24

- slender shock-proof thermoplastic enclosure
- to be installed at an ergonomic favourable position
- to be fitted to commercial-off-the-shelf aluminium profiles
- E-STOP with electronic OSSDs

## Data

### Ordering data

|                               |                                    |
|-------------------------------|------------------------------------|
| Product type description      | BDF200-FB-NH-SWS20S1-LTYE-DTWH-G24 |
| Article number (order number) | 103041561                          |
| EAN (European Article Number) | 4030661557489                      |
| eCl@ss number, version 12.0   | 27-37-12-16                        |
| eCl@ss number, version 11.0   | 27-37-12-16                        |
| eCl@ss number, version 9.0    | 27-37-12-16                        |
| ETIM number, version 7.0      | EC000225                           |
| ETIM number, version 6.0      | EC000225                           |
| Note (Ordering data)          | Notice: see ordering code          |

### Approvals - Standards

|              |       |
|--------------|-------|
| Certificates | cULus |
|--------------|-------|

### General data

|                            |                                                                                                  |
|----------------------------|--------------------------------------------------------------------------------------------------|
| Standards                  | EN ISO 13849-1<br>EN ISO 13850<br>EN IEC 60947-5-1<br>EN IEC 60947-5-5<br>EN IEC 61508           |
| Climatic stress            | DIN EN 60068                                                                                     |
| Housing material           | Plastic, glass-fibre reinforced thermoplastic, self-extinguishing                                |
| Reaction time, maximum     | 50 ms                                                                                            |
| Duration of risk, maximum  | 100 ms                                                                                           |
| Positions used, position 1 | Emergency stop pushbutton                                                                        |
| Positions used, position 2 | Key-operated switch, 1 latching position and 1 zero position, key removal position in position 1 |
| Positions used, position 3 | Illuminated pushbutton, yellow                                                                   |
| Positions used, position 4 | Pushbutton, white                                                                                |
| Gross weight               | 280 g                                                                                            |

## General data - Features

|                                     |     |
|-------------------------------------|-----|
| Serial diagnostics                  | No  |
| Field box interface                 | 1   |
| Indicator lamp                      | Yes |
| Safety functions                    | Yes |
| Number of fail-safe digital outputs | 2   |

## Safety classification

|                                                            |                                        |
|------------------------------------------------------------|----------------------------------------|
| Standards                                                  | EN ISO 13849-1<br>EN IEC 61508         |
| Performance Level, up to                                   | e                                      |
| Category                                                   | 4                                      |
| PFH value                                                  | $2.89 \times 10^{-10}$ /h              |
| Note (PFH-value)                                           | up to max. 5,000 switching cycles/year |
| Safety Integrity Level (SIL), suitable for applications in | 3                                      |
| Mission time                                               | 20 Year(s)                             |

## Mechanical data

|                                        |                         |
|----------------------------------------|-------------------------|
| Mechanical life, Emergency-Stop button | 100,000 Operations      |
| Mechanical life, Command devices       | 1,000,000 Operations    |
| Mounting                               | interior mounting holes |
| Type of the fixing screws              | 2x M5                   |

## Mechanical data - Connection technique

|                       |                                     |
|-----------------------|-------------------------------------|
| Terminal (mechanical) | Connector plug M12, 8-pole, A-coded |
|-----------------------|-------------------------------------|

## Mechanical data - Dimensions

|                         |                                                           |
|-------------------------|-----------------------------------------------------------|
| Width                   | 40 mm                                                     |
| Height                  | 69 mm                                                     |
| Depth                   | 220 mm                                                    |
| Length x Width x Height | Depth: 233.5 - 252.5 mm (without and with indicator lamp) |

## Ambient conditions

|                                                            |                                        |
|------------------------------------------------------------|----------------------------------------|
| Degree of protection                                       | IP65                                   |
| Ambient temperature                                        | -25 ... +65 °C                         |
| Storage and transport temperature                          | -25 ... +85 °C                         |
| Resistance to vibrations                                   | 10 ... 150 Hz, amplitude 0.35 mm / 5 g |
| Resistance to shock                                        | 30 g / 11 ms                           |
| Protection class                                           | III                                    |
| Permissible installation altitude above sea level, maximum | 2,000 m                                |

## Ambient conditions - Insulation values

|                                           |        |
|-------------------------------------------|--------|
| Rated insulation voltage $U_i$            | 32 VDC |
| Rated impulse withstand voltage $U_{imp}$ | 0.8 kV |
| Overvoltage category                      | III    |

|                     |   |
|---------------------|---|
| Degree of pollution | 3 |
|---------------------|---|

## Electrical data

|                                        |                                                     |
|----------------------------------------|-----------------------------------------------------|
| Operating voltage                      | 24 VDC -15 % / +10 % (stabilised PELV power supply) |
| No-load supply current $I_0$ , typical | 35 mA                                               |
| Rated operating voltage                | 24 VDC                                              |
| Operating current                      | 600 mA                                              |
| Required rated short-circuit current   | 100 A                                               |
| Time to readiness, maximum             | 2,000 ms                                            |
| Switching frequency, maximum           | 1 Hz                                                |

## Electrical data - Safety digital inputs

|                                   |                                            |
|-----------------------------------|--------------------------------------------|
| Designation, Safety inputs        | X1 and X2                                  |
| Switching thresholds              | –3 V ... 5 V (Low)<br>15 V ... 30 V (High) |
| Current consumption at 24 V       | 5 mA                                       |
| Test pulse duration, maximum      | 1 ms                                       |
| Test pulse interval, minimum      | 100 ms                                     |
| Classification ZVEI CB24I, Sink   | C1                                         |
| Classification ZVEI CB24I, Source | C1<br>C2<br>C3                             |

## Electrical data - Safety digital outputs

|                                     |                             |
|-------------------------------------|-----------------------------|
| Designation, Safety outputs         | Y1 and Y2                   |
| Design of control elements          | short-circuit proof, p-type |
| Voltage drop $U_d$ , maximum        | 1 V                         |
| Leakage current $I_r$ , maximum     | 0.5 mA                      |
| Voltage, Utilisation category DC-12 | 24 VDC                      |
| Current, Utilisation category DC-12 | 0.25 A                      |
| Voltage, Utilisation category DC-13 | 24 VDC                      |
| Current, Utilisation category DC-13 | 0.25 A                      |

|                                   |         |
|-----------------------------------|---------|
| Test pulse interval, typical      | 1000 ms |
| Test pulse duration, maximum      | 1 ms    |
| Classification ZVEI CB24I, Source | C1      |
| Classification ZVEI CB24I, Sink   | C1      |

**Electrical data - Serial diagnostic SD**

|                                   |                             |
|-----------------------------------|-----------------------------|
| Designation, Serial diagnostic SD | OUT                         |
| Operation current                 | 10 mA                       |
| Design of control elements        | short-circuit proof, p-type |
| Wiring capacitance                | 50 nF                       |

**Pin assignment**

|       |                              |
|-------|------------------------------|
| PIN 1 | A1 Supply voltage UB         |
| PIN 2 | X1 Safety input 1            |
| PIN 3 | A2 GND                       |
| PIN 4 | Y1 Safety output 1           |
| PIN 5 | OUT serial diagnostic output |
| PIN 6 | X2 Safety input 2            |
| PIN 7 | Y2 Safety output 2           |
| PIN 8 | n.c.                         |

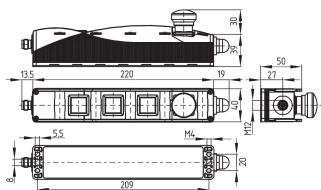
**Pictures**

**Product picture (catalogue individual photo)**



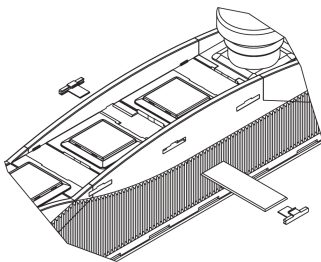
ID: kbdf2f03  
| 1.5 MB | .jpg | 352.778 x 802.217 mm - 1000 x 2274 px - 72 dpi  
| 26.1 kB | .png | 22.013 x 50.038 mm - 260 x 591 px - 300 dpi  
| 125.1 kB | .png | 74.083 x 168.275 mm - 210 x 477 px - 72 dpi  
| 49.5 kB | .jpg | 54.328 x 123.472 mm - 154 x 350 px - 72 dpi

Dimensional drawing basic component



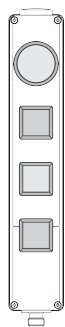
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| 358.0 kB | .cdr |  
| 14.8 kB | .png | 74.083 x 51.506 mm - 210 x 146 px - 72 dpi  
| 164.7 kB | .jpg | 352.778 x 245.181 mm - 1000 x 695 px - 72 dpi

Operating principle



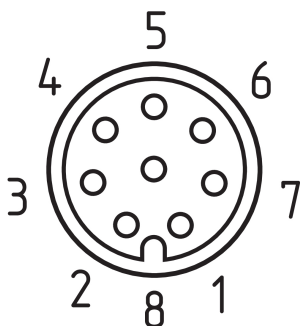
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| 5.0 kB | .png | 74.083 x 59.267 mm - 210 x 168 px - 72 dpi

Clipart



ID: kbdf-c03  
| 64.1 kB | .cdr |  
| 7.7 kB | .png | 74.083 x 404.989 mm - 210 x 1148 px - 72 dpi

Contact arrangement



ID: km23-k8a  
| 18.0 kB | .cdr |  
| 5.5 kB | .png | 73.731 x 79.728 mm - 209 x 226 px - 72 dpi  
| 155.6 kB | .jpg | 352.778 x 380.647 mm - 1000 x 1079 px - 72 dpi