Safety Switches for Hinged Protective Equipment

I88 VKS, -VKW, -AHDB; GC VKS, -VKW; Ti2 AHDB


## Safety switches for hinged protective equipment

These switches are suitable for applications where SHS switches cannot be used. They are used for safety monitoring of safety gates, safety guards and protective equipment. Two different types of actuator are available for this type of safety switch. The actuators also differ in terms of their attachment to the safety guards.

The AHDB actuator is available in the Ti2 and 188 families. The switch is attached in such a way that a spindle on the safety guard or on the hinge can enter the hole in the safety switch. The safety contact is opened by turning the spindle when opening the safety guard. The switch can be actuated in both directions without a limit stop.

The VKS and VKW actuators are part of the I88 and GC families. The switch is mounted next to the safety guard. The lever fixture is mounted on the safety guard and opens the safety contact as it moves. The integrated longitudinal guide compensates for different pivot radii.


## Two different actuator functions are available to facilitate use in varied applications:

- VKS with vertical setting

The safety contact is opened when the lever fixture is moved out of its vertical setting in one of the two possible pivot directions.

## - VKW with horizontal setting

The safety contact is opened as the lever fixture moves out of its horizontal setting. A distinction is made between VKW RE (right) and VKW LI (left) in connection with 188 switches. This designation makes it possible to identify whether the switch can be mounted on the right-hand or left-hand side of the safety guard. The GC family only contains switches for mounting on the left-hand side.

Both variants allow maximum pivot movements of $180^{\circ}$.



| Technical data |  |  | Ti2 AHDB | 188 AHDB | 188 | GC |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Electrical data |  |  |  |  |  |  |
| Rated insulation voltage | $U_{i}$ |  | 250 V AC | 250 V AC | 250 V AC | 400 V AC |
| Conventional thermal current | $\mathrm{I}_{\text {the }}$ | $\begin{aligned} & \text { U1Z } \\ & \text { A2Z } \end{aligned}$ | $10 \mathrm{~A}$ | $\begin{array}{\|l\|l\|} \hline 10 \mathrm{~A} \\ 5 \mathrm{~A} \end{array}$ | $\begin{aligned} & 10 \mathrm{~A} \\ & 5 \mathrm{~A} \end{aligned}$ | $\begin{aligned} & 10 \mathrm{~A} \\ & 5 \mathrm{~A} \end{aligned}$ |
| Rated operating voltage | $U_{\text {e }}$ |  | 240 V | 240 V | 240 V | 240 V |
| Utilization category |  | $\begin{aligned} & \mathrm{U} 1 \mathrm{Z} \\ & \mathrm{~A} 2 \mathrm{Z} \end{aligned}$ | $\mathrm{AC} 15,240 \mathrm{~V} / 3 \mathrm{~A},$ | AC-15, U $\mathrm{U}_{\mathrm{e}} / \mathrm{l}_{\mathrm{e}} 240 \mathrm{~V} / 3 \mathrm{~A}$ AC-15, Ue $/ \mathrm{I}_{\mathrm{e}} 240 \mathrm{~V} / 1.5 \mathrm{~A}$ | AC-15, Ue $/ I_{e} 240 \mathrm{~V} / 3 \mathrm{~A}$ AC-15, $\mathrm{U}_{\mathrm{e}} / \mathrm{le}_{\mathrm{e}} 240 \mathrm{~V} / 1.5 \mathrm{~A}$ | $\mathrm{AC}-15, \mathrm{U}_{\mathrm{e}} / \mathrm{I}_{\mathrm{e}} 240 \mathrm{~V} / 3 \mathrm{~A}$ |
| Positive opening action NC contacts | $\Theta$ |  | As per IEC/EN 60947-5-1, Addendum K | As per IEC/EN 60947-5-1, Addendum K | As per IEC/EN 60947-5-1, Addendum K | As per IEC/EN 60947-5-1, Addendum K |
| Short-circuit protection |  |  | Fuse 6A gL/g | Fuse 10A gL/g | Fuse $10 \mathrm{AgL} / \mathrm{gG}$ | Fuse $10 \mathrm{AL} / \mathrm{gG}$ |
| Protection class |  |  | II, Insulated | II, Insulated | II, Insulated | 1 |
| Mechanical data |  |  |  |  |  |  |
| Enclosure |  |  | PBT, glass fibre-reinforced | Thermoplastic, glass fibre-reinforced (UL 94-V0) | Thermoplastic, glass fibre-reinforced (UL 94-V0) | Aluminium pressure die-casting |
| Cover |  |  | PA6.6, black | Thermoplastic, glass fibre-reinforced (UL 94-V0) | Thermoplastic, glass fibre-reinforced (UL 94-V0) | Sheet aluminium |
| Actuation |  |  | Axis lever enclosure, lever (metal) | Axis lever enclosure, lever (metal) | Lever (metal) | Lever (steel) |
| Ambient temperature |  |  | $-30^{\circ} \mathrm{C}$ to $+80^{\circ} \mathrm{C}$ | $-30^{\circ} \mathrm{C}$ to $+80^{\circ} \mathrm{C}$ | $-30^{\circ} \mathrm{C}$ to $+80^{\circ} \mathrm{C}$ | $-30^{\circ} \mathrm{C}$ to $+80^{\circ} \mathrm{C}$ |
| Mechanical service life |  |  | $1 \times 10^{6}$ switching cycles | $1 \times 10^{6}$ switching cycles | $1 \times 10^{6}$ switching cycles | $1 \times 10^{6}$ switching cycles |
| B10d |  |  | 2 mill. | 2 mill. | 2 mill. | 2 mill. |
| Switching frequency |  |  | $\leq 50 / \mathrm{min}$. | $\leq 50 / \mathrm{min}$. | $\leq 50 / \mathrm{min}$. | $\leq 20 / \mathrm{min}$. |
| Mounting |  |  | $2 \times$ M4 or $2 \times$ M5 fixed positioning for safety applications | $2 \times \mathrm{M} 4$ | $2 \times \mathrm{M} 4$ | $2 \times \mathrm{M} 4$ |
| Type of connection |  |  | Screw connections | Screw connections | Screw connections | Screw connections |
| Conductor cross sections |  |  | Single-wire $0.5-1.5 \mathrm{~mm}^{2}$ or Stranded wire with ferrule 0.5-1.5 | Single-wire $0.5-1.5 \mathrm{~mm}^{2}$ or Stranded wire with ferrule 0.5-1.5 | Single-wire $0.5-1.5 \mathrm{~mm}^{2}$ or Stranded wire with ferrule 0.5-1.5 | Single-wire $0.5-1.5 \mathrm{~mm}^{2}$ or Stranded wire with ferrule 0.5-1.5 |
| Cable entry |  |  | $1 \times \mathrm{M} 20 \times 1,5$ | $1 \times \mathrm{M} 20 \times 1,5$ | $1 \times \mathrm{M} 20 \times 1,5$ | $1 \times \mathrm{M} 20 \times 1,5$ |
| Installation position |  |  | Any | Any | Any | Any |
| Protection class |  |  | IP 65 as per EN 60529 | IP 65 as per EN 60529 | IP 65 as per EN 60529 | IP 65 as per EN 60529 |
| Standards |  |  |  |  |  |  |
| VDE 0660 T100, DIN EN 60947-1, IEC 60947-1 <br> VDE 0660 T200, DIN EN 60947-5-1, IEC 60947-5-1 |  |  |  |  |  |  |

[^0](1) Depending on switching system. See Table on Pages $70-73$.


[^0]:    VDE 0660 T200, DIN EN 60947-5-1, IEC 60947-5-1

