Safety Switches for Hinged Protective Equipment

188 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 I88 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:

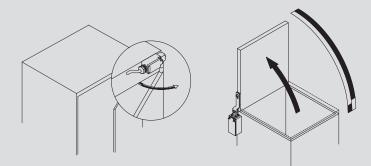
• VKS with vertical setting

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 I88 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°.







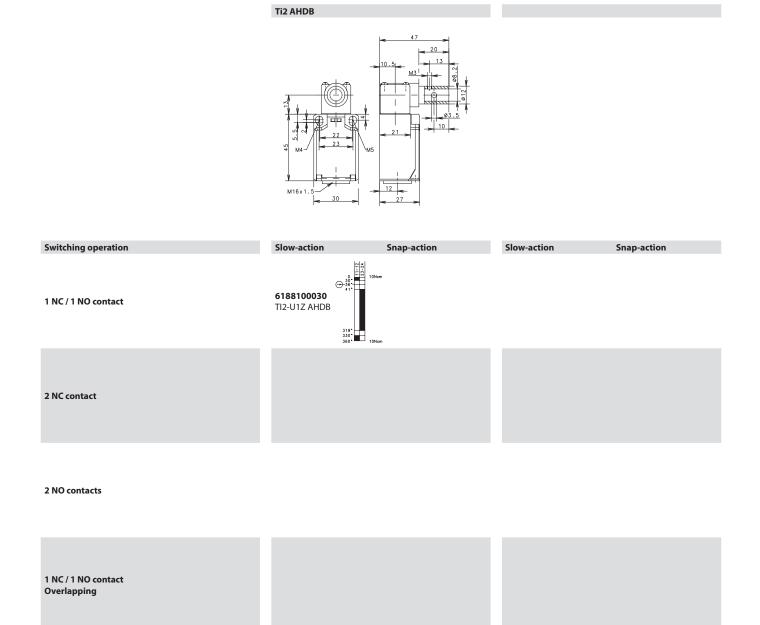
CoverPA6.6, blackGlass inore-reinforced (UL 94-V0)Glass inore-reinforced (UL 94-V0)Sheet aluminiumActuationAxis lever enclosure, lever (metal)Axis lever enclosure, lever (metal)Lever (metal)Lever (steel)Ambient temperature-30°C to + 80°C-30°C to + 80°C-30°C to + 80°C-30°C to + 80°C-30°C to + 80°CMechanical service life1 x 10° switching cycles1 x 10° switching cycles1 x 10° switching cycles1 x 10° switching cycles1 x 10° switching cyclesB10d2 mill.2 mill.2 mill.2 mill.2 mill.2 mill.Switching frequency< 50 / min.< 50 / min.< 20 / min.< 20 / min.Mounting2 x M4 or 2 x M5 fixed positioning for safety applicationsScrew connectionsScrew connectionsScrew connectionsScrew connectionsYpe of connectionScrew connectionsScrew connectionsScrew connectionsScrew connectionsScrew connectionsSingle-wire 0.5 - 1.5 mm² orSingle-wire 0.5 - 1.5 mm² orSingle-wire 0.5 - 1.5 mm² or	Technical data			Ti2 AHDB	I88 AHDB	188	GC	
Conventional thermal current u_m $UZ10ASA10ASA10ASA10ASARated operating voltageU_*240 V240 V240 V240 VRated operating voltageU_*240 V240 V240 V240 VUtilization categoryU_*U_*A^{C-15, U_*/1, 240 V/3 A}A^{C-15, U_*/1, 240 V/15 A}Positive opening actio\oplusA_5 per IEC/EN 60947-5-1,Addendum KA_5 per IEC/EN 60947-5-1,Addendum KA_6A_1A_1Short-circuit protection\oplusF_{10}I_{10}I_{10}I_{10}I_{10}Short-circuit protectionI_{10}I_{10}I_{10}I_{10}I_{10}CoverH_{10}I_{10}I_{10}I_{10}I_{10}I_{10}ActuationI_{10}I_{10}I_{10}I_{10}I_{10}I_{10}ActuationI_{10}I_{10}I_{10}I_{10}I_{10}I_{10}$	Electrical data							
themal currentInvA2Z-S AS AS AS ARated operating voltageU240V240V240V240V240VRated operating voltageUX2240X240V240V240VUtilization categoryVXXC15,24,01,240V/3 A -AC-15, U, 0, 0,240V/3 A -AC-16, U, 0, 0,240V/3 A -AC-16, U, 0, 0,240V/3 A <td>Rated insulation voltage</td> <td>Ui</td> <td></td> <td>250 V AC</td> <td>250 V AC</td> <td>250 V AC</td> <td>400 V AC</td>	Rated insulation voltage	Ui		250 V AC	250 V AC	250 V AC	400 V AC	
Utilization categoryUT MAZZAC15, 240 V/3 A, AZ2AC-15, U, /L, 240 V/13 A, AC-15, U, /L, 240 V/15 A, 		I _{the}	U1Z A2Z					
A22-AC-15, U, /L 240 V / 1.5 AAC-15, U, /L 240 V / 1.5 AAC-15, U, /L 240 V / 1.5 AAC-15, U, /L 240 V / 1.5 APositive opening actionAs per IEC/EN 60947-5-1, Addendum KAs per IEC/EN 60947-5-1, Addendum KAs per IEC/EN 60947-5-1, Addendum KAs per IEC/EN 60947-5-1, 	Rated operating voltage	U_e		240 V	240 V	240 V	240 V	
NC contactsAddendum KAddendum KAddendum KAddendum KAddendum KShort-circuit protectionFuse 6A gL/gGFuse 10A gL/gGFuse 10A gL/gGFuse 10A gL/gGFuse 10A gL/gGProtection classII, InsulatedII, InsulatedII, InsulatedIMechanical dataEnclosurePBT, glass fibre-reinforcedThermoplastic, glass fibre-reinforced (UL 94-V0)Thermoplastic, glass fibre-reinforced (UL 94-V0)Aluminium pressure die-caCoverPA6.6, blackThermoplastic, glass fibre-reinforced (UL 94-V0)Thermoplastic, glass fibre-reinforced (UL 94-V0)Sheet aluminiumActuationAxis lever enclosure, lever (metal)Lever (metal)Lever (steel)Ambient temperature-30°C to + 80°C-30°C to + 80°C-30°C to + 80°C910d2 mill.2 mill.2 mill.2 mill.Switching frequency< 50 / min.	Utilization category			AC15, 240 V/3 A, _			AC-15, U _e /I _e 240 V / 3 A –	
Protection classII, InsulatedII, InsulatedII, InsulatedII, InsulatedMechanical dataEnclosurePBT, glass fibre-reinforcedThermoplastic, glass fibre-reinforced (UL 94-V0)Thermoplastic, glass fibre-reinforced (UL 94-V0)Aluminium pressure die-caCoverPA6.6, blackThermoplastic, glass fibre-reinforced (UL 94-V0)Thermoplastic, glass fibre-reinforced (UL 94-V0)Sheet aluminiumActuationAxis lever enclosure, lever (metal)Lever (metal)Lever (steel)Ambient temperature-30°C to + 80°C-30°C to + 80°C-30°C to + 80°C910d2 mill.2 mill.2 mill.2 mill.Switching frequency50 / min.< 50 / min.		\ominus						
Mechanical data Enclosure PBT, glass fibre-reinforced Thermoplastic, glass fibre-reinforced (UL 94-V0) Thermoplastic, glass fibre-reinforced (UL 94-V0) Aluminium pressure die-ca 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) Lever (metal) Lever (steel) Ambient temperature -30°C to + 80°C -30°C to + 80°C -30°C to + 80°C 1x 10 ⁶ switching cycles 1 x 10 ⁶ switching cycles 1 x 10 ⁶ switching cycles 1 x 10 ⁶ switching cycles B10d 2 mill. 2 mill. 2 mill. 2 mill. 2 mill. Switching frequency ≤ 50 / min. ≤ 50 / min. ≤ 20 / min. 2 x M4 Type of connection Screw connections Screw connections Screw connections Single-wire 0.5 - 1.5 mm² or Cable entry 1 x M20 x 1,5 Installation position Any Any Any Any	Short-circuit protection			Fuse 6A gL/gG	Fuse 10A gL/gG	Fuse 10A gL/gG	Fuse 10A gL/gG	
EnclosurePBT, glass fibre-reinforcedThermoplastic, glass fibre-reinforced (UL 94-V0) glass fibre-reinforced (UL 94-V0)Thermoplastic, glass fibre-reinforced (UL 94-V0)Aluminium pressure die-caCoverPA6.6, blackThermoplastic, glass fibre-reinforced (UL 94-V0)Thermoplastic, glass fibre-reinforced (UL 94-V0)Sheet aluminiumActuationAxis lever enclosure, lever (metal)Lever (metal)Lever (metal)Lever (metal)Ambient temperature-30°C to + 80°C-30°C to + 80°C-30°C to + 80°C-30°C to + 80°CMechanical service life1 x 10° switching cycles1 x 10° switching cycles1 x 10° switching cycles1 x 10° switching cyclesB10d2 mill.2 mill.2 mill.2 mill.2 mill.Switching frequency< 50 / min.	Protection class			II, Insulated	ll, Insulated	II, Insulated	1	
EnclosurePoil glass fibre-reinforcedglass fibre-reinforced (UL 94-V0)glass fibre-reinforced (UL 94-V0)Autminum pressure die-caCoverPA6.6, blackThermoplastic, glass fibre-reinforced (UL 94-V0)Thermoplastic, glass fibre-reinforced (UL 94-V0)Sheet aluminiumActuationAxis lever enclosure, lever (metal)Axis lever enclosure, lever (metal)Lever (metal)Lever (metal)Ambient temperature-30°C to + 80°C-30°C to + 80°C-30°C to + 80°C-30°C to + 80°CMechanical service life1 x 10° switching cycles1 x 10° switching cycles1 x 10° switching cycles1 x 10° switching cyclesB10d2 mill.2 mill.2 mill.2 mill.2 mill.Switching frequency< 50 / min.	Mechanical data				<u> </u>		L	
CoderPA6.6, blackglass fibre-reinforced (UL 94-V0)glass fibre-reinforced (UL 94-V0)sheet auminiumActuationAxis lever enclosure, lever (metal)Axis lever enclosure, lever (metal)Lever (metal)Lever (metal)Lever (steel)Ambient temperature-30°C to + 80°C-30°C to + 80°C-30°C to + 80°C-30°C to + 80°C-30°C to + 80°CMechanical service life1 x 10 ⁶ switching cycles1 x 10 ⁶ switching cyclesB10d2 mill.2 mill.2 mill.2 mill.2 mill.2 mill.Switching frequency< 50 / min.	Enclosure			PBT, glass fibre-reinforced			Aluminium pressure die-casting	
Actuationlever (metal)lever (metal)Jever (met	Cover			PA6.6, black	Thermoplastic, glass fibre-reinforced (UL 94-V0)		Sheet aluminium	
Mechanical service life1 x 10° switching cycles1 x 10° switching cycles1 x 10° switching cycles1 x 10° switching cyclesB10d2 mill.2 mill.2 mill.2 mill.2 mill.Switching frequency ≤ 50 / min. ≤ 50 / min. ≤ 50 / min. ≤ 20 / min.Mounting $\sum x$ M4 or 2 x M5 fixed positioning for safety applications $\sum x$ M4 or 2 x M4 $\sum x$ M4 $\sum x$ M4Type of connectionScrew connectionsScrew connectionsScrew connectionsScrew connectionsConductor cross sectionsSingle-wire 0.5 - 1.5 mm² or Stranded wire with ferrule 0.5 - 1.5Single-wire 0.5 - 1.5 mm² or 	Actuation					Lever (metal)	Lever (steel)	
B10d2 mill,2 mill,2 mill,2 mill,2 mill,Switching frequency $\leq 50 / \text{min}$, $\leq 50 / \text{min}$, $\leq 50 / \text{min}$, $\leq 20 / \text{min}$,Mounting $2 \times M4 \text{ or } 2 \times M5 \text{ fixed}$ positioning for safety applications $2 \times M4$ $2 \times M4$ $2 \times M4$ Type of connectionScrew connectionsScrew connectionsScrew connectionsScrew connectionsConductor cross sectionsSingle-wire 0.5 - 1.5 mm² or Stranded wire with ferrule 0.	Ambient temperature			-30°C to + 80°C	-30°C to + 80°C	-30°C to + 80°C	-30°C to + 80°C	
Switching frequency≤ 50 / min.≤ 50 / min.≤ 0 / min.≤ 20 / min.Mounting2 x M4 or 2 x M5 fixed positioning for safety applications2 x M42 x M42 x M42 x M4Type of connectionScrew connectionsScrew connectionsScrew connectionsScrew connectionsScrew connectionsConductor cross sectionsSingle-wire 0.5 - 1.5 mm² or Stranded wire with ferrule 0.5 o	Mechanical service life			1 x 10 ⁶ switching cycles	1 x 10 ⁶ switching cycles	1 x 10 ⁶ switching cycles	1 x 10 ⁶ switching cycles	
Mounting2 x M4 or 2 x M5 fixed positioning for safety applications2 x M42 x M42 x M4Type of connectionScrew connectionsScrew connectionsScrew connectionsScrew connectionsConductor cross sectionsSingle-wire 0.5 - 1.5 mm² or Stranded wire with ferrule 0.5 - 1.5 mm² or <br< td=""><td>B10d</td><td></td><td></td><td>2 mill.</td><td>2 mill.</td><td>2 mill.</td><td>2 mill.</td></br<>	B10d			2 mill.	2 mill.	2 mill.	2 mill.	
Mountingpositioning for safety applications2 x M42 x M42 x M4Type of connectionScrew connectionsScrew connectionsScrew connectionsScrew connectionsConductor cross sectionsSingle-wire 0.5 - 1.5 mm² or Stranded wire with ferrule 0.5 - 1Single-wire 0.5 - 1.5 mm² or Stranded wire with ferrule 0.5 - 1Single-wire 0.5 - 1.5 mm² or Stranded wire with ferrule 0.5 - 1Single-wire 0.5 - 1.5 mm² or Stranded wire with ferrule 0.5 - 1Single-wire 0.5 - 1.5 mm² or Stranded wire with ferrule 0.5 - 1Single-wire 0.5 - 1.5 mm² or Stranded wire with ferrule 0.5 - 1Cable entry1 x M20 x 1,51 x M20 x 1,51 x M20 x 1,51 x M20 x 1,5Installation positionAnyAnyAnyAny	Switching frequency			≤ 50 / min.	≤ 50 / min.	≤ 50 / min.	≤ 20 / min.	
Conductor cross sectionsSingle-wire 0.5 - 1.5 mm² or Stranded wire with ferrule 0.5 - 1.5 mm² or<	Mounting			positioning for safety	2 x M4	2 x M4	2 x M4	
Conductor cross sections Stranded wire with ferrule 0.5 - 1.5 Cable entry 1 x M20 x 1,5 Installation position Any Any Any Any	Type of connection			Screw connections	Screw connections	Screw connections	Screw connections	
Installation position Any Any Any Any Any	Conductor cross sections				Single-wire 0.5 – 1.5 mm ² or Stranded wire with ferrule 0.5 – 1.5	Single-wire 0.5 – 1.5 mm ² or Stranded wire with ferrule 0.5 – 1.5		
	Cable entry			1 x M20 x 1,5	1 x M20 x 1,5	1 x M20 x 1,5	1 x M20 x 1,5	
Protection class IP65 as per EN 60529	Installation position			Any	Any	Any	Any	
	Protection class			IP65 as per EN 60529	IP65 as per EN 60529	IP65 as per EN 60529	IP65 as per EN 60529	
Standards	Standards				1	1		

 VDE 0660 T100, DIN EN 00947-1, IEC 00947-1

 VDE 0660 T200, DIN EN 60947-5-1, IEC 60947-5-1

 ① Depending on switching system. See Table on Pages 72 - 75.

Safety Switches for Hinged Protective Equipment



Approvals

Replacement actuator: -

Special features / variants (on request)

Replacement actuator: -

Special features / variants (on request)

• Available in different actuation directions



