

## Metal-bodied safety switch with personnel protection function in forward and reverse movement

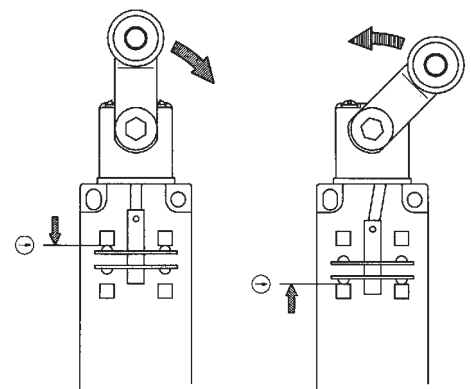
### ENM2-AHZ

Protection class IP 65

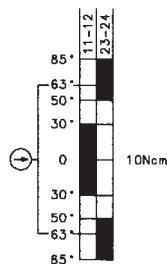


Designation	ENM2-U1Z AHZ
<b>Part number</b>	<b>608.7135.030</b>
Circuit diagram	
<p>⊕ Forced disconnect to IEC 947-5-1 chapter 3</p> <p>Za: not galvanically separated contacts</p> <p>Zb: galvanically separated contacts</p>	<p>⊕ Zb</p> <p>●/-</p>
Slow make & break/snap-action	
Internal seal (iw)/external seal (w)	iw

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Internal seal (iw)/external seal (w)	iw



Switching angle ° Tol. ± 3.5°		Actuator torque Ncm Tol. ± 10%

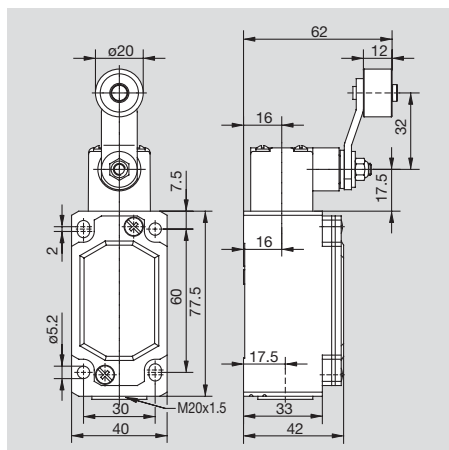


Voltage	max.	400 V AC
Permanent current	max.	10 A
In-rush current complies with standards		●
IEC 947-5-1 AC 15/DC 13		
Switching frequency	max.	100/min.
Mechanical life – number of switching actions		1 x 10 <sup>6</sup>
Operating temperature	min./max.	-30 °C/+80 °C -22 °F/+176 °F
Approvals		BG, UL, CSA
Weight		0,28 kg/0,62 lb
Delivery: ex-stock/built to order		●/-

#### Forced disconnect in forward and reverse travel AHZ

For special safety applications the forced disconnection of the NC contacts is not only achieved in the forward direction, but also in the reverse direction (back to standard position). For operator safety applications the roller must be positively guided in both directions.

All dimensions in mm (inch)





## Plastic-bodied safety switches for hinged lids/guards I88-VKS, I88-VKW

Protection class IP 65

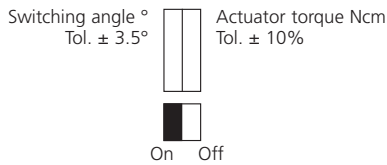


## Metal-bodied safety switches for hinged lids/guards GC-VKS, GC-VKW

Protection class IP 65



Designation	
<b>Part number</b>	
Circuit diagram	
⊕ Forced disconnect to IEC 947-5-1 chapter 3	
Za: not galvanically separated contacts	
Zb: galvanically separated contacts	
Slow make & break/snap-action	
Internal seal (iw)/external seal (w)	

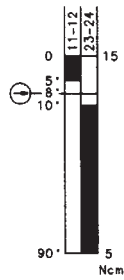
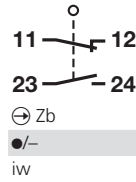


Voltage	max.
Permanent current	max.
In-rush current complies with standards IEC 947-5-1 AC 15/DC 13	
Switching frequency	max.
Mechanical life – number of switching actions	
Operating temperature	min./max.
Approvals	
Weight	
Delivery: ex-stock/built to order	

All dimensions in mm (inch)



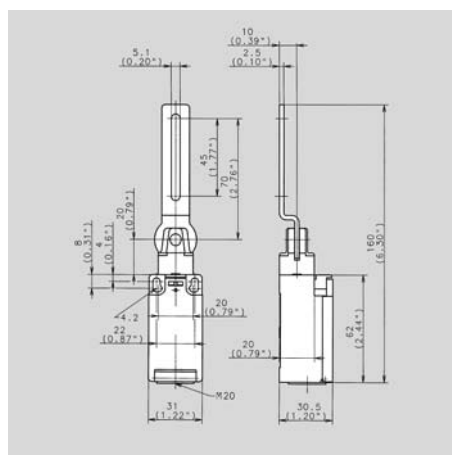
I88-U1Z VKS  
608.6100.093



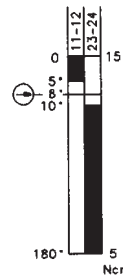
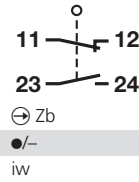
500 V AC
10 A
●
50/min.
1 x 10 <sup>6</sup>
-30 °C/+80 °C
-22 °F/+176 °F

BG, UL, CSA

0.09 kg/0.20 lb  
-/●



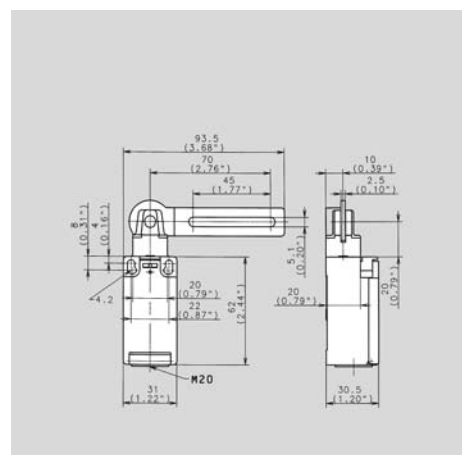
I88-U1Z VKW RE  
608.6100.094



500 V AC
10 A
●
50/min.
1 x 10 <sup>6</sup>
-30 °C/+80 °C
-22 °F/+176 °F

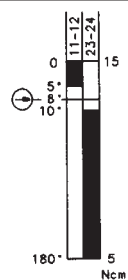
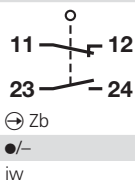
BG, UL, CSA

0.09 kg/0.20 lb  
-/●





188-U1Z VKW LI  
608.6100.095



500 V AC  
10 A

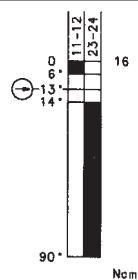
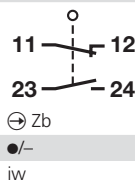
50/min.  
1 x 10<sup>6</sup>  
-30 °C/+80 °C  
-22 °F/+176 °F

BG, UL, CSA

0.09 kg/0.20 lb  
-●



GC-U1Z VKS  
612.1100.622



500 V AC  
10 A

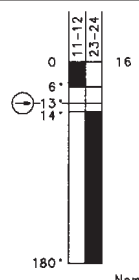
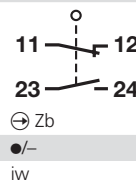
20/min.  
1 x 10<sup>6</sup>  
-30 °C/+80 °C  
-22 °F/+176 °F

BG, UL, CSA

0.20 kg/0.44 lb  
●-/-



GC-U1Z VKW  
612.1100.623

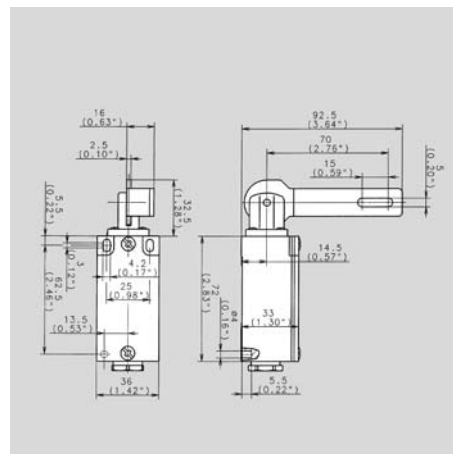
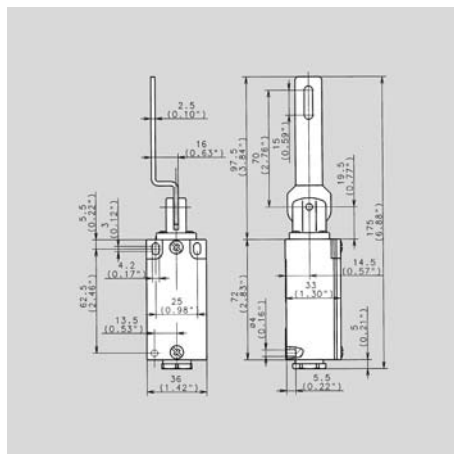
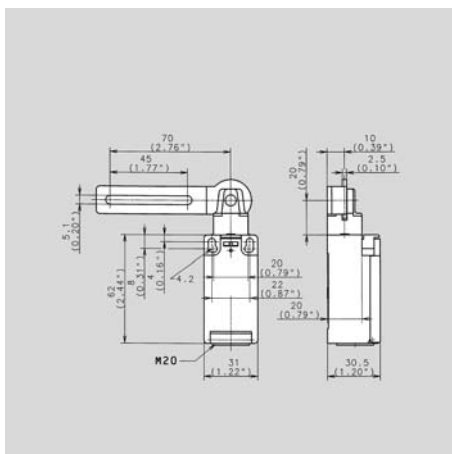


500 V AC  
10 A

20/min.  
1 x 10<sup>6</sup>  
-30 °C/+80 °C  
-22 °F/+176 °F

BG, UL, CSA

0.20 kg/0.44 lb  
●-/-



# Safety Hinge Switch

## SHS

IP 67 Metal housing



design award  
winner  
2002



Hinged machinery guards and covers as well as safety fence doors may be found in every type of industry.

**The safety hinge switch SHS is the logical integration of the safety switch and load-bearing hinge for industrial applications.**

Designed to facilitate mounting onto extruded aluminium profiles, steel or plastic doors, the slim profile of the SHS even when fully closed, allows the hinge to be readily mounted where space is constrained.

Traditional safety switches with separate actuator keys are often subject to mechanical wear, particularly when mounted on the closing edge of guards where accumulated tolerances can cause misalignment. The SHS removes this problem with the safety contact mounted internally, inaccessible to the user and therefore providing excellent tamper protection. One or more switches may be used dependent on the category of safety protection required. Matching hinges without safety contacts are also available, allowing the style to be standardised for general use. In operation, consideration must simply be given to the required contact operation angle, which is determined by guard size and the maximum allowable guard opening distance before actuation.



### Safe:

- 2 SHS hinge switches each with a force disconnect safety contact allow safety category 4 systems to be configured subject to the required risk analysis and safety contact monitoring.

### Flexible:

- The hinge operating angle is 0–180°.
- The switch point may similarly be selected through 180°.
- AC/DC to 250 V or 60 V DC versions available.

### Fast:

- Connectors as well as fixed cable versions with axial and radial (rear) mounting are available.

### Reliable:

- A cast Zinc alloy body allows the SHS a high degree of mounting freedom.
- In its hinge capacity the SHS can bear up to 750 N axially and 1000 N radially, after the switching point has been set.
- Ingress protection to IP 67.

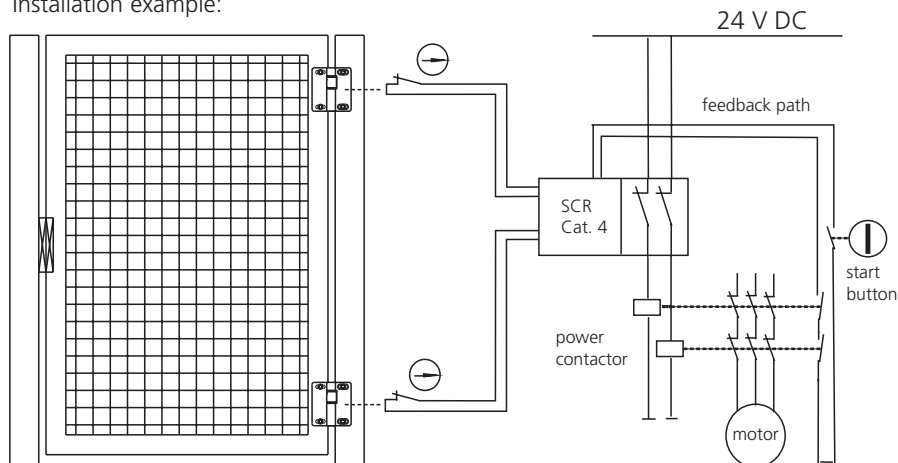
## SHS types overview

Art.-No.	Description	Contact function	Type DC	Type AC/DC	Quick Disconnect		Fixed Cable		BG-Type Approval
					axial (SA)	radial (SR)	axial (KA)	radial (KR)	
6019261009	SHS-A1Z-SA	A1Z	–	X	Metal	–	–	–	–
6019261010	SHS-A1Z-SR	A1Z	X	–	–	Plastic	–	–	–
6019261011	SHS-A1Z-KA 5-BG	A1Z	–	X	–	–	X	–	<b>BG</b>
6019261014	SHS-A1Z-KR 5-BG	A1Z	–	X	–	–	–	X	<b>BG</b>
6019261015	SHS-A1Z-SA	A1Z	X	–	Metal	–	–	–	–
6019261016	SHS-A1Z-SR	A1Z	–	X	–	Metal	–	–	–
6019261017	SHS-A1Z-SA-BG	A1Z	–	X	Metal	–	–	–	<b>BG</b>
6019261018	SHS-A1Z-SR-BG	A1Z	–	X	–	Metal	–	–	<b>BG</b>
6019291013	SHS-OZ	<b>Hinge without safety contact</b>	–	–	–	–	–	–	–

## True Category 4 (EN 954-1/2)

- true electrical redundancy
- true mechanical redundant safety
- avoids mechanical common mode failure

Installation example:

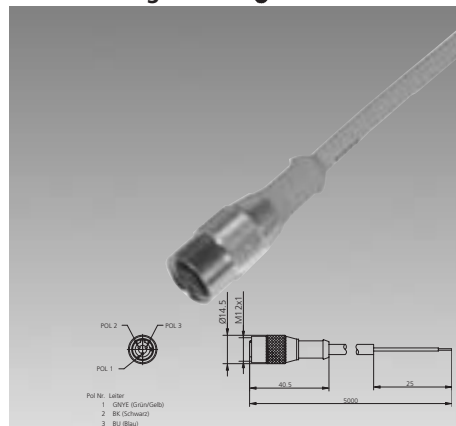


### Plug M 12 x 1 with moulded cable

**Terminal code,  
AC/DC configuration**

- 1 = green-yellow
- 2 = black
- 3 = blue

**AC/DC configuration**



**Straight line**

**Right-angled**

**on request**

**on request**

AN-KAB.SHS **5M** AC Gerade  
**325.1103.234**

AN-KAB.SHS **5M** Winkel  
**325.1103.236**

–

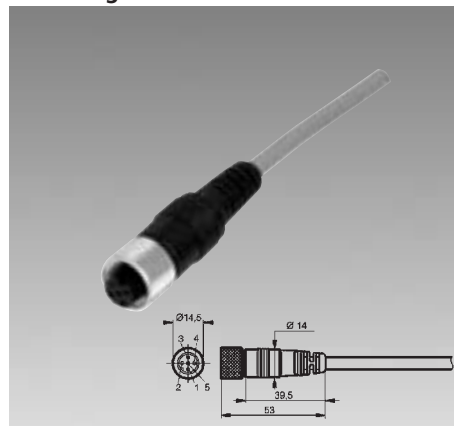
–

Material of cable sleeve:	PVC (UL)/PVC (UL)
Material body/Contact carrier:	PUR (UL)/PUR (UL)
Rated voltage max.:	300 V AC
Current carrying capacity max.:	3 A
Temperature range min./max.:	–25 °C/+70 °C –13 °F/+158 °F
Cable structure mm <sup>2</sup> :	3 x 0,5
Protection class after installation:	IP 67

**Terminal code,  
DC configuration**

- 1 = brown
- 2 = –
- 3 = blue
- 4 = black

**DC configuration**



**Straight line**

**Right-angled**

AN-KAB.SHS **2M** DC

AN-KAB.SHS **2M** DC

**325.1003.221**

**325.1003.224**

AN-KAB.SHS **5M** DC

AN-KAB.SHS **5M** DC

**325.1003.222**

**325.1003.225**

AN-KAB.SHS **10M** DC

AN-KAB.SHS **10M** DC

**325.1003.223**

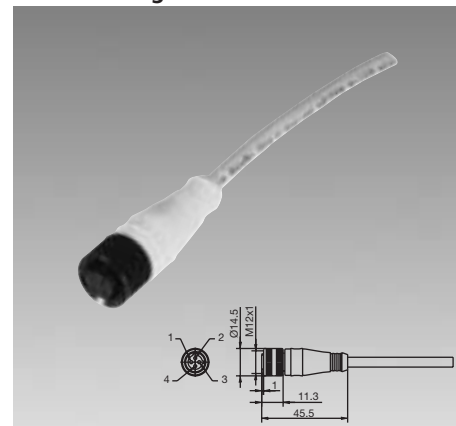
**325.1003.226**

Material of cable sleeve:	PVC/PVC
Material body/Contact carrier:	PUR/PUR
Rated voltage max.:	60 V AC/75 V DC
Current carrying capacity max.:	1.5 A
Temperature range min./max.:	–25 °C/+70 °C –13 °F/+158 °F
Cable structure mm <sup>2</sup> :	3 x 0.34
Protection class after installation:	IP 67

**Terminal code,  
AC/DC configuration**

- 1 = brown
- 2 = black
- 3 = blue
- 4 = green-yellow

**AC/DC configuration**



**Straight line**

**Right-angled**

–

–

AN-KAB.SHS **5M** AC  
**325.1004.219**

AN-KAB.SHS **5M** AC  
**325.1004.220**

–

–

Material of cable sleeve:	PVC/PVC
Material body/Contact carrier:	PUR/Nylon 6.6
Rated voltage max.:	300 V AC
Current carrying capacity max.:	4.0 A
Temperature range min./max.:	–5 °C/+70 °C +23 °F/+158 °F
Cable structure mm <sup>2</sup> :	4 x 0.34
Protection class after installation:	IP 68

# Safety Hinge Switch

## SHS



Designation

**Part number**

Contact diagram

⊕ Forced disconnect to IEC 947-5-1 annex k

Za: non-galv. separated contact

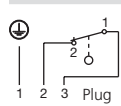
Zb: galv. separated contact

Slow make and break/Snap action

Sealed internally (iw)/externally (w)

SHS-A1Z-SA-BG

**601.9261.017**



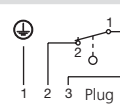
⊕ C

●/-

iw

SHS-A1Z-SR-BG

**601.9261.018**



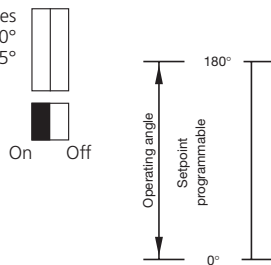
⊕ C

●/-

iw

Switch angle degrees

Tol. + 2.0°  
- 1.5°



Switching hysteresis: - 1.0°

Voltage max.

Thermal current max.

Utilization category per IEC 947-5-1 AC 15/DC 13

Switching frequency max.

Mechanical life – switching operations

Operating temperature min./max.

Approvals

Weight

Delivery: ex-stock/built to order

250 VAC

3 A

60 V DC/0.5 A

230 V AC/1.5 A

1200/h

1 x 10<sup>6</sup>

-25 °C/+70 °C

-13 °F/+158 °F

BG, UL, CSA

0.4 kg

●/-

250 VAC

3 A

60 V DC/0.5 A

230 V AC/1.5 A

1200/h

1 x 10<sup>6</sup>

-25 °C/+70 °C

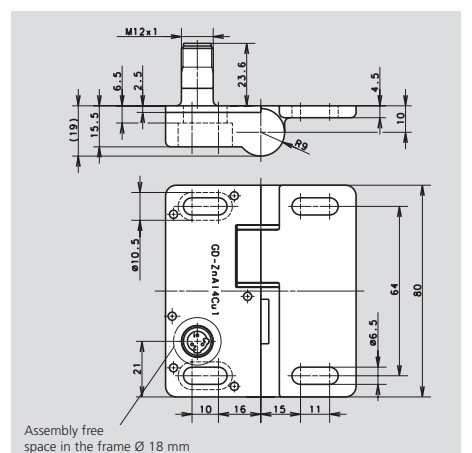
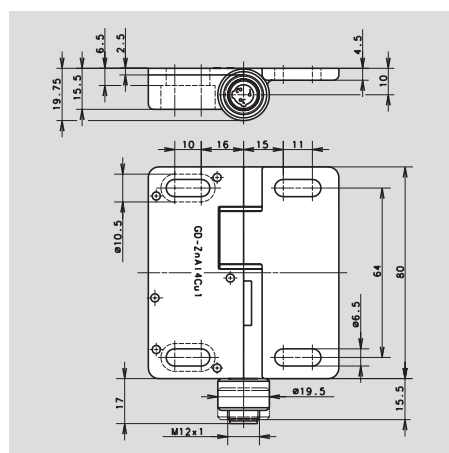
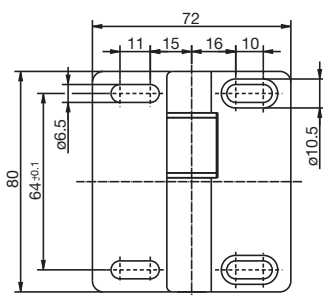
-13 °F/+158 °F

BG, UL, CSA

0.4 kg

●/-

All dimensions in mm



Assembly free space in the frame  $\varnothing$  18 mm

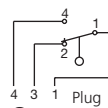
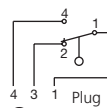






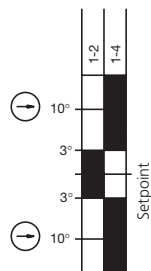
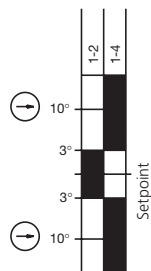
SHS-A1Z-SA  
601.9261.015

SHS-A1Z-SR  
601.9261.010



⊕ C  
●/-  
iw

⊕ C  
●/-  
iw

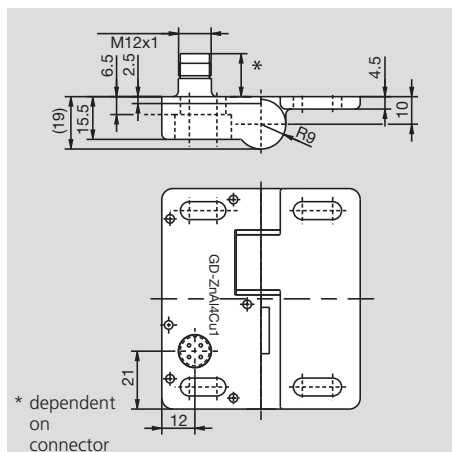
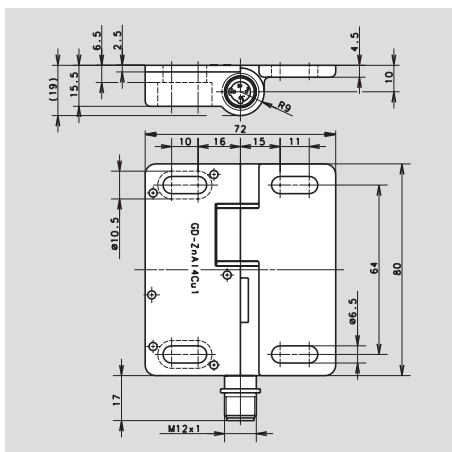


250 VAC  
3 A  
60 V DC/0.5 A  
-  
1200/h  
1 x 10<sup>6</sup>  
-25 °C/+70 °C  
-13 °F/+158 °F

250 VAC  
3 A  
60 V DC/0.5 A  
-  
1200/h  
1 x 10<sup>6</sup>  
-25 °C/+70 °C  
-13 °F/+158 °F

UL, CSA  
0.4 kg  
●/-

UL, CSA  
0.4 kg  
●/-



\* dependent on connector