

## **MICRO SWITCH Key Actuated Safety Switches**

004750

Issue 5

GKM Series

**Datasheet** 



#### **DESCRIPTION**

When the application requires a miniature key-operated safety interlocking limit switch for machine guarding, Honeywell provides the GKM Series. The compact housing size of 34 mm  $L \times 16$  mm  $W \times 70$  mm H is optimal where there is limited space available on machinery. The double-insulated plastic housing and rugged stainless steel actuator key are better suited for demanding environments. The unique design of the switch allows the actuator key to be inserted from the top or the side. The switch can be mounted from the front or back as required. As with the Honeywell safety limit switches, all normally closed contacts are positive opening (-). Direct mechanical linkage within the switch force the normally closed contacts open when the actuator key is removed from the switch, opening the circuit. The switches are available with either a cable connection or an integral four-pin M12 connector.

#### **FEATURES**

- · Red switch body for easy safety recognition
- Common 22 mm mounting centers which accept M4 or #8 mounting hardware
- Prewired cable or M12 connector for electrical termination
- Positive opening action of normally closed contacts to EN/IEC 60947-5-1-3 specification
- Switch chamber IP67 environmentally sealed for indoor or outdoor applications
- CE and UL certifications
- Designed and agency evaluated for safety functions up to and including a SIL3 level

#### **POTENTIAL APPLICATIONS**

- Safety interlock for small doors and apertures on machinery
- Safety interlock for multiple doors on machinery with daisy chain option (twin connectors)

#### **DIFFERENTIATION**

- Miniature package size of 34 mm L x 16 mm W x 70 mm H
- Switch design with dual entry (side or top) for actuator key
- Daisy-chain capability for monitoring multiple gates on machinery
- Rigid or flexible stainless steel actuator keys

### **PORTFOLIO**

In addition to the GKM Series safety interlocking limit switches, Honeywell offers other safety interlocking limit switches. These include the EN50047 plastic body GKE Series, plastic body GKN Series, EN50041 metal body GKB Series, and metal body solenoid (trapped key) GKL/R Series. Non-interlocking safety limit switches include the GSS Series, FF Series non-contact switches, and the 1CPS Series and 2CPS Series cable/rope pull safety limit switches.

**Table 1. Performance Specifications** 

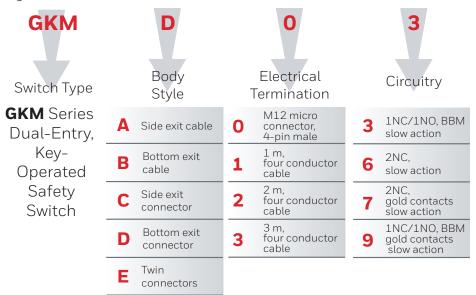
Characteristic	Parameter				
Description	Dual entry key-operated safety interlock switch				
	CE, DOC 141 (EN60947-1 and EN 60947-5-1)				
Agency certifications	CULus, UL508 (File E37138)				
Housing material	SIRA, Functional Safety Certificate (IEC 61508-2:2010)				
nousing material	Red glass-filled polyester body, black glass-filled polyamide actuator housing				
Actuator key material	Stainless steel				
Electrical connection  Side or bottom exit cable (UL rated 105 °C with PVC jacket and cores four conductor 0.5 mm², 20 Side or bottom exit integral M12 Micro 4-pin dc-style connector, Side and bottom exit (twin connectors) integral M12 Micro 4-pin dc style connectors for daisy chitoring multiple doors					
Contact/switch options <sup>1</sup>	1NC/1NO slow action BBM, 2NC slow action				
Contact design	Double break, electrically separated (Zb)				
Contact material	Silver alloy (standard), gold-plated (low energy applications)				
Electrical ratings	See Table 2				
Utilization category	AC-15, B300; DC-13, Q300				
Rated operational voltage (Ue)	240 Vac, 250 Vdc				
Rated operational current (Ie)	1.5 A, 0.27 A				
Thermal current (Ith)	5 A, GKME Series 2 A				
Rated insulation (Ui)	500 V				
Rated impulse withstand voltage (Uimp)	2500 V				
Short circuit protection device (SCPD)	I Lace DKb tuco rated at /Lb/				
Pollution degree	3				
Environmental sealing	IP 66/67, GKME Series (twin connectors) IP66 per EN60529; NEMA 1, 12, 13				
Operating temperature	-25 °C to 85 °C (-13 °F to 185 °F)				
Shock	50 G per IEC 60068-2-27				
Vibration	10 G per IEC 60068-2-6				
MCTF (Mechanical life)	>1,000,000 cycles with single-sided confidence limit of 95%				
MCTF (Electrical life)	32,000 cycles				
SIL Capability <sup>2</sup>	SIL3 capable with HFT=1, SIL2 capable with HFT=0 with reference to IEC 61508-2:2010 Functional Safety				
	erval 1 year				

<sup>1</sup>All normally closed contacts are positive opening <sup>2</sup>HFT (Hardware Fault Tolerance).

## **Table 2. Electrial Ratings**

		9					
Electrical Ratings for Body Style A, B, C, D				C, D	Electrical Ratings for Body Style E (Twin Conn.)		
Standard Silver Contacts				Gold Plate Contacts	Standard Silver Contacts	Contacts Gold Plate Contacts	
AC		DC		I <sub>th</sub> = 5 A 1 V, 10 μA min.	30 Vdc, 2 A max.	1 Vdc, 10 μA min.	
B300	AC15	Q300	DC13	1 V, 10 μA min. 50 V. 100 mA max.	$I_{th} = 2 A$	$I_{th} = 2 A$	
Ue	le	Ue	le	30 V, 100 MA Max.		'th 2 A	
Volts	Amps	Volts	Amps				
120	3	125	0.55				
240	1.5	250	0.27				

Figure 1. Product Nomenclature



Keys <sup>1</sup>	
Listing	Key style
GKZ51M	Straight
GKZ52M	90°
GKZ53M	Side/side adjustable
GKZ54M	Up/down adjustable
GKZ55M	Multi-directional

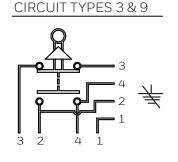
<sup>&</sup>lt;sup>1</sup> A key actuator (ordered separately) is required for each switch.

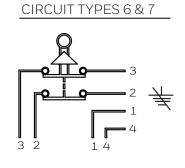
NOTE: not all combinations of model code are available. Please contact your Honeywell provider/representative for assistance.

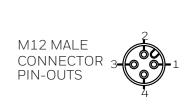
Figure 2. Wiring

## CIRCUIT DIAGRAMS<sup>2</sup>

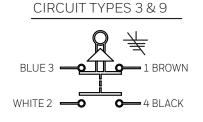
#### TWIN CONNECTORS

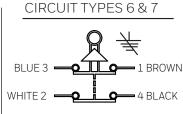






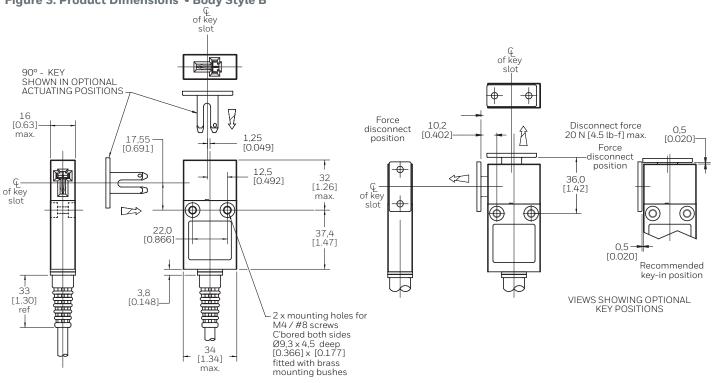
## CABLE/LEADWIRE OR CONNECTOR





<sup>&</sup>lt;sup>2</sup>Refer to circuitry in Figure 1 (Product nomenclature).

Figure 3. Product Dimensions • Body Style B



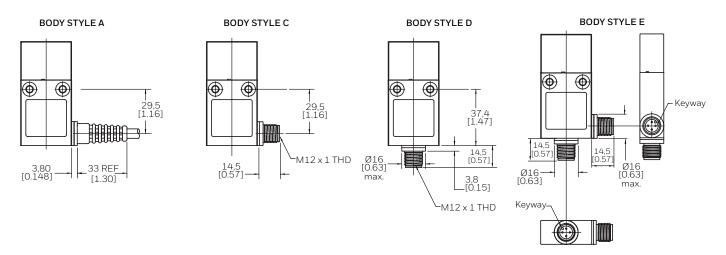


Figure 4. Slot Dust Cover

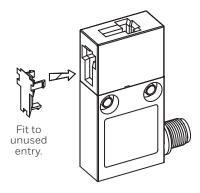
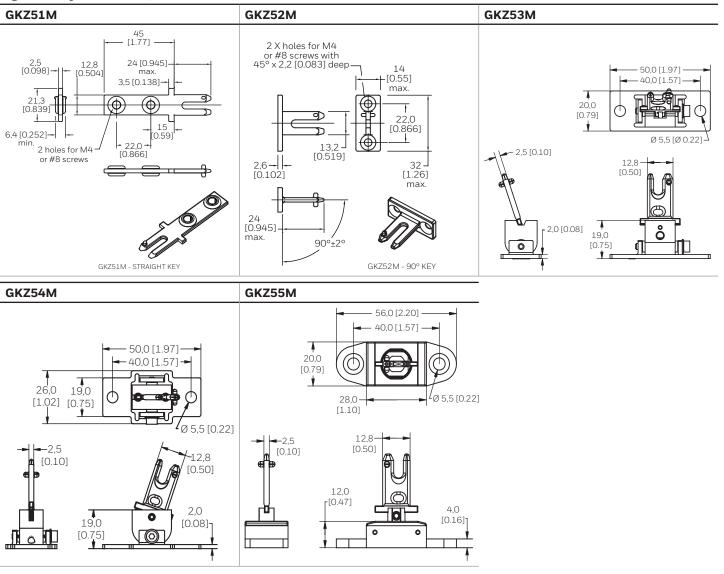


Figure 5. Key Dimensions, continued



**Table 3. Minimum Actuating Radius** 

Catalog Listing, Description	Key opening of switch (vertical) min. radius	Key opening of switch (horizontal) min. radius
GKZ51M, Straight key	225 mm [8.9 in]	160 mm [6.3 in]
GKZ52M, 90° key (right angle)	225 mm [8.9 in]	160 mm [6.3 in]
GKZ53M, Adjustable key (side-side)	32 mm [1.26 in]	160 mm [6.3 in]
GKZ54M, Adjustable key (up-down)	225 mm [8.9 in]	45 mm [1.77 in]
GKZ55M, Multi-directional key	18° max. all directions	18° max. all directions

**Table 4. Order Guide** 

	Catalog Listing <sup>1</sup>	Body Style	Contacts	Contact Material	Electrical Connection
	GKMA13	Side exit cable	1NC/1NO slow action, BBM	Silver	1 meter cable
War of	GKMA19	Side exit cable	1NC/1NO slow action, BBM	Gold plated	1 meter cable
	GKMA23	Side exit cable	1NC/1NO slow action, BBM	Silver	2 meter cable
Moreover Company	GKMA33	Side exit cable	1NC/1NO slow action, BBM	Silver	3 meter cable
	GKMA16	Side exit cable	2NC slow action	Silver	1 meter cable
	GKMA36	Side exit cable	2NC slow action	Silver	3 meter cable
	GKMB13	Bottom exit cable	1NC/1NO slow action, BBM	Silver	1 meter cable
	GKMB19	Bottom exit cable	1NC/1NO slow action, BBM	Gold plated	1 meter cable
Q. 100	GKMB23	Bottom exit cable	1NC/1NO slow action, BBM	Silver	2 meter cable
Honeywell Constitution of the Constitution of	GKMB33	Bottom exit cable	1NC/1NO slow action, BBM	Silver	3 meter cable
CE THE STATE OF TH	GKMB39	Bottom exit cable	1NC/1NO slow action, BBM	Gold plated	3 meter cable
	GKMB16	Bottom exit cable	2NC slow action	Silver	1 meter cable
<b>3</b>	GKMB17	Bottom exit cable	2NC slow action	Gold plated	1 meter cable
T	GKMB36	Bottom exit cable	2NC slow action	Silver	3 meter cable
	GKMB37	Bottom exit cable	2NC slow action	Gold plated	3 meter cable
	GKMB56	Bottom exit cable	2NC slow action	Silver	5 meter cable
	GKMC03	Side exit connector	1NC/1NO slow action, BBM	Silver	M12 Micro connector, 4-pin male
6 6	GKMC09	Side exit connector	1NC/1NO slow action, BBM	Gold plated	M12 Micro connector, 4-pin male
Solitaria de la constitución de	GKMC06	Side exit connector	2NC slow action	Silver	M12 Micro connector, 4-pin male
and rounding of the state of th	GKMC07	Side exit connector	2NC slow action	Gold plated	M12 Micro connector, 4-pin male
	GKMD03	Bottom exit connector	1NC/1NO slow action, BBM	Silver	M12 Micro connector, 4-pin male
9 9	GKMD09	Bottom exit connector	1NC/1NO slow action, BBM	Gold plated	M12 Micro connector, 4-pin male
Haneywell COKINGO	GKMD06	Bottom exit connector	2NC slow action	Silver	M12 Micro connector, 4-pin male
or o	GKMD07	Bottom exit connector	2NC slow action	Gold plated	M12 Micro connector, 4-pin male
Honewell  William  Wi	GKME03	Bottom & side exit connector	1NC/1NO slow action, BBM	Silver	Twin M12 Micro connectors, 4-pin male
	GKME09	Bottom & side exit connector	1NC/1NO slow action, BBM	Gold plated	Twin M12 Micro connectors, 4-pin male
	GKME06	Bottom & side exit connector	2NC slow action	Silver	Twin M12 Micro connectors, 4-pin male
	GKME07	Bottom & side exit connector	2NC slow action	Gold plated	Twin M12 Micro connectors, 4-pin male

 $<sup>^{1}</sup>$  An actuator key (ordered separately) is required for each switch. Select actuator key by reviewing product nomenclature tree and dimensional diagrams on page 5.

### **ADDITIONAL MATERIALS**

The following associated literature is available on the Honeywell web site at sensing.honeywell.com:

- · Product installation instructions
- Product range guide

### Find out more

Honeywell serves its customers through a worldwide network of sales offices, representatives and distributors. For application assistance, current specifications, or pricing contact your local sales office.

To learn more about Honeywell's products,

call **+1-815-235-6847** or **1-800-537-6945**,

visit sensing.honeywell.com,

or e-mail inquiries to

info.sc@honeywell.com

## **△ WARNING**IMPROPER INSTALLATION

- Consult with local safety agencies and their requirements when designing a machine-control link, interface and all control elements that affect safety.
- Strictly adhere to all installation instructions.

Failure to comply with these instructions could result in death or serious injury.

## **⚠ WARNING**MISUSE OF DOCUMENTATION

- The information presented in this product sheet is for reference only. Do not use this document as a product installation guide.
- Complete installation, operation, and maintenance information is provided in the instructions supplied with each product.

Failure to comply with these instructions could result in death or serious injury.

#### Warranty/Remedy

or indirect damages.

Honeywell warrants goods of its manufacture as being free of defective materials and faulty workmanship during the applicable warranty period. Honeywell's standard product warranty applies unless agreed to otherwise by Honeywell in writing; please refer to your order acknowledgment or consult your local sales office for specific warranty details. If warranted goods are returned to Honeywell during the period of coverage, Honeywell will repair or replace, at its option, without charge those items that Honeywell, in its sole discretion, finds defective. The foregoing is buyer's sole remedy and is in lieu of all other warranties, expressed or implied, including those of merchantability and fitness for a particular purpose. In no event shall Honeywell be liable for consequential, special,

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