MICRO SWITCH Key Actuated Safety Switches
GKM Series

004750
Issue 5

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 x 16 mm W x 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.

Key-Actuated Safety Switches, GKM Series

Table 1. Performance Specifications

Characteristic	Parameter
Description	Dual entry key-operated safety interlock switch
Agency certifications	CE, DOC 141 (EN60947-1 and EN 60947-5-1) cULus, UL508 (File E37138) SIRA, Functional Safety Certificate (IEC 61508-2:2010)
Housing 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 AWG). 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 chaining and monitoring multiple doors
Contact/switch options[1]	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)	Class RK5 fuse, rated at 4.5A
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[2]	SIL3 capable with HFT=1, SIL2 capable with HFT=0 with reference to IEC 61508-2:2010 Functional Safety
Proof test interval	1 year

[1]All normally closed contacts are positive opening
[2]HFT (Hardware Fault Tolerance).

Table 2. Electrial Ratings

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

Key-Actuated Safety Switches, GKM Series

Figure 1. Product Nomenclature

GKM	D	0	3
Switch Type	Body Style	Electrical Termination	Circuitry

GKM Series Dual-Entry, Key-Operated Safety Switch

Body Style		Electrical Termination		Circuitry	
A	Side exit cable	**0**	M12 micro connector, 4-pin male	**3**	1NC/1NO, BBM slow action
B	Bottom exit cable	**1**	1 m, four conductor cable	**6**	2NC, slow action
C	Side exit connector	**2**	2 m, four conductor cable	**7**	2NC, gold contacts slow action
D	Bottom exit connector	**3**	3 m, four conductor cable	**9**	1NC/1NO, BBM gold contacts slow action
E	Twin connectors				

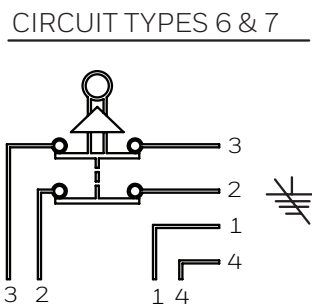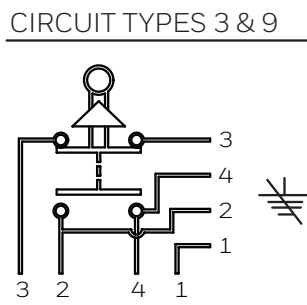| Keys[1]	
Listing	**Key style**
GKZ51M	Straight
GKZ52M	90°
GKZ53M	Side/side adjustable
GKZ54M	Up/down adjustable
GKZ55M	Multi-directional

[1] A key actuator (ordered separately) is required for each switch.

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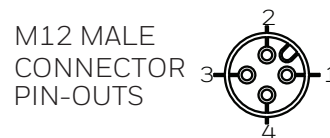Please contact your Honeywell provider/representative for assistance.

Figure 2. Wiring

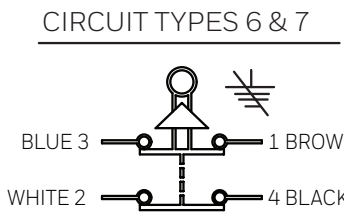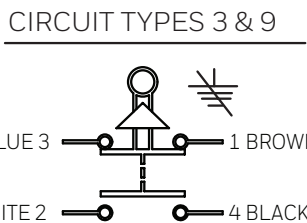## CIRCUIT DIAGRAMS[2]

TWIN CONNECTORS

CIRCUIT TYPES 3 & 9   CIRCUIT TYPES 6 & 7

CABLE/LEADWIRE OR CONNECTOR

CIRCUIT TYPES 3 & 9   CIRCUIT TYPES 6 & 7

M12 MALE CONNECTOR PIN-OUTS

[2]Refer to circuitry in Figure 1 (Product nomenclature).

Key-Actuated Safety Switches, GKM Series
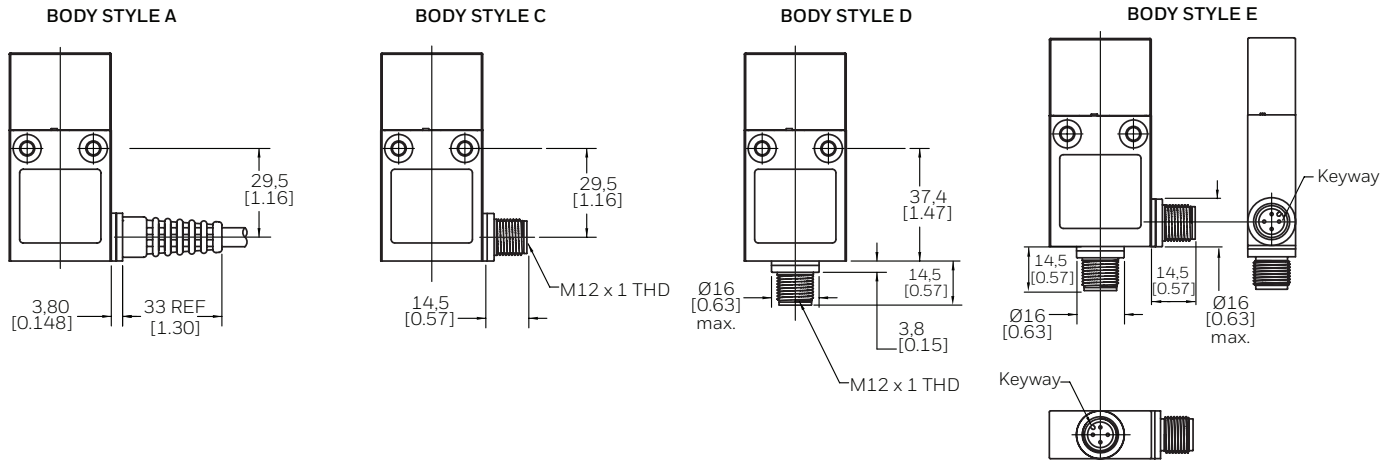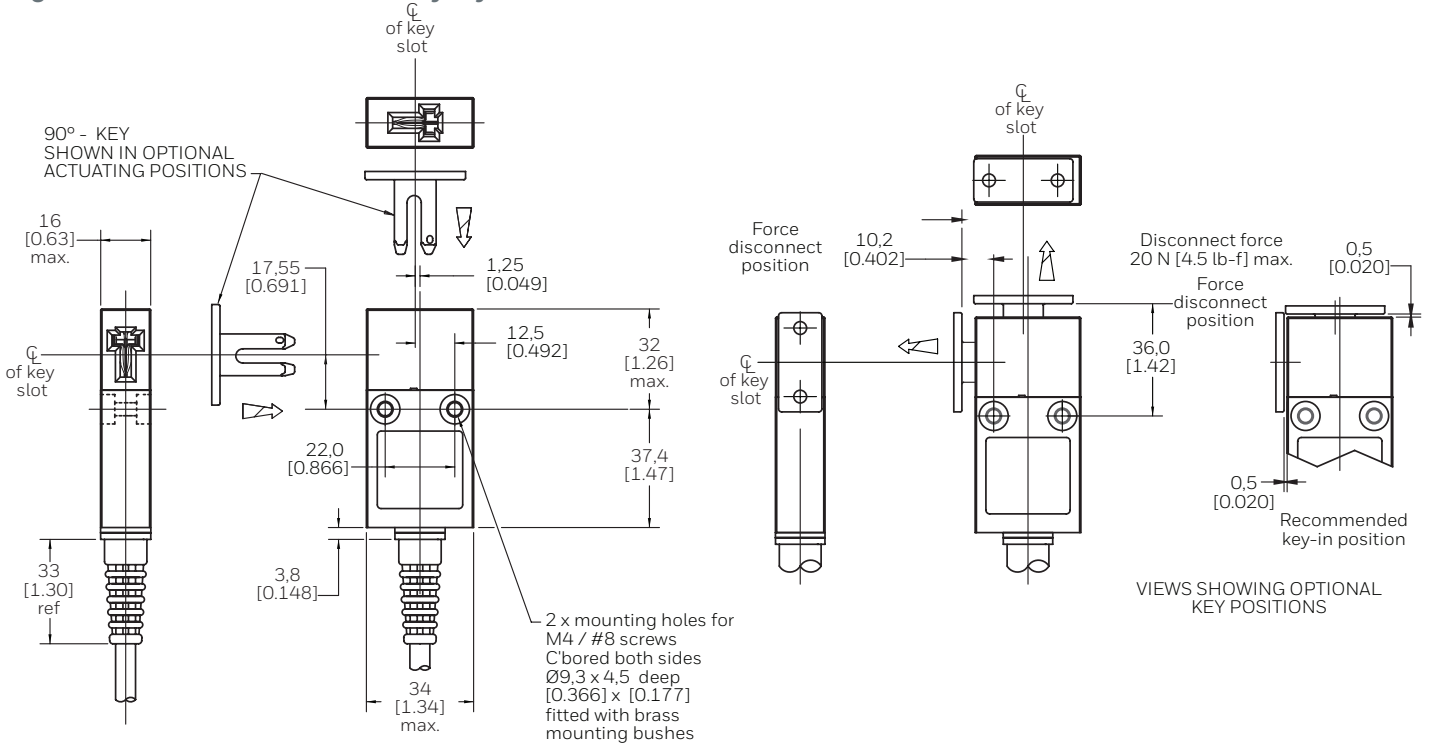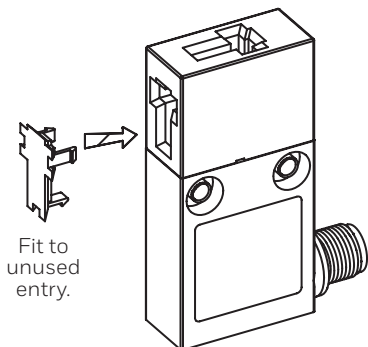
Figure 3. Product Dimensions • Body Style B

16 [0.63] max.

90º – KEY SHOWN IN OPTIONAL ACTUATING POSITIONS

℄ of key slot

17,55 [0.691]

1,25 [0.049]

12,5 [0.492]

32 [1.26] max.

℄ of key slot

22,0 [0.866]

37,4 [1.47]

33 [1.30] ref

3,8 [0.148]

2 x mounting holes for M4 / #8 screws C'bored both sides Ø9,3 x 4,5 deep [0.366] x [0.177] fitted with brass mounting bushes

34 [1.34] max.

℄ of key slot

Force disconnect position

10,2 [0.402]

Disconnect force 20 N [4.5 lb-f] max.

Force disconnect position

36,0 [1.42]

℄ of key slot

0,5 [0.020]

0,5 [0.020]

Recommended key-in position

VIEWS SHOWING OPTIONAL KEY POSITIONS

BODY STYLE A

29,5 [1.16]

3,80 [0.148]

33 REF [1.30]

BODY STYLE C

29,5 [1.16]

14,5 [0.57]

M12 x 1 THD

BODY STYLE D

37,4 [1.47]

14,5 [0.57]

3,8 [0.15]

Ø16 [0.63] max.

M12 x 1 THD

BODY STYLE E

Keyway

14,5 [0.57]

14,5 [0.57]

Ø16 [0.63]

Ø16 [0.63] max.

Keyway

Figure 4. Slot Dust Cover

Fit to unused entry.

Key–Actuated Safety Switches, GKM Series

Figure 5. Key Dimensions, continued

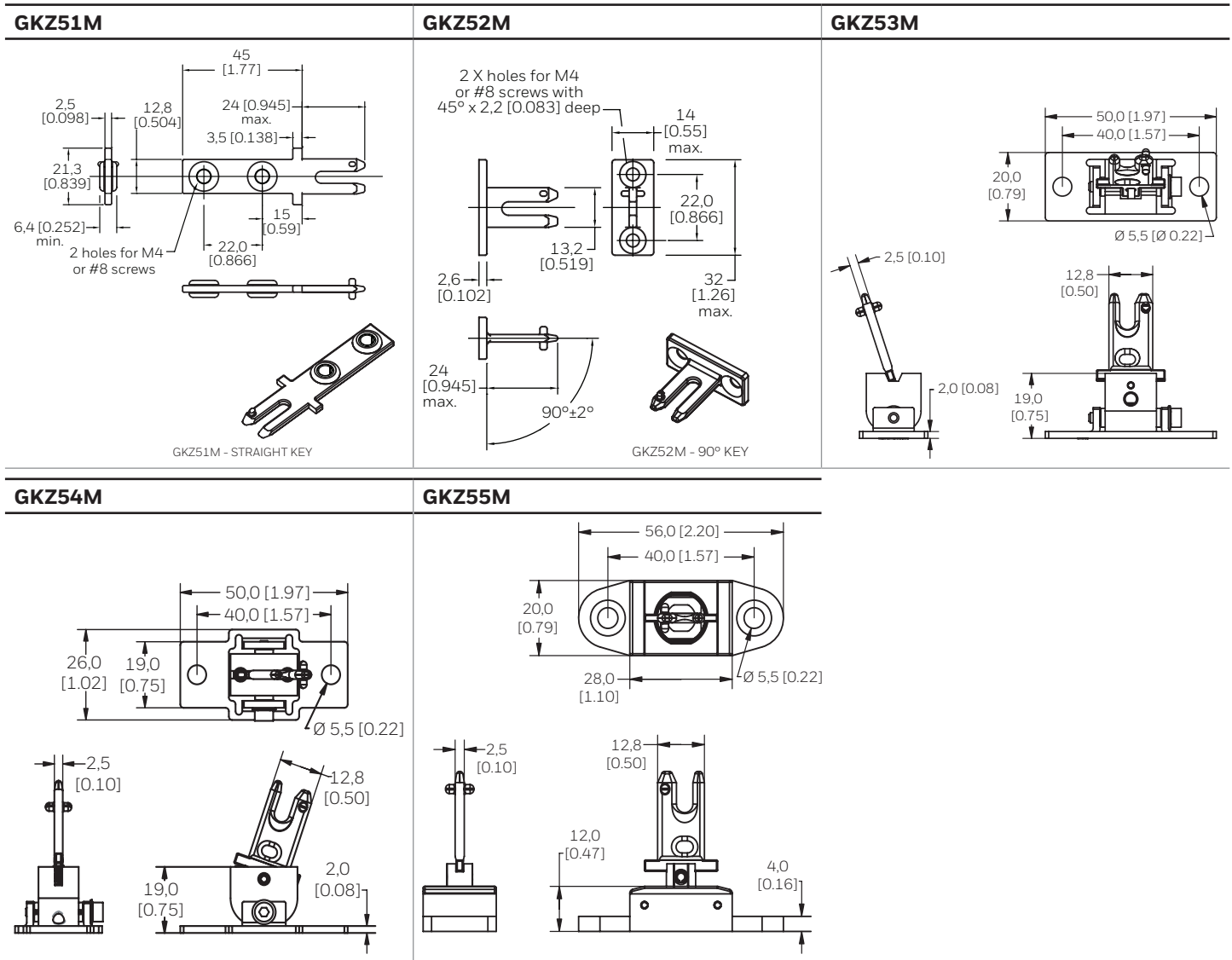| GKZ51M	GKZ52M	GKZ53M
 GKZ51M - STRAIGHT KEY	 GKZ52M - 90° KEY	

GKZ54M	GKZ55M

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

Key–Actuated Safety Switches, GKM Series

Table 4. Order Guide

	Catalog Listing[1]	Body Style	Contacts	Contact Material	Electrical Connection
	GKMA13	Side exit cable	1NC/1NO slow action, BBM	Silver	1 meter cable
	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
	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
	GKMB23	Bottom exit cable	1NC/1NO slow action, BBM	Silver	2 meter cable
	GKMB33	Bottom exit cable	1NC/1NO slow action, BBM	Silver	3 meter cable
	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
	GKMB17	Bottom exit cable	2NC slow action	Gold plated	1 meter cable
	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
	GKMC09	Side exit connector	1NC/1NO slow action, BBM	Gold plated	M12 Micro connector, 4-pin male
	GKMC06	Side exit connector	2NC slow action	Silver	M12 Micro connector, 4-pin male
	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
	GKMD09	Bottom exit connector	1NC/1NO slow action, BBM	Gold plated	M12 Micro connector, 4-pin male
	GKMD06	Bottom exit connector	2NC slow action	Silver	M12 Micro connector, 4-pin male
	GKMD07	Bottom exit connector	2NC slow action	Gold plated	M12 Micro connector, 4-pin male
	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

[1] 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

⚠ **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

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, or indirect damages.**

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