Valve Position Indicator

VPX Series

32321149

Issue D

Datasheet



DESCRIPTION

Valve Position Indicator, VPX Series switches are built especially for outdoor use in potentially hazardous atmospheres. The switch enclosures are constructed to withstand the pressure of an internal explosion. Flame paths cool the exploded gases to a point less than the lowest safe operating temperature of the surrounding gas. The VPX Series versions equipped with the inductive proximity switches has the Intrinsically Safe (IS) rating. Regardless of where the equipment or machinery is designed, built or installed, the VPX Series products carry global agency coverage.

The VPX Series switches have standard rugged die-cast aluminum housing. The products housing is weather sealed for outdoor use and comply with NEMA 4X requirement for protection against corrosion, in addition to various NEMA enclosure standards.

The product's o-ring seals make the enclosure rain tight, but are outside of required flame paths so explosion proof requirements are maintained. The VPX Series switches are available in multiple colors and angles, visible from all directions. Unless special ordered, all basic switches operate on clockwise and counterclockwise rotation.

DIFFERENTIATION

- With numerous environmental ratings (Ingress Protection and NEMA), the VPX Series is protected for all kinds of outdoor conditions
- VPX Series is certified flame-proof, explosion-proof and Intrinsically Safe (optional), thereby making the product safe for a wide variety of potentially hazardous area applications
- The Safety Integrity Level, SIL 3 certification, puts the VPX Series in the higher safety category as compared to its competitors

FEATURES

- VPX Series switches are certified for ATEX, IEC Ex, CE, cULus, NEPSI, and KOSHA specifications for global applications that requires protection from explosive gases, vapors & combustible dust
- Die-cast aluminum housing and various sealing (NEMA 4, 4X, 6, and 13), certifies the VPX Series is rated for rain, wind, snow, ice and blowing dust environments
- Wide operating temperature range from -40 °C to 80 °C (see Table 1 for detailed specifications)
- Versions of the VPX with proximity switches carry an Intrinsically Safe (IS) rating
- Well suited for up to 500,000 actuation cycles
- Available in multiple indicator colors that is visible from all directions

VALUE TO CUSTOMERS

- cULus, ATEX, IEC EX, NEPSI, and KOSHA certified for hazardous (explosive) environments
- Designed with the end user in mind, these switches help to create user-friendly interfaces with broad applications possibilities to help meet the challenges of many different environments
- Weather sealed to NEMA and IP ratings
- Reliable, dependable and accurate
- Versions available in both snap-action switches and intrinsically safe inductive proximity switches

POTENTIAL APPLICATIONS

- Seaside grain and duel loading docks
- Oil and gas wells
- Refineries
- Fuel storage facilities
- Mining
- Petrochemical and chemical plants
- Waste water treatment facilities
- Oil and gas production pipeline networks
- Paint batching/blending plants
- Pharmaceuticals and drug processing plants
- Food and beverage industries
- Pesticides manufacturing plants
- Textile dyeing and finishing plants
- Lead acid battery manufacturing facilities

PORTFOLIO

The VPX Series joins the CX Series of valve position indicator switches for hazardous areas applications. The standard offerings of the VPX Series is certified for flammable gases, vapors and combustible dust. The VPX Series also offers the Intrinsically Safe versions (optional). To view the entire product portfolio, click here.

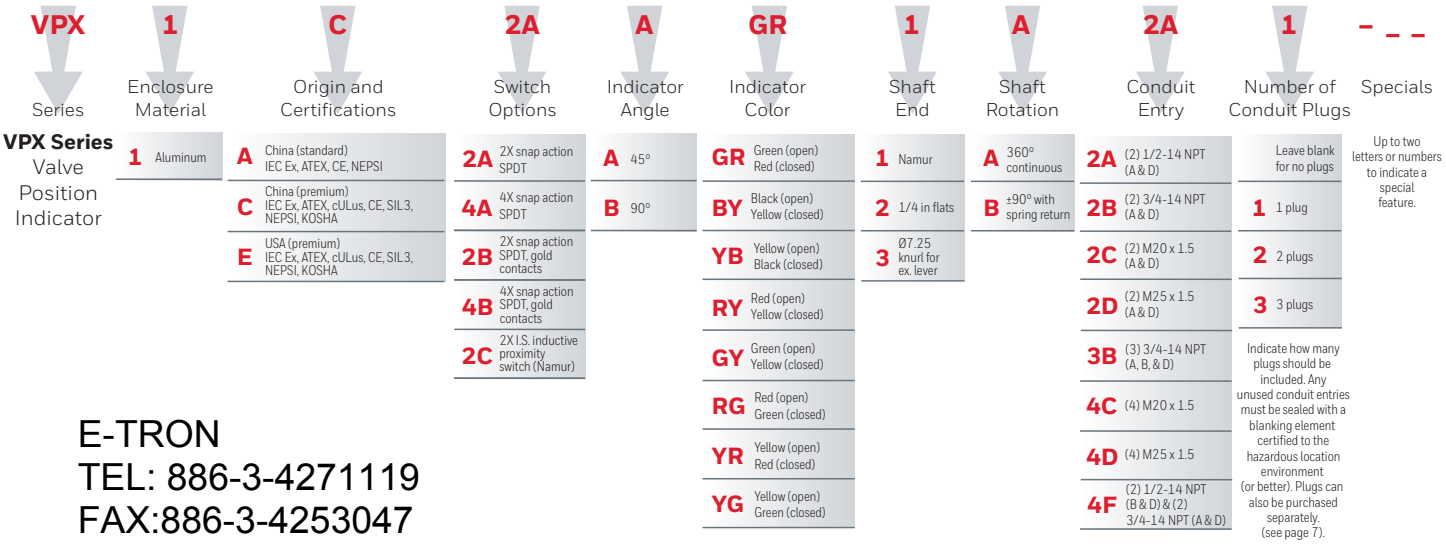
Valve Position Indicator, VPX Series

Table 1. Specifications

Characteristic	Parameter
Series name	VPX Series
Product type	Valve Position Indicator
Housing material	Aluminum with protective paint finish
Housing size	152,3 mm H x 140 mm W x 140 mm D [6.0 in H x 5.5 in W x 5.5 in D] ref.
Operating temperature	Versions with four electromechanical switches: -40 °C to 50 °C [-40 °F to 122 °F] Versions with two electromechanical switches: -40 °C to 60 °C [-40 °F to 140 °F] Versions with proximity switches: -40 °C to 80 °C [-40 °F to 176 °F]
Sealing	NEMA 4, 4X, 6, and 13 per UL 50E; IP66 per IEC 60079-0; IP67 per IEC 60529 (self-certified by Honeywell)
Agency approvals	cULus, ATEX, IEC EX, CE, NEPSI, KOSHA
Explosion proof hazardous area designations	North America: Division 1, Class I, Groups B, C, and D (Gas Rating) Division 1, Class II, Groups E, F, and G (Dust Rating) ATEX/IEC Ex: II 2 G, II 2 D (ATEX Rating) Ex db IIC T6 Gb (Gas Rating) Ex tb IIIC T85°C Db (Dust Rating) Ta -40 °C to +50 °C (Switch Code 4A or 4B) Ta -40 °C to +60 °C (Switch Code 2A or 2B)
Intrinsically safe hazardous area designations	Versions of the VPX with proximity switches carry an intrinsically safe rating: North America: Not Available ATEX/IEC Ex: II 1 G, II 1 D (ATEX Rating) Ex ia IIC T4 Ga (Gas Rating) Ex ia IIIC T135°C Da (Dust Rating) Ta -40 °C to 80 °C
Visual indicator	Available in multiple colors and angles. Visible from all directions.
Electrical ratings	Versions with snap-action switches: UL Rating: 15 A 150 Vac 10 A 250 Vac 0.5 A 250 Vdc CE Rating: 16 A 250 Vac 0.5 A 250 Vdc Versions with Intrinsically Safe Proximity Switches: Switch element function: NAMUR, NC Nominal voltage: 8.2 V Current consumption (On) ≤ 1 mA Current consumption (Off) ≥ 3 mA
Mechanical endurance	500,000 cycles min.
Safety Integration Level (SIL)	SIL 3 per IEC 61508-2. The Mean Cycle to Failure (MCTF) requirements are: Mechanical endurance MCTF: 500,000 cycles Electrical endurance MCTF proximity switches: 50,000 cycles Electrical endurance MCTF electromechanical switches loaded at 16 A 250 Vac: 25,000 cycles Electrical endurance MCTF electromechanical switches loaded at 0.5 A 250 Vdc: 10,000 cycles
Shock	IEC 60068-2-27; half sine, 50 g, 11 mS, 3 axis
Vibration	IEC 60068-2-6; 10 Hz to 59 Hz with 1,5 mm peak-to-peak, 60 Hz to 500 Hz @ 5 g, 7.5 min sweeps, 20 sweeps per axis
Product weight	2,4 kg [5.2 lb] (approx.)

Valve Position Indicator, VPX Series

Figure 1. Product Nomenclature



E-TRON
TEL: 886-3-4271119
FAX:886-3-4253047

Table 2. Operating Characteristics (Non-Spring Return Version)

Characteristic	Parameter
Operating torque	1,0 Nm [8.9 in-lb] max.
Operating point	Adjustable to any angle in 4° increments
Factory set points for 4-switch option	Switches 1 & 2: 25° ±25° when the shaft is rotated clockwise
	Switches 3 & 4 (45° indicator): 45° ±25° when the shaft is rotated counterclockwise
	Switches 3 & 4 (90° indicator): 90° ±25° when the shaft is rotated counterclockwise
Factory set points for 2-switch option	Switch 1: 25° ±25° when the shaft is rotated clockwise
	Switch 2 (45° indicator): 45° ±25° when the shaft is rotated counterclockwise
	Switch 2 (90° indicator): 90° ±25° when the shaft is rotated counterclockwise

Table 3. Operating Characteristics (Spring Return Version)

Characteristic	Parameter
Operating torque	1,7 Nm [15.1 in-lb] max.
Max. travel	95° in either direction
Switch 1 pretravel (45° indicator)	10° ±10° when the shaft is rotated clockwise
Switch 1 pretravel (90° indicator)	10° ±10° when the shaft is rotated clockwise
Switch 2 pretravel (45° indicator)	40° ±10° when the shaft is rotated counterclockwise
Switch 2 pretravel (90° indicator)	80° ±10° when the shaft is rotated counterclockwise

Valve Position Indicator, VPX Series

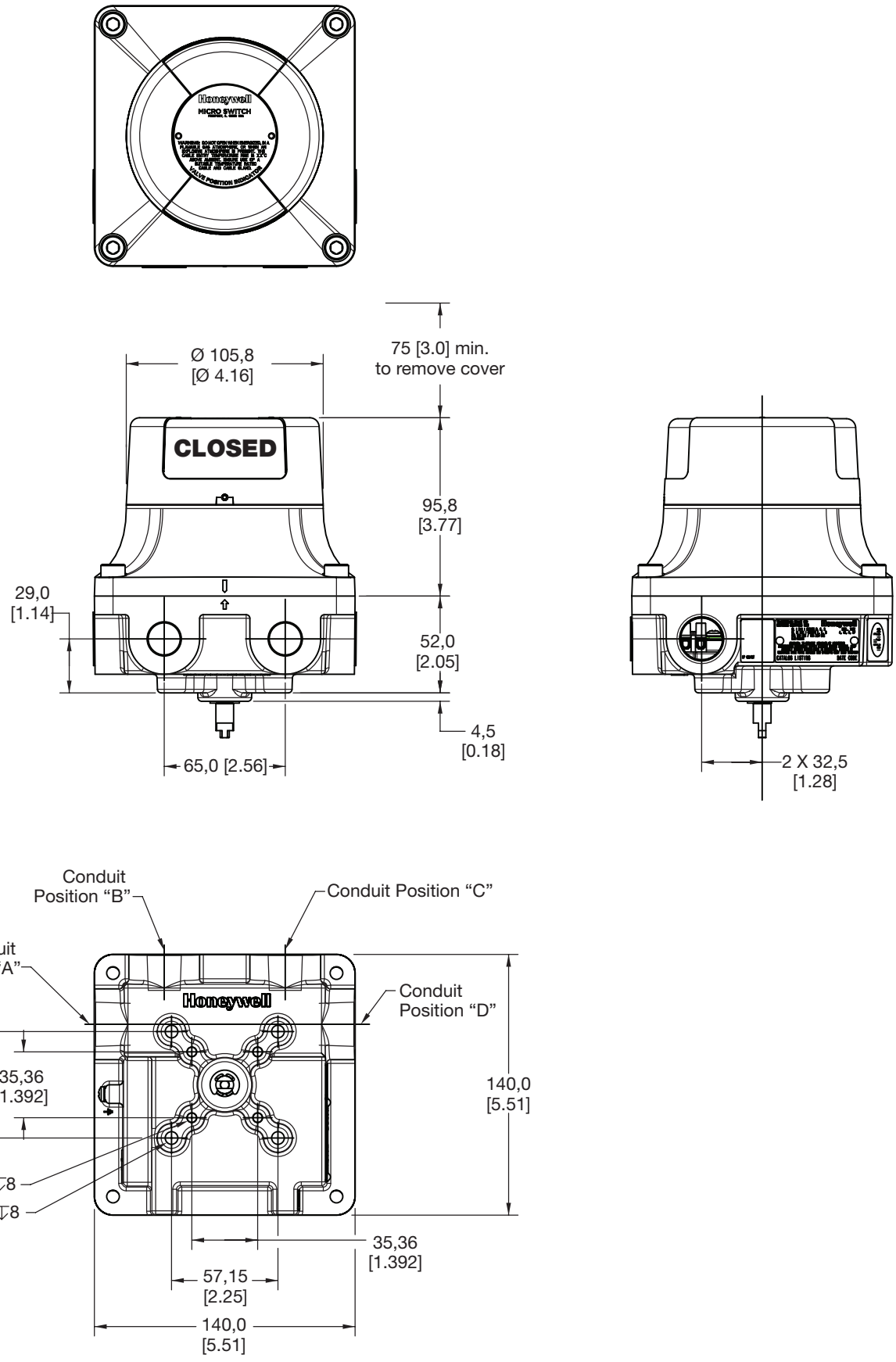
Table 4. Order Guide

	Assembly Location		Temperature Rating			Temperature Class		Hazardous Location Approvals					Switch Options				Indicator Angle		Indicator Color				Shaft			Shaft Rotation		Conduit								
Catalog Listing	**China**	**USA**	**-40 °C to 50 °C**	**-40 °C to 60 °C**	**-40 °C to 80 °C**	**T6**	**T4**	**IEC Ex**	**ATEX**	**cULus**	**KOSHA**	**NEPSI**	**2X snap action**	**4X snap action**	**2X I.S. Prox**	**Gold-plated contacts**	**45°**	**90°**	**Green/Red**	**Black/Yellow**	**Red/Yellow**	**Green/Yellow**	**NAMUR**	**1/4 in flats**	**Knurl**	**360°**	**±90°**	**(2) 1/2-14 NPT (A&D)**	**(2) 3/4-14 NPT (A&D)**	**(2) M20 x 1.5 (A&D)**	**(2) M25 x 1.5 (A&D)**	**(3) 3/4-14 NPT (A,B&D)**	**(4) M20 x 1.5**	**(4) M25 x 1.5**	**(2) 1/2-14 & (2) 3/4-14**
VPX1C2ABGR1A2A	✓			✓		✓		✓	✓	✓	✓	✓	✓					✓	✓				✓			✓		✓							
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Catalog Listing	Assembly Location		Temperature Rating			Temperature Class		Hazardous Location Approvals					Switch Options				Indicator Angle		Indicator Color				Shaft			Shaft Rotation		Conduit								
	China	USA	-40 °C to 50 °C	-40 °C to 60 °C	-40 °C to 80 °C	T6	T4	IEC Ex	ATEX	cULus	KOSHA	NEPSI	2X snap action	4X snap action	2X I.S. Prox	Gold-plated contacts	45°	90°	Green/Red	Black/Yellow	Red/Yellow	Green/Yellow	NAMUR	1/4 in flats	Knurl	360°	±90°	(2) 1/2-14 NPT (A&D)	(2) 3/4-14 NPT (A&D)	(2) M20 x 1.5 (A&D)	(2) M25 x 1.5 (A&D)	(3) 3/4-14 NPT (A,B&D)	(4) M20 x 1.5	(4) M25 x 1.5	(2) 1/2-14 & (2) 3/4-14
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Figure 2. Mounting Dimensions



ACCESSORIES

A mounting bracket kit is available as an accessory, Honeywell part number VPZB1.

Figure 3. Accessory Bracket

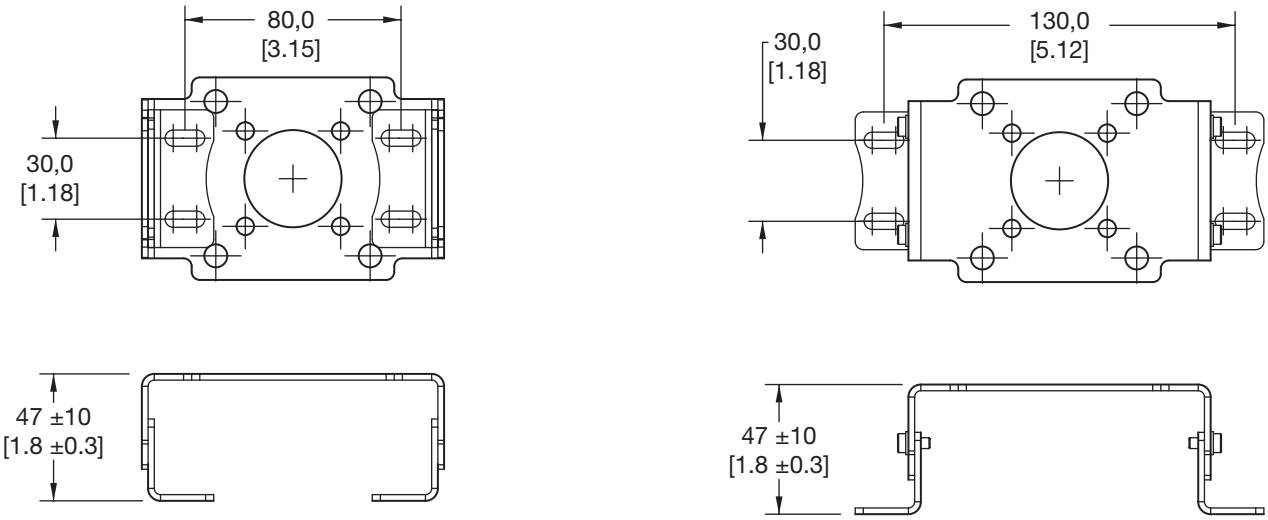
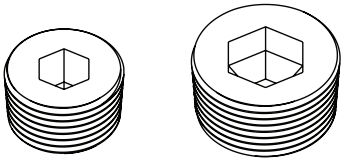
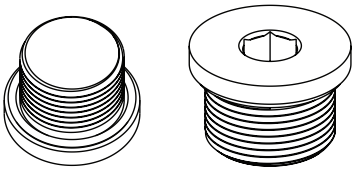
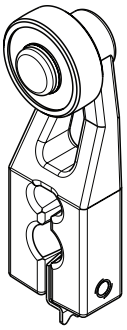
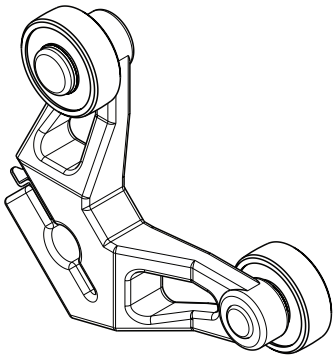


Table 5. Conduit Plug Accessories

	Size	Honeywell Part Number	Tightening Specification
	1/2-14 NPT	VPZPA	Hand tight and then 1 to 2 full turns using a wrench
	3/4-14 NPT	VPZPB	Hand tight and then 1 to 2 full turns using a wrench
	M20 x 1.5	VPZPC	Hand tight and then 1/4 to 1 full turn using a wrench
	M25 x 1.5	VPZPD	Hand tight and then 1/4 to 1 full turn using a wrench





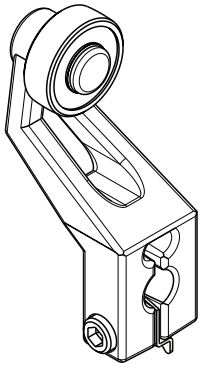


Table 6. Lever Actuator Accessories

Lever Listing	Description
LSZ51	Fixed, rollerless (1.5 R)
LSZ51A	Fixed, 0.75 in x 0.25 in nylon roller, open (1.5 R)
LSZ51C	Fixed, 0.75 in x 0.25 in nylon roller, closed (1.5 R)
LSZ52C	Adjustable, 0.75 in x 0.25 in nylon roller, closed
LSZ52J	Adjustable, 1.0 in x 0.5 in nylon roller, closed
LSZ52K	Adjustable, 1.25 in x 0.25 in nylon roller, closed
LSZ53E	Yoke, 0.75 in x 0.25 in nylon rollers, closed & open
LSZ53S	Yoke, 0.75 in x 0.25 in nylon rollers, same side closed
LSZ54	Hub only
LSZ54M	Hub, aluminum rod actuator
LSZ55	Offset lever, rollerless
LSZ55A	Offset, 0.75 in x 0.25 in nylon roller, open
LSZ55C	Offset, 0.75 in x 0.25 in nylon roller, closed
LSZ59A	Fixed, 0.75 in x 0.25 in nylon roller, open (1.33 R)
LSZ59C	Fixed, 0.75 in x 0.25 in nylon roller, closed (1.33 R)

ADDITIONAL MATERIALS

The following associated literature is available at sensing.honeywell.com:

- Product range guide
- Installation instructions
- Application note

⚠ WARNING
PERSONAL INJURY

DO NOT USE these products as safety or emergency stop devices or in any other application where failure of the product could result in personal injury.

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.**

While Honeywell may provide application assistance personally, through our literature and the Honeywell web site, it is buyer's sole responsibility to determine the suitability of the product in the application.

Specifications may change without notice. The information we supply is believed to be accurate and reliable as of this writing. However, Honeywell assumes no responsibility for its use.

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