Honeywell



MICRO SWITCH™ Hazardous Location Switches **EX Series**



Datasheet

MICRO SWITCH[™] EX Series Hazardous Location Limit Switches

MICRO SWITCH[™] EX Series switches feature the smallest UL-listed housings available for use in hazardous locations. The EX Series switch cavity is designed to cool expanding gases below the ignition temperature of the surrounding explosive atmosphere. The EX Series is capable of switching up to 20 amps while providing ample wiring space for ease of installation. Single and double conduit openings are available. Dual conduit openings may allow for through wiring of multiple switches. The EX Series can be mounted from any of the switch's four sides.

What makes our switches better?

- Honeywell has over 80 years of switch manufacturing experience covering most environment types
- Proven technology plus superior quality and service are offered world-wide. The EX Series holds multiple agency approvals, including CE, IEC Ex, UL, CSA, and ATEX directives
- Multiple actuator options make the EX Series a good choice for indoor explosion-proof applications
- Smallest UL-listed, power-load carrying switch available for use in hazardous locations

Manufactured for harsh and explosive environments



FLEXIBILITY IN MOUNTING RELIABILITY • ACTUATION VARIETY

Features and Benefits

COMPACT AND RUGGED HOUSING

Often used in applications where space is at a premium, MICRO SWITCH[™] EX Series switches feature **ample wiring space that eases installation time**. The four-sided mounting with optional mounting bracket simplifies installation in most applications. The EX Series offers dual conduit openings on select models that allow for through wiring making it easier to wire multiple switches in a single circuit.

International approvals for use around the world

WIDE VARIETY OF PRODUCT OFFERINGS AND VARIATIONS

Broad range of actuator styles available in pin plunger and rotary configurations. Switching capacity from **1 A for low energy loads**, up to 20 A for most industrial electrical loads.

DESIGN FLEXIBILITY

Rotary actuators are field adjustable for quick set up and application adaptability. Roller lever actuators are adjustable through 360° of rotation. 1EX and 2EX listings have **dual conduit openings enabling "wire through"** or allowing the user to split the wiring of a double pole switch with one pole exiting each side.

Potential Applications





INDUSTRIAL PAINT BOOTHS

Position detecting in automated paint booths used by indoor industrial painting companies

Automotive paint booth door position detection assures the door is closed before paint can be applied

PETROLEUM AND CHEMICAL PLANTS

Valve position in indoor potentially explosive environments in petroleum refineries and chemical plants

PROCESSING FACILITIES

Position sensing **indoors** at grain handling and processing plants, pulp and paper processing, lumber and other types of facilities where dust and other fine particles in the atmosphere may create the potential for explosions

Table 1. Specifications

Characteristic		Parameter							
Product type	MI	CRO SWITCH™ hazardous locatio	on limit switches						
Actuators	overtravel top plunger adjustable roller lever adjustable rod lever with one-i	side roller lever rod lever nch nylon roller	one-way roller lever manually activated paddle						
Circuitry		SPDT, DPDT							
Electrical		1 A, 3 A, 5 A, 10 A, 15 A, and 20 A							
Housing material		Aluminum die-cast							
Termination types	1/2-14 NPT conduit, preleaded								
Sealing	NEMA 1, 7, and 9, UL listed, and CSA certified: Class I, Div.1 & 2, Groups B* , C, and D [*Group B - only as noted in order guide] Class II, Div.1 & 2, Groups E, F, and G								
Operating temperature ¹	*High temp models a	-40 °C to 71 °C [-40 °F to ⁻ vailable up to 204 °C [400 °F] (refe	160 °F] er to order guide on pages 6 and 7)						
Agency approvals and standards		IEC Ex, ATEX (CE), UL, (CSA						
UL listed		#E14274							
CSA certified		#LR57324							
ATEX directive ²		KEMA 04ATEX2312X	<						
IEC Ex certified		KEM 08.0012X							
UNSPSC code		302119							
UNSPSC commodity		302119 Switches and controls	and relays						

¹ Refer to order guide

² Most models, refer to individual specifications for selected catalog listings

Table 2. Agency Approvals and Standards

	UL, CE/ATEX, CSA, IEC Ex, INMETRO	Standards & Designations
UL listed	#E14274	UL 1203
CSA certified	#LR57324	C22.2 No. 25 and No. 30
ATEX directive *	KEMA 04ATEX2312X	II 2 G Ex d IIB + H2 T6 Gb (EX) II 2 G Ex d IIB + H2 T2 Gb (EXHT) EN60079-0 and EN60079-1
IEC Ex certified *	KEM 08.0027X	II 2 G Ex d IIB + H2 T6 Gb (EX) II 2 G Ex d IIB + H2 T2 Gb (EXHT) IEC60079-0 and IEC60079-1
INMETRO certified *	In process	IEC60079-0 and IEC60079-1

*Most models, refer to individual specifications for selected catalog listings

MICRO SWITCH™ Hazardous Location Limit Switches

Table 3. Circuitry and Electrical Ratings

Rating code	Circuitry	Electrical rating
A	SPDT	UL/CSA Rating: 15 A, 125, 250, or 480 Vac 1/8 HP, 125 Vac; 1/4 HP, 250 Vac 0.5 A, 125 Vdc; 0.25 A 250 Vdc
В	SPDT	UL/CSA Rating: 20 A, 125, 250, or 480 Vac 10 A, 125 Vac "L" 1 HP, 125 Vac; 2 HP, 250 Vac 0.5 A, 125 Vdc; 0.25 A, 250 Vdc
С	DPDT	UL/CSA Rating: 10 A, 125 or 250 Vac 0.3 A, 125 Vac; 0.15 A 250 Vdc
D	SPDT	UL/CSA Rating: 10 A, 125, 250, or 480 Vac 0.5 A, 125 Vdc; 0.25 A 250 Vdc
E	SPDT	UL Rating: 1 A, 125 Vac
F	SPDT	UL/CSA Rating: 3 A, 125 or 250 Vac 1/10 HP, 125 Vac; 1/6 HP, 250 Vac
G	SPDT	UL/CSA Rating: 5 A, 125, 250, or 480 Vac; 0.50 A, 125 Vdc; 0.25 A, 250 Vac

Table 4. Hazardous Location Classifications

Rating code	Classification
1	Explosion Proof-UL listed for Hazardous Locations NEMA 7, Class I, Groups B, C, and D NEMA 9, Class II, Groups E, F, and G
2	Explosion Proof-UL listed for Hazardous Locations NEMA 7, Class I, Groups C and D NEMA 9, Class II, Groups E, F, and G
3	European Hazardous Locations Designation: Ex dIIB + H2 T6 Category II 2 G
4	European Hazardous Locations Designation: Ex dIIB + H2 T2 Category II 2 G

Series	Code	ATEX Temperature Rating
EX	T6	-40 °C to 70 °C [-40 °F to 158 °F]
EXHT	T2	-40 °C to 204 °C [-40 °F to 400 °F]

MICRO SWITCH™ EX SERIES ORDER GUIDE

MICRO SW	Catalog Listing	Actuation	Circuitry	Electrical Rating	UL/CE Haz. Loca- tion Code	Operating Force	Pretravel max. mm [in]	Overtravel max.	Diff. Travel max. mm [in]	Notes
	EX-AR	CW*	SPDT	15 A (A)	2, 3	2,22 N to 5,56 N [8 oz to 20 oz]	5,56 [0.219] (8°)	90°	0,18 [0.007] (0.25°)	
10	EX-AR141	CW*	SPDT	15 A (A)	2, 3	2,22 N to 5,56 N [8 oz to 20 oz]	5,56 [0.219] (8°)	90°	0,18 [0.007] (0.25°)	No mounting bracket
1	EXA-AR	CW*	SPDT	20 A (B)	2, 3	3,34 N to 8,90 N [12 oz to 32 oz]	5,56 [0.219] (8°)	25°	0,304 [0.012]	
ø	EXA-AR20	CW*	SPDT	15 A (B)	2, 3	-	5,56 [0.219] (8°)	25°	-	No lever furnished (order separately)
1	EX-AR16	CW or CCW*	SPDT	15 A (A)	2, 3	0,56 N [2 oz] max.	5,56 [0.219] (8°)	90°	0,18 [0.007] (0.25°)	Low O.F. (no return spring) with- out mounting bracket
	EX- AR1613	CW*	SPDT	15 A (A)	2, 3	0,56 N [2 oz] max.	16° ± 2°	40° min.	-	0.125 in x 5.28 in aluminum lever (no mounting bracket)
	EX-AR20	CW*	SPDT	15 A (A)	2, 3	3,81 N to 9,53 N [12.5 oz to 31.25 oz]	5,56 [0.219] (8°)	90°	0,18 [0.007] (0.25°)	No lever furnished (order separately)
TO A	EX-AR230	CCW*	SPDT	15 A (A)	2, 3	0,45 Nm [4.0 in-lb]	1,65 [0.065]	25°	0,18 [0.007] (0.25°)	No lever furnished (order separately)
10	EX- AR471-3	CW*	SPDT	15 A (A)	2, 3	3,34 N to 7,32 N [12 oz to 24 oz]	5,56 [0.219] (8°)	90°	0,533 [0.021] (0.75°)	36 inch leadwire
	EX-AR50	Manual opera- tion	SPDT	15 A (A)	2, 3	11,12 N [40 oz]	-	3,18 [0.125] min.	0,077 [0.003] approx.	Large 3 in x 3.5 in paddle

*Note: CW (Clockwise) and CCW (Counter-Clockwise) when looking at nameplate. EX Series switches are not sealed against liquids and are not intended to be used in liquid splash environments or outdoor use without protection. NEMA 1, 7, 9 only.

MICRO SWITCH™ Hazardous Location Limit Switches

MICRO SWITCH™ EX SERIES ORDER GUIDE, CONTINUED

MICROSW	Catalog Listing	Actuation	Circuitry	Electrical Rating	UL/CE Haz. Loca- tion Code	Operating Force	Pretravel max. mm [in]	Overtravel max.	Diff. Travel max. mm [in]	Notes
1	EX-AR128	CW*	SPDT	15 A (A)	2, 3	2,22 N to 5,56 N [8 oz to 20 oz]	5,56 [0.219] (8°)	90°	0,18 [0.007] (0.25°)	One-way roller lever
-	EXD-AR-3	CW*	DPDT	10 A (C)	1, 3	2,44 N to 7,32 N [8 oz to 24 oz]	6,35 [0.25]	25°	2,77 [0.109]	36 inch wire leads
	EXA-N	Plunger	SPDT	20 A (B)	2, 3	15,57 N [56 oz]	2,77 [0.109]	3,18 [0.125] min.	0,229 [0.009]	With seal boot
	EXA-Q	Plunger	SPDT	20 A (B)	2, 3	8,90 N [32 oz]	1,27 [0.05]	3,18 [0.125] min.	0,229 [0.009]	
	EXHT-Q	Plunger	SPDT	3 A (F)	1, 4	8,90 N [32 oz]	1,27 [0.05]	3,18 [0.125] min.	0,229 [0.009]	400° high temperature
	EX-Q400	Plunger	SPDT	5 A (G)	1	13,34 N [48 oz]	1,98 [0.078]	4,78 [0.188]	0,102 [0.004]	400° high temperature intermittent exposure
1	EXHT-AR	CW*	SPDT	3 A (F)	1, 4	3,34 N to 8,90 N [12 oz to 32 oz]	5,56 [0.219] (8°)	25°	0,406 [0.016]	400° high temperature
	1EX1	CW*	SPDT	15 A (A)	2, 3	2,22 N to 5,56 N [8 oz to 20 oz]	5,56 [0.219] (8°)	90°	0,18 [0.007] (0.25°)	Dual conduit openings
1	2EX1	CW*	DPDT	20 A (B)	2, 3	3,34 N to 8,90 N [12 oz to 32 oz]	5,56 [0.219] (8°)	25°	0,305 [0.012] (0.5°)	Dual conduit openings

*Note: CW (Clockwise) and CCW (Counter-Clockwise) when looking at nameplate. EX Series switches are not sealed against liquids and are not intended to be used in liquid splash environments or outdoor use without protection. NEMA 1, 7, 9 only.

DIMENSIONAL DRAWINGS mm [in]

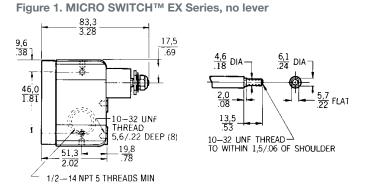


Figure 2. MICRO SWITCH™ EX Series, side rotary

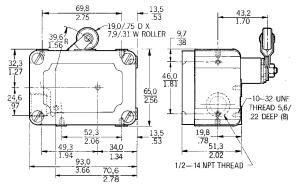


Figure 3. MICRO SWITCH[™] EX Series, side rotary with two conduit openings

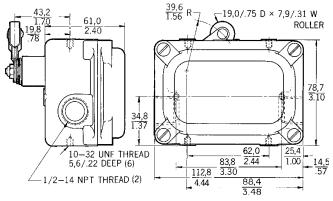


Figure 4. MICRO SWITCH™ EX Series, one-way lever

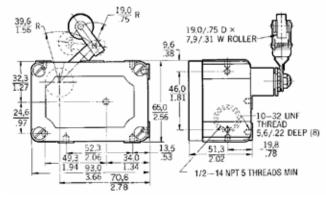


Figure 5. MICRO SWITCH™ EX Series, rod lever

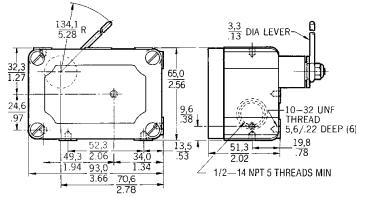
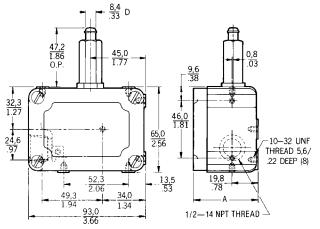


Figure 6. MICRO SWITCH™ EX Series, top pin plunger





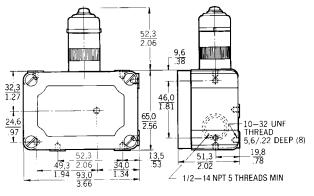
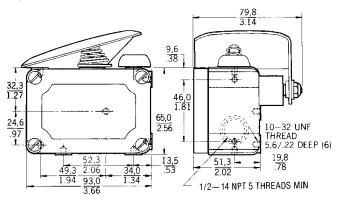


Figure 8. MICRO SWITCH™ EX Series, manually actuated



MICRO SWITCH™ Hazardous Location Limit Switches

Table 5. Replacement Catalog Listings

EX Series Part Number	Internal Switching Element/ Basic Switch	Actuator	Internal Springs		
EXA-AR	BA-2R-P4	6PA5-EX	33PA6-EX		
EXA-Q	BZ-2R-P4	8PA15-EX	-		
EX-AR	BZ-2R-P4	6PA5-EX	33PA7-EX		
EX- AR128	BZ-2R-P4	6PA130-EX	33PA7-EX		
EX-AR16	BZ-2RW88-P5	6PA5-EX	_		
EX-AR1613	BZ-2RW88-P5	6PA136-EX	-		
EX-AR20*	BZ-2R-P4	*	33PA7-EX		
EX-AR30	BZ-2R-P4	6PA5-EX	33PA5-EX		
EX-AR50	BZ-2R-P4	6PA134-OP	33PA7-EX		
EX-AR800	BZ-2R-P4	6PA5-EX	33PA7-EX		
EXD-AR-3	DT-2R4-A7	6PA5-EX	33PA6-EX		
EXD-AR30-3	DT-2R711-A7	6PA5-EX	33PA5-EX		
EXD-Q-3	DT-2R-A7	8PA77-EX	_		
EXH-AR3	4HS202	6PA5-EX	33PA6-EX		
EXH-AR33	4HS203	6PA5-EX	33PA6-EX		
EX-N15	BZ-2R15-P4	8PA12-EX	-		
EX-Q	BZ-2R-P4	8PA15-EX	_		
EX-Q800	BZ-2R-P4	8PA15-EX	-		
uble Conduit					
1EX1	BZ-2R-P4	6PA5-EX	33PA6-EX		
2EX1	BZ-2R-P4	6PA5-EX	33PA6-EX		
4EX1-3	DT-2R4-A7	6PA5-EX	33PA6-EX		

* Order levers separately

Table 6. Actuator Order Codes

	Туре	Part Number
* ****	One-way roller lever (for CW actuation)	6PA130-EX (bronze roller)
200	One-way roller lever (for CCW actuation)	6PA142-EX (bronze roller)
1000	Adjustable length roller lever 43 mm to 76 mm [1.7 in to 3 in]	6PA138-EX (nylon roller)
°°0	Rod lever 134 mm [5.28 in]	6PA136-EX (aluminum rod)
-#0	Adjustable length 317,5 mm [12.5 in] max. rod lever with 25,4 mm [1 in] nylon roller	6PA204-EX
	Roller lever	6PA5-EX (bronze roller) 6PA127-EX (nylon roller)

GROUNDING SCREW ASSEMBLY

(for equipped models only)

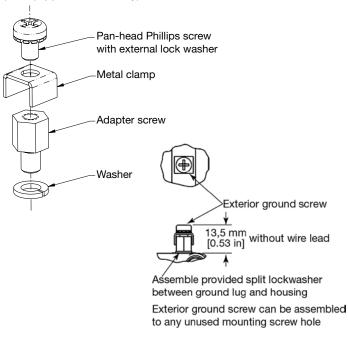
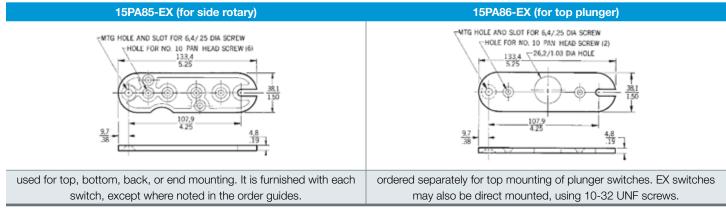


Table 7. Mounting Brackets



This datasheet supports the following MICRO SWITCH™ EX Series Hazardous Location Limit Switches

1EX1	EX-AB1613	EX-AB800	EXH-AR3	EX-Q173	
. =					6PA130-EX
2EX1	EX-AR1620	EX-AR830	EXH-AR33	EX-Q19	6PA136-EX
4EX1-3	EX-AR-1621	EX-AR87	EXH-AR7	EX-Q22	6PA138-EX
4EX5-3	EX-AR182	EXD-AR20-3	EXH-AR7-R1	EX-Q400	6PA142-EX
EXA-AR	EX-AR20	EXD-AR-3	EXH-N	EX-Q62	6PA204-EX
EXA-AR20	EX-AR230	EXD-AR30-3	EXH-Q26-2	EX-Q800	6PA5-EX
EXA-AR62	EX-AR30	EXD-AR30-6	EXHT-AR	15PA85-EX	8PA12-EX
EXA-N	EX-AR400	EXD-AR62-3	EXHT-AR403	19PA4-EX	8PA15-EX
EXA-Q	EX-AR420	EXD-AR87-3	EXHT-Q	33PA1-EX	8PA77-EX
EX-AR	EX-AR471-15	EXD-N-3	EX-N15	33PA5-EX	EX-XR3
EX-AR128	EX-AR471-3	EXD-Q26-2	EX-N152	33PA6-EX	EX-XR9
EXAR-141	EX-AR50	EXD-Q-3	EX-Q	33PA7-EX	EX-YQ-3
EX-AR16	EX-AR68	EXD-Q62-3	EX-Q1	6PA126-EX	
	EX-AR8	EXH-AR2	EX-Q171	6PA127-EX	

MICRO SWITCH[™] Hazardous Location Limit Switches

Table 8. Additional Available EX Lstings

Listing	CW	CCW	Plunger	SPDT	DPDT	2-CKT DB	1 A	10 A	15 A	20 A	Class 1 Group B	Pre- leaded
EXA-AR62	✓									✓		
EXA-N			✓	✓						 ✓ 		
EX-AR1620				~					✓			
EX-AR-1621				~					✓			
EX-AR182	✓			✓					✓			
EX-AR30		✓		✓					✓			
EX-AR400	✓			✓			5 A					
EX-AR420	✓			✓			5 A					
EX-AR471-15	✓					✓			✓			15 ft
EX-AR471-3	✓					✓			✓			3 ft
EX-AR68	✓			✓					✓			
EX-AR8	✓			✓					✓			
EX-AR800	✓			✓					✓		✓	
EX-AR830		✓		✓					✓			
EX-AR87	✓			✓								
EXD-AR20-3	✓							✓				3 ft
EXD-AR-3	✓				✓			✓			✓	3 ft
EXD-AR30-3					✓ √			✓			✓ √	3 ft
EXD-AR30-6		 ✓			✓ ×			✓ ×			✓ ×	6 ft
EXD-AR62-3	✓				· · · · · · · · · · · · · · · · · · ·			✓ ×			✓ ×	3 ft
EXD-AR87-3	 ✓				· · · · · · · · · · · · · · · · · · ·			✓ ×			✓ ×	3 ft
EXD-N-3	•		✓ √		· · · · · · · · · · · · · · · · · · ·			✓ ×			· · · · · · · · · · · · · · · · · · ·	3 ft
EXD-Q26-2			· · · · · · · · · · · · · · · · · · ·		✓ ×			✓ ×			· · · · · · · · · · · · · · · · · · ·	3 ft
EXD-Q-3			· · · · · · · · · · · · · · · · · · ·		✓ ✓			✓ ×			✓ ✓	2 ft
EXD-Q-3			· · · · · · · · · · · · · · · · · · ·		✓ ✓			✓ ✓			✓ ✓	3 ft
EXH-AR2	✓		•	✓	· ·		✓	•			• •	√
EXH-AR3	✓ ✓			 ✓			 ✓				✓ √	10.5 ft
EXH-AR33	•			▼ ✓			▼ ✓				✓ ✓	10.5 ft
		✓									✓ ✓	
EXH-AR7	✓ ✓			 ✓ 			 ✓ 					3 ft
EXH-AR7-R1	✓			✓			√				✓	
EXH-N			✓	√			√				✓	
EXH-Q26-2			✓	✓			✓				✓	
EXHT-AR403	✓			✓			3 A					
EX-N15			✓	✓				✓				
EX-N152			✓	SPNO				✓				
EX-Q			✓	✓					✓			
EX-Q1			✓	SPNO				✓				
EX-Q171			✓	✓								
EX-Q173			✓	✓								
EX-Q19			✓	✓								
EX-Q22			✓	✓								
EX-Q62			✓	✓								
EX-Q800			✓	✓					✓		✓	
Double Conduit												
4EX1-3	✓				✓			✓				3 ft
4EX5-3	✓				 Image: A set of the set of the			✓				3 ft

ADDITIONAL INFORMATION

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

- Product installation instructions
- Product range guide
- Hazardous location switches product brochure
- Product application-specific information
 - Application note: Electronic sensors and electromechanical switches in valves and flow meters
 - Application note: Industrial waste water treatment
 - Application note: Sensors and switches for industrial manual process valves
 - Sensors and switches in oil rig applications

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. Honeywell's standard product warranty applies unless agreed to otherwise by Honeywell in writing; please refer to your order acknowledgement 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 it 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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Specifications may change without notice. The information we supply is believed to be accurate and reliable as of this printing. However, we assume no responsibility for its use.

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<u>1EX1</u> <u>2EX1</u> <u>4EX1-3</u> <u>EXA-AR</u> <u>EXA-Q</u> <u>EX-AR</u> <u>EX-AR128</u> <u>EX-AR16</u> <u>EX-AR1613</u> <u>EX-AR20</u> <u>EX-AR30</u> <u>EX-A</u>