

# HONEYWELL

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



# MICRO SWITCH™ EX Series

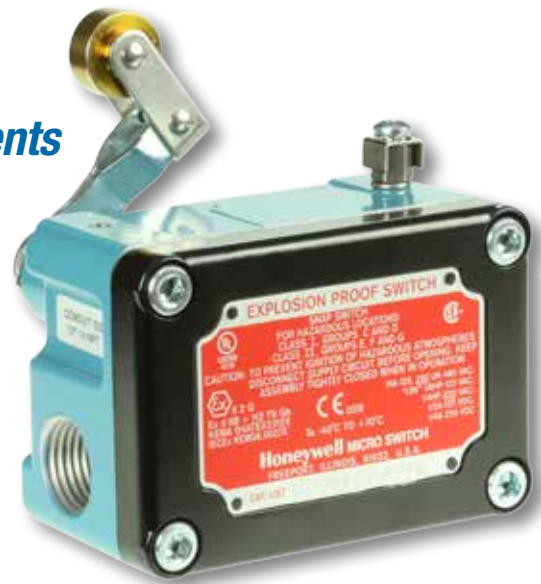
## Hazardous Location Limit Switches

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

# EX Series

**Table 1. Specifications**

Characteristic	Parameter
Product type	MICRO SWITCH™ hazardous location limit switches
Actuators	overtravel top plunger                      side roller lever                      one-way roller lever adjustable roller lever                      rod lever                      manually activated paddle adjustable rod lever with one-inch nylon roller
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, <b>Groups B*</b> , C, and D <b>[*Group B - only as noted in order guide]</b> Class II, Div.1 & 2, Groups E, F, and G
Operating temperature <sup>1</sup>	-40 °C to 71 °C [-40 °F to 160 °F] *High temp models available up to 204 °C [400 °F] (refer 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 <sup>2</sup>	KEMA 04ATEX2312X
IEC Ex certified	KEM 08.0012X
UNSPSC code	302119
UNSPSC commodity	302119 Switches and controls and relays

<sup>1</sup> Refer to order guide

<sup>2</sup> 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
B	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
C	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]

# EX Series

## MICRO SWITCH™ EX SERIES ORDER GUIDE


	Catalog Listing	Actuation	Circuitry	Electrical Rating	UL/CE Haz. Location Code	Operating Force	Pretravel max. mm [in]	Overtravel max.	Diff. Travel max. mm [in]	Notes
	<b>EX-AR</b>	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°)	
	<b>EX-AR141</b>	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
	<b>EXA-AR</b>	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]	
	<b>EXA-AR20</b>	CW*	SPDT	15 A (B)	2, 3	–	5,56 [0.219] (8°)	25°	–	No lever furnished (order separately)
	<b>EX-AR16</b>	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) without mounting bracket
	<b>EX-AR1613</b>	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)
	<b>EX-AR20</b>	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)
	<b>EX-AR230</b>	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)
	<b>EX-AR471-3</b>	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
	<b>EX-AR50</b>	Manual operation	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

	Catalog Listing	Actuation	Circuitry	Electrical Rating	UL/CE Haz. Location Code	Operating Force	Pretravel max. mm [in]	Overtravel max.	Diff. Travel max. mm [in]	Notes
	<b>EX-AR128</b>	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
	<b>EXD-AR-3</b>	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
	<b>EXA-N</b>	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
	<b>EXA-Q</b>	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]	
	<b>EXHT-Q</b>	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
	<b>EX-Q400</b>	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
	<b>EXHT-AR</b>	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
	<b>1EX1</b>	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
	<b>2EX1</b>	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.



# EX Series

## DIMENSIONAL DRAWINGS mm [in]

Figure 1. MICRO SWITCH™ EX Series, no lever

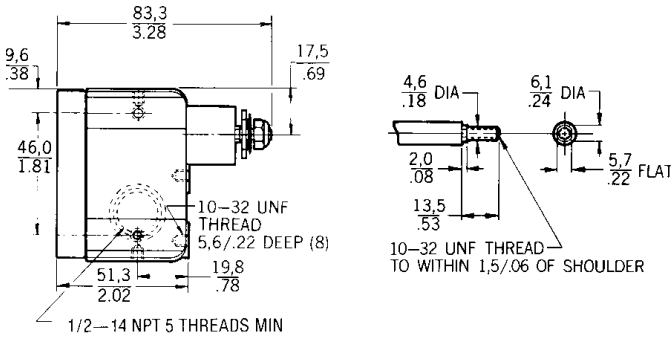


Figure 2. MICRO SWITCH™ EX Series, side rotary

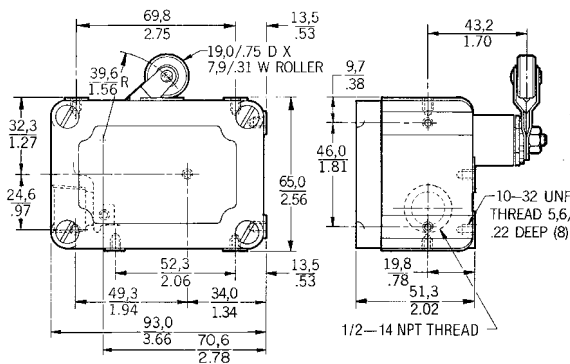


Figure 3. MICRO SWITCH™ EX Series, side rotary with two conduit openings

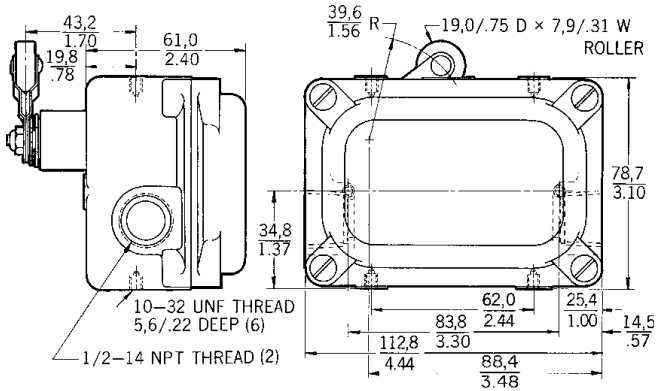


Figure 4. MICRO SWITCH™ EX Series, one-way lever

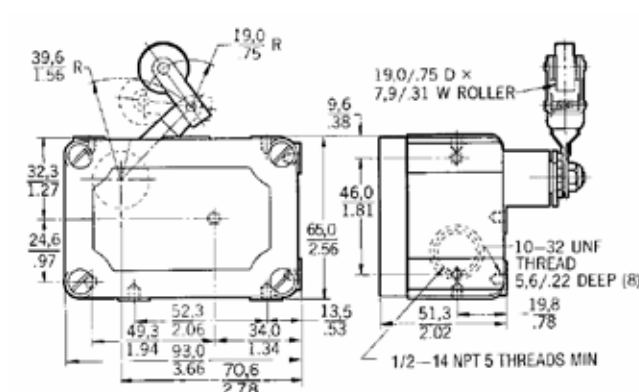


Figure 5. MICRO SWITCH™ EX Series, rod lever

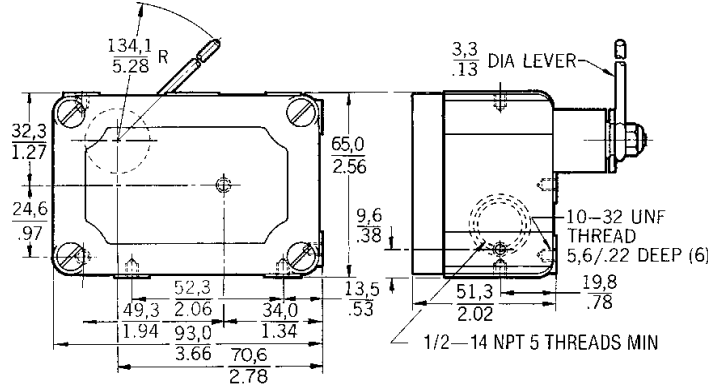


Figure 6. MICRO SWITCH™ EX Series, top pin plunger

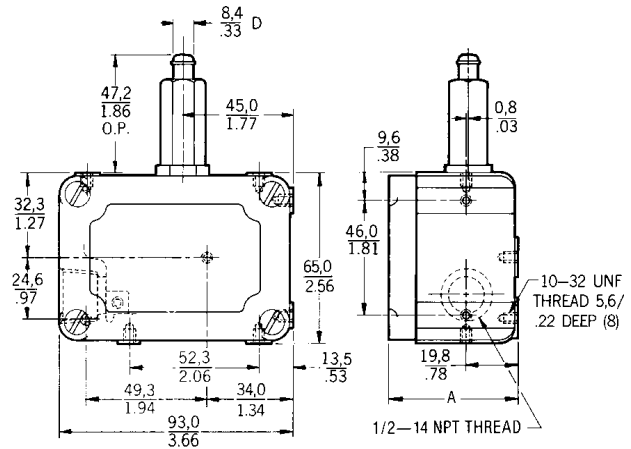


Figure 7. MICRO SWITCH™ EX Series, boot sealed

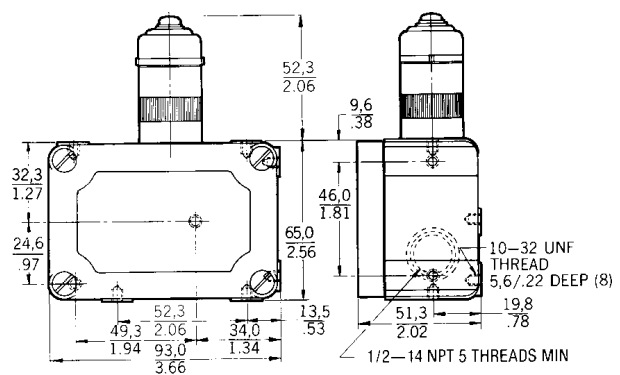
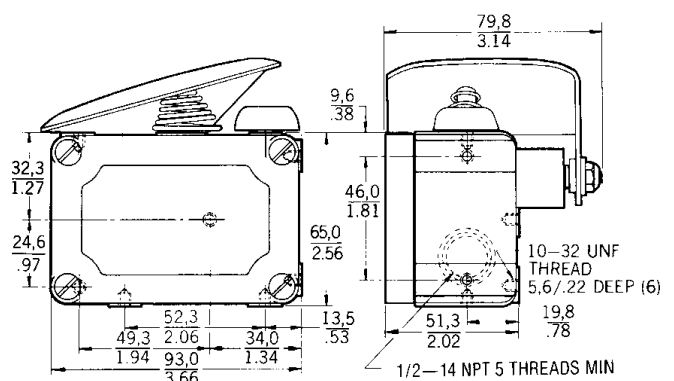


Figure 8. MICRO SWITCH™ EX Series, manually actuated









# 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	-
<b>Double Conduit</b>			
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

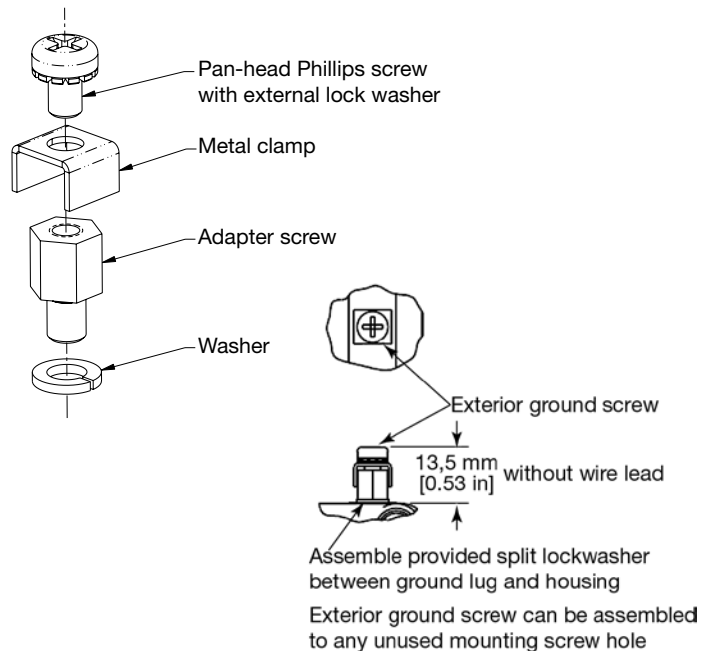
\* Order levers separately

Table 6. Actuator Order Codes

	Type	Part Number
	One-way roller lever (for CW actuation)	6PA130-EX (bronze roller)
	One-way roller lever (for CCW actuation)	6PA142-EX (bronze roller)
	Adjustable length roller lever 43 mm to 76 mm [1.7 in to 3 in]	6PA138-EX (nylon roller)
	Rod lever 134 mm [5.28 in]	6PA136-EX (aluminum rod)
	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)



# EX Series

Table 7. Mounting Brackets

15PA85-EX (for side rotary)	15PA86-EX (for top plunger)
used for top, bottom, back, or end mounting. It is furnished with each switch, except where noted in the order guides.	ordered separately for top mounting of plunger switches. EX switches may also be direct mounted, using 10-32 UNF screws.

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

1EX1	EX-AR1613	EX-AR800	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 Listings

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-Q62-3			✓		✓			✓			✓	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	✓				✓			✓				3 ft

## ADDITIONAL INFORMATION

The following associated literature is available on the Honeywell web site at [sensing.honeywell.com](http://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.**

While we provide application assistance personally, through our literature and the Honeywell website, it is up to the customer 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 printing. However, we assume no responsibility for its use.

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