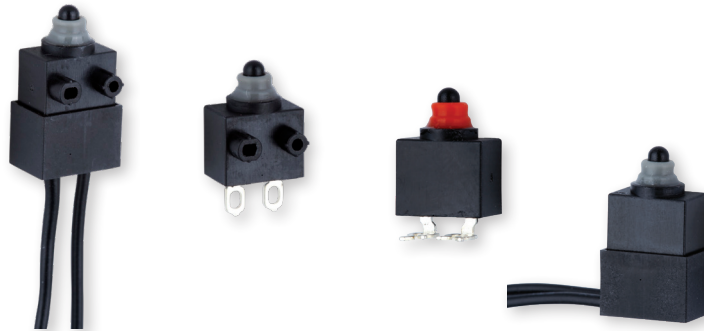


# HD1 SERIES

004997

Issue 1

## MICRO SWITCH Technology



### APPLICATIONS



#### Presence Detection

Ensures door latching and safe operation



#### Flow Switch

Enables safe and efficient water usage



#### Power Switch

Reliable system control for motors, pumps, fans



#### Operator Controls

Interface control for system auxiliary functions



#### Pressure Switch

Detection and warning of high pressure or over pressure events

### VALUE PROPOSITION

The HD1, Honeywell's sealed subminiature MICRO SWITCH family, provides a small-footprint switching solution to assist in hitting overall system-level size and design goals in high volume applications.

The HD1 switch provides a fully certified, reliable, and repeatable solution over the lifetime of the product. Slow-action mechanism enables compact switch footprint and design.

HD1 FEATURES	HD1 BENEFITS	OUR VALUE
<b>0.1 A, SPNC &amp; SPNO circuitry</b>	Electrical ratings for design flexibility in a small switch footprint	Competitive cross references available
<b>Slow-acting switching mechanism</b>	Globally certified for reliable, repeatable actuation for life	Simpler mechanical construction and smaller overall solution footprint
<b>UL/CSA, cUL, ENEC, CQC, RoHS and REACH compliant</b>	Identical system designs for platform applications worldwide	Certifications enable global design acceptance and cost savings in agency approvals
<b>Integrated pillars and mounting holes in switch housing</b>	Simplifies installation, reduces time and cost for switch subassemblies	Configurable pillar options enable design flexibility for various switch orientations
<b>Wiring, molding and connector value-add capabilities available</b>	Delivers "plug-and-play" IP67-rated switch solutions	Reduction in supply chain complexity

**Honeywell**

## MICRO SWITCH, HD1 SERIES

Unless otherwise stated, all characteristic measurements tested according to UL, EN and IEC standards and conditions. Parameters and acceptance criteria validated and confirmed in a certified lab environment. Technical details available upon request.

**TABLE 1. PERFORMANCE SPECIFICATIONS**

CHARACTERISTIC	MEASURE
Circuitry	SPNC, SPNO
Operating force	100 gf max., 130 gf max., 200 gf max.
Termination	wired: downward, side pcb: straight, angle long solder clips special
Actuators	pin plunger, special
Mounting	no pillar, right pillar, left pillar, both pillars, special
Agency certification	ENEC, CQC, UL, cUL
Certified mechanical life	300,000 cycles
Ingress protection rating	IP67 per IEC 60529 (wired) IP00 (terminal versions)
Vibration resistance	10 Hz to 55 Hz, displacement 1,5 mm (peak-to-peak); no contact separation > 1 millisecond
Shock resistance	destruction: 294 m/s <sup>2</sup> (30 g max.); switch is functional after test malfunction: 100 m/s <sup>2</sup> 2(10 g max.); no contact separation > 1 millisecond
Contact resistance	500 mΩ max. as measured using 4-wire voltage drop method @ 6 Vdc and 100 mA
Dielectric strength	500 Vac for 1 minute; leakage current ≤10 mA between open contacts 500 Vac for 1 minute, leakage current ≤10 mA between live parts and ground/between live parts and dead metal parts
Insulation resistance	min. 100 mΩ (500 Vdc for one minute)
Storage conditions	0°C to 40°C, max. 85 %RH
Stationary contact/terminal material	silver-plated copper alloy
Housing material	pbt
Plunger material	acetal (POM) copolymer
Plunger seal material	silicon
Average unit weight	1,5 g [0.004 lb]
Packaging dimensions	203 mm x 264 mm x 273 mm [8 in x 10.4 in x 10.75 in]
Packaging weight	3,3 kg [7.28 lb]

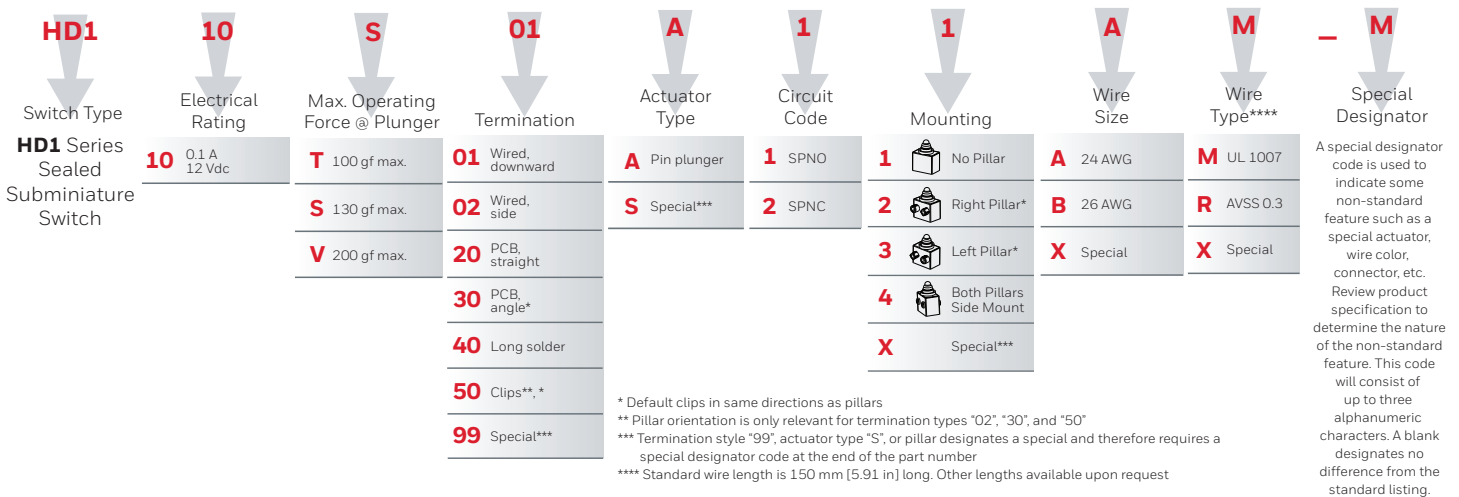
# MICRO SWITCH, HD1 SERIES

**TABLE 2. ELECTRICAL SPECIFICATIONS**

RATING	UL/CUL (CUL 61058-1, FILE 12252) AMERICAS	ENEC (IEC 61058-1) EUROPE	CQC (GB15092-1) ASIA-PACIFIC
0.1 A	0.01 RA, 12 Vdc 10,000 cycles (Use temp 55°C)	0.01 A, 12 Vdc, 100,000 cycles (Use temp 0°C to 55°C)	0.01 A, 12 Vdc, 100,000 cycles

- RA = Resistive Amps (Resistive Load)

**FIGURE 1. PRODUCT NOMENCLATURE**

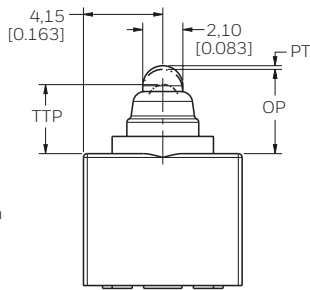


**TABLE 3. WIRE SPECIFICATIONS**

WIRE GAUGE	INSULATION OUTSIDE DIAMETER
24	Ø1,40 [0.055]
26	Ø0,762 [0.030]
CHARACTERISTIC	MEASURE
Operating temperature (manufacturer specified)	terminal type: -40°C to 85°C [-40°F to 185°F] wired type (UL 1007/UL 1061): -20°C to 80°C [-4°F to 176°F] wired type (UL 1430): -20°C to 85°C [-4°F to 185°F] wired type (AVSS): -40°C to 85°C [-40°F to 185°F]

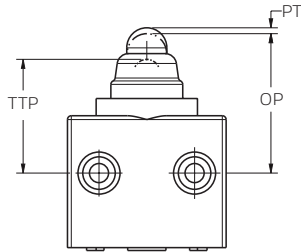
# MICRO SWITCH, HD1 SERIES

## ACTUATOR



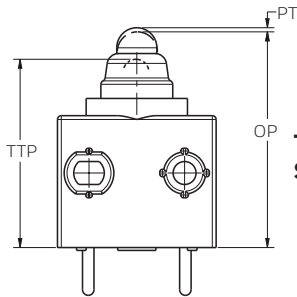
Datum reference is top of switch if no pillar or no pcb terminals

### PILLAR TYPE 1



Datum reference is pillars

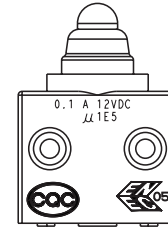
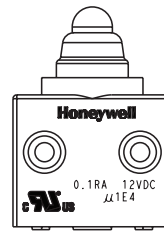
### PILLAR TYPE 2, 3, AND 4



Datum reference is base of switch for pcb terminals

### TERMINAL STYLE 20 AND 30

## MARKING INFORMATION



Note: "Honeywell" name will be tool marked and rating symbols will be laser marked.

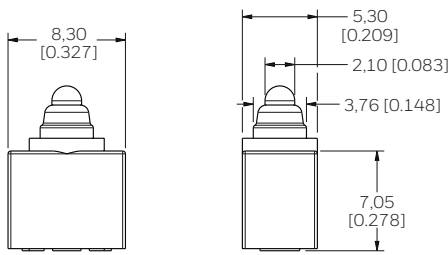
**TABLE 4. SWITCH OPERATING CHARACTERISTICS**

CATALOG LISTING	OPERATE FORCE MAX. (gf)	PRETRAVEL (mm) MAX.	OVERTRAVEL (mm) MAX.	OPERATE POINT (mm) FROM TOP OF SWITCH	OPERATE POINT (mm) FROM PILLARS	OPERATE POINT (mm) FROM BASE	TOTAL TRAVEL POSITION (mm) FROM TOP OF SWITCH MIN.	TOTAL TRAVEL POSITION (mm) FROM PILLARS MIN.	TOTAL TRAVEL POSITION (mm) FROM BASE MIN.
HD110T	100	1	1,1	4,1 +0,2/-0,4	7,1 +0,2/-0,4	11,1 +0,2/-0,4	2,0	6,0	10,0
HD110S	130	1	1,1	4,1 +0,2/-0,4	7,1 +0,2/-0,4	11,1 +0,2/-0,4	2,0	6,0	10,0
HD110V	200	1	1,1	4,1 +0,2/-0,4	7,1 +0,2/-0,4	11,1 +0,2/-0,4	2,0	6,0	10,0

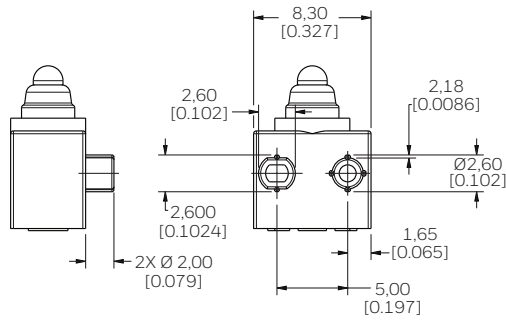
# MICRO SWITCH, HD1 SERIES

FIGURE 2. HD1 SERIES DIMENSIONS

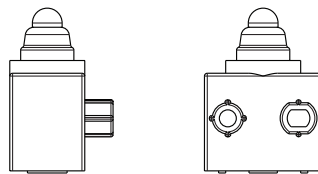
## PACKAGE DIMENSIONS



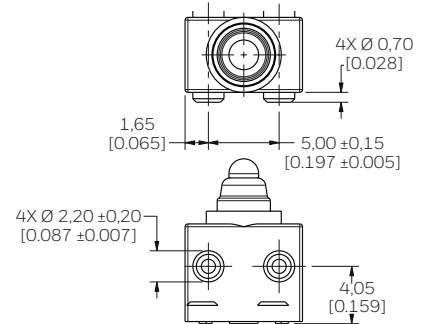
PILLAR TYPE 1



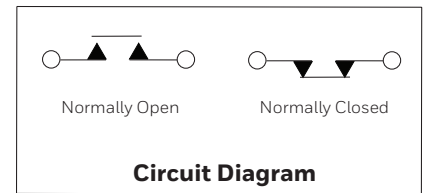
PILLAR TYPE 2 (RIGHT PILLAR)



PILLAR TYPE 3 (LEFT PILLAR)

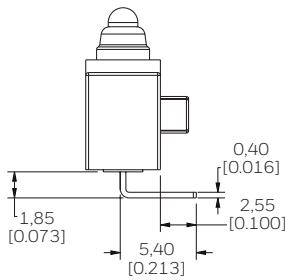


PILLAR TYPE 4

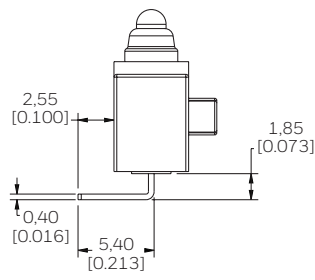


## TERMINAL DIMENSIONS

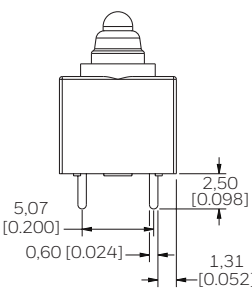
TYPE 30 TERMINALS WITH TYPE 2 PILLARS



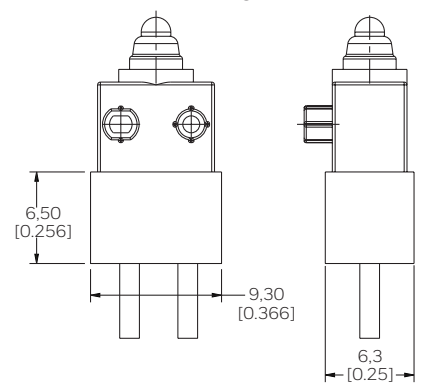
TYPE 30 TERMINALS WITH TYPE 3 PILLARS



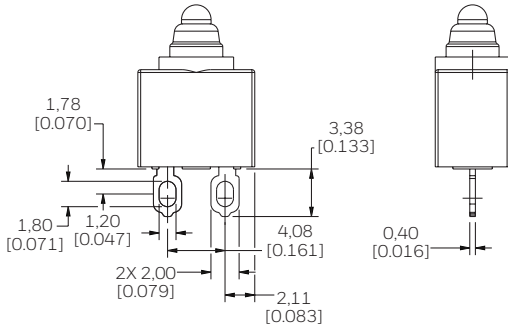
TYPE 20



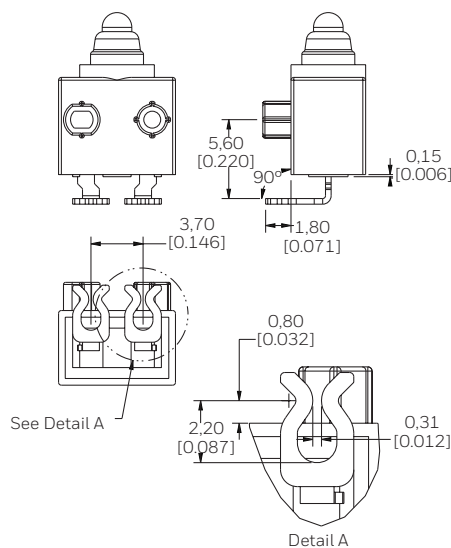
TYPE 01-WIRED



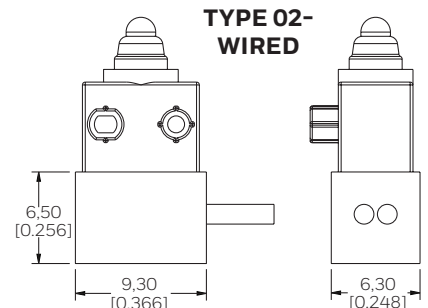
TYPE 40






TYPE 50



TYPE 02-WIRED



## HONEYWELL SEALED SUBMINIATURE BASIC PORTFOLIO

	ZD	HD	HD1
			
<b>Target Market</b>	Applications that require flexibility in design with special configurations available	Cost-sensitive applications requiring configurability in actuation and termination	Applications that require slow-action mechanism and small overall design footprint
<b>Differentiator</b>	Logic level and power-duty (3 A, 125 Vac) amp ratings	Industry standard switch footprint and global certifications ideal for “low-cost-of-failure” applications	Smallest sealed switch footprint in the Honeywell MICRO SWITCH portfolio
<b>Options</b>	Multiple contact variants to enable design and regulation compliance	Integrated mounting pins for reduced installation time	Special levers, terminals and wiring options available

### RELATED DOCUMENTATION

- Submin Comparison Chart
- Applying Precision Switches
- ZD datasheet
- ZW datasheet

### FOR MORE INFORMATION

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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.

### **⚠ 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.**

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