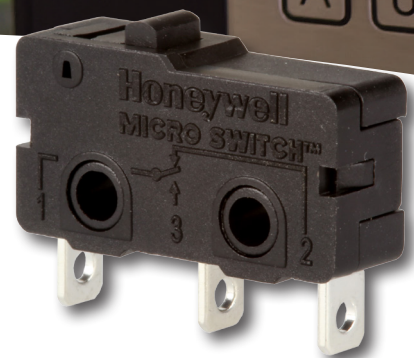




MICRO SWITCH™
Subminiature Basic Switches
QM Series



MICRO SWITCH™ Subminiature Basic Switches

QM Series

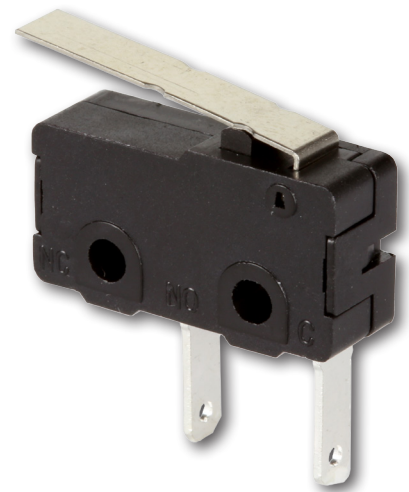
The industry-defining name in snap-action switches, Honeywell MICRO SWITCH™ subminiature switches, QM Series, are designed for repeatability and enhanced product life. The QM Series combines small size and light weight with ample electrical capacity, low cost, and enhanced life.

The reliable and rugged QM Series offers many unique features that can drop right into an application. A variety of actuators, terminations, circuitry configurations, electrical ratings, contact materials, operating characteristics, and sealing allow for use in many applications.

Carefully manufactured and thoroughly inspected, the QM Series are a great value for applications that require sensing the presence or absence of an object.

What makes our switches better?

- **Cost-effective:** The right switch at the right cost
- **MICRO SWITCH™ legacy:** Over 80 years of engineering excellence and experience
- **Designed to Six Sigma standards:** Provides the highest level of quality and consistency
- **Dependable performance:** Tested up to 1 million cycles
- **International approvals:** UL, cUL, ENEC, CQC
- **Configurable:** Wide selection of operating forces, terminations and actuators
- **Small size:** Meets industry standards



*Designed and manufactured
with the highest level of
product quality, performance,
and consistency.*



DURABLE • DEPENDABLE • CONFIGURABLE

Features and Benefits

INDUSTRY STANDARD

With its **compact package** size, QM Series switches meet the industry's most common standard applications and certifications, eliminating the need for product modifications. **Multiple options** for termination, actuation, and operating characteristics are available.

RELIABLE

Reliable switching option meets standard life cycle expectations due to a **mechanical life of 1,000,000 cycles**.

Dependable, consistent performance

HIGH QUALITY

Six Sigma design standards provide the highest level of quality, performance and consistency... all at a competitive cost.

WORLDWIDE APPROVALS

Carries agency approvals from UL, cUL, ENEC, and CQC.

The right switch at the right cost saves money

VERSATILE

A broad range of amp ratings (from **0.1 A to 10 A**) allow QM Series switches to be specified into many applications.

RELIABLE SUPPLY CHAIN

Honeywell's **effective inventory management** and dependable supply chain serve customers throughout the development cycle.

Potential Applications



INDUSTRIAL APPLICATIONS

- Appliances
 - Coffee machine
 - Fountain soda dispensers
 - Microwaves
 - Laundry – Washing machines and dryers
- Office equipment
 - Computer mice
 - Keyboards
 - Printers, copiers
 - Fax Machines
- Electric tools
 - Electric power tools: drills, saws, grinders
 - Flashlights

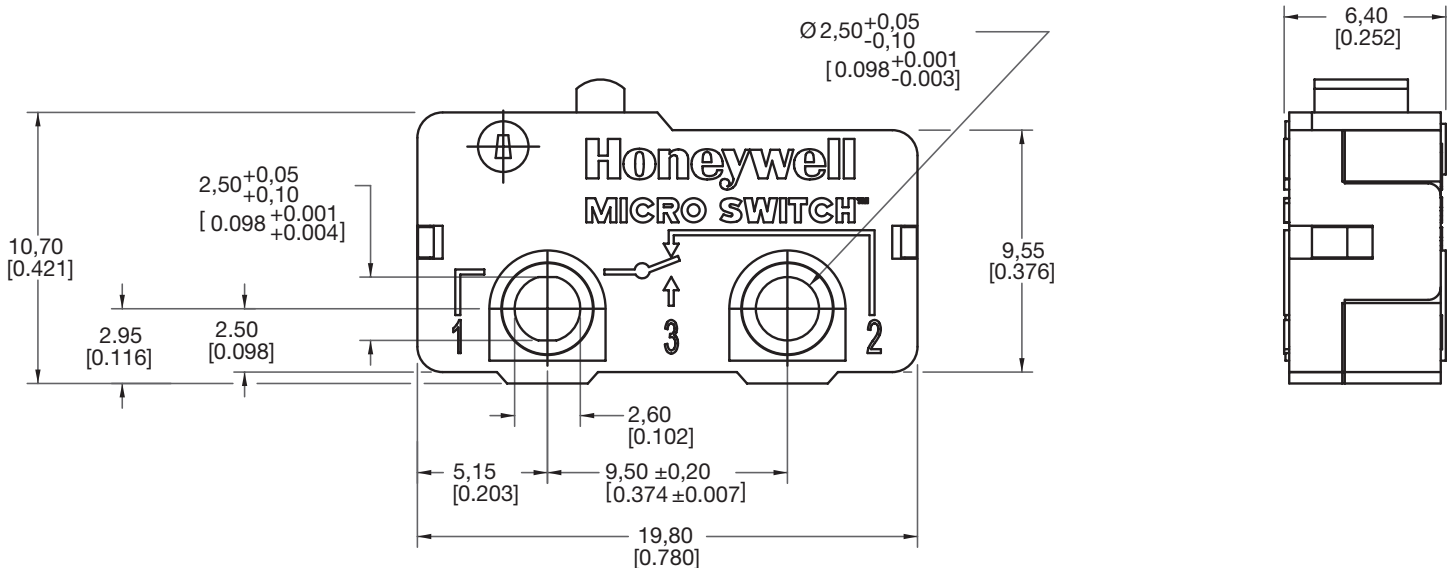
QM Series

Table 1. Specifications

Characteristic	Parameter
Differentiator	Wide range of electrical ratings in a compact size
Use	basic on/off switch for low cost of failure applications
Ampere rating	0.1 A, 5 A, 10 A
Circuitry	SPDT, SPNO, SPNC
Operating force	60 g, 100 g, 150 g, 250 g or 350 g at pin plunger
Termination	solder, long solder, PCB right, PCB left, PCB straight
Actuators	pin plunger, various length flat levers, simulated roller lever, roller lever
Voltage	48 Vdc, 125 / 250 Vac
Agency approvals	UL, cUL, ENEC, CQC
Agency file information	UL, cUL: E12252; ENEC 15
Operating temperature	0 °C to 105 °C or -25 °C to 125 °C [32 °F to 221 °F or -13 °F to 257 °F]*
Contacts	silver or gold-plated silver
Housing	polyamide (nylon)
Sealing	IP00
Storage humidity	85 %RH max at 40 °C [104 °F]
Dielectric strength	1000 Vac between open contacts, 1500 Vac between terminals and ground
Switch resistance	100 mOhm max.
Insulation resistance	100 MOhm min.
Vibration	10 Hz to 55 Hz, displacement 1,5 mm peak to peak
Expected mechanical life	1 million cycles min., except for QM90H which is 500,000 cycles min.
Electrical service life	varies, see individual product drawings
Electrical operating frequency	30 cycles per minute max.
Mechanical operation frequency	180 cycles per minute max.

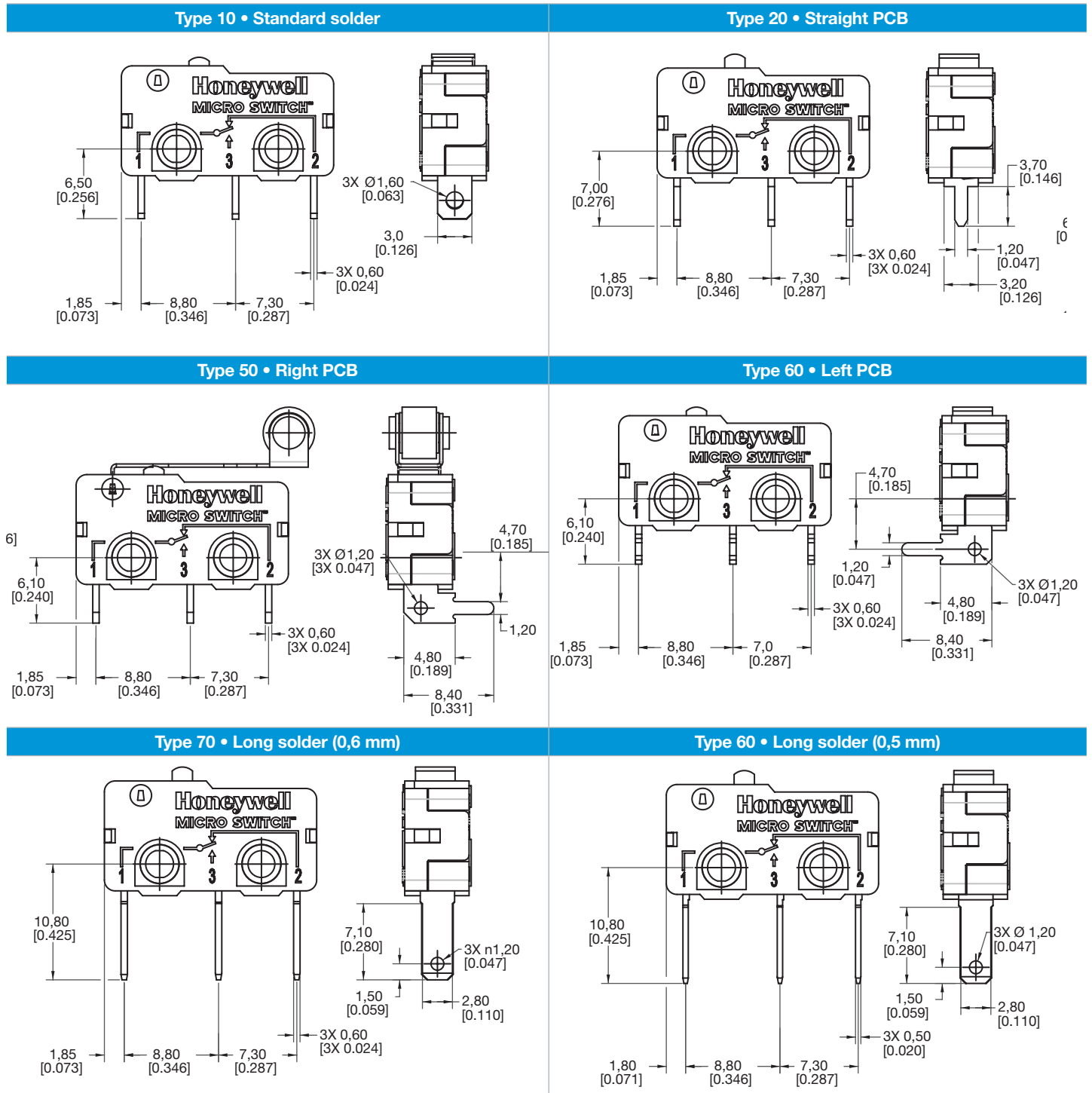
* Temperature rating is dependent on the electrical rating. For more detail, see the product nomenclature tree on page 8.

Figure 1. MICRO SWITCH™ QM Series dimensions (mm [in]). For reference only.



MICRO SWITCH™ Subminiature Basic Switches

Figure 2. MICRO SWITCH™ QM Series dimensions (mm [in]). For reference only.



QM Series

Figure 3. MICRO SWITCH™ QM Series dimensions (mm [in]) and operating characteristics

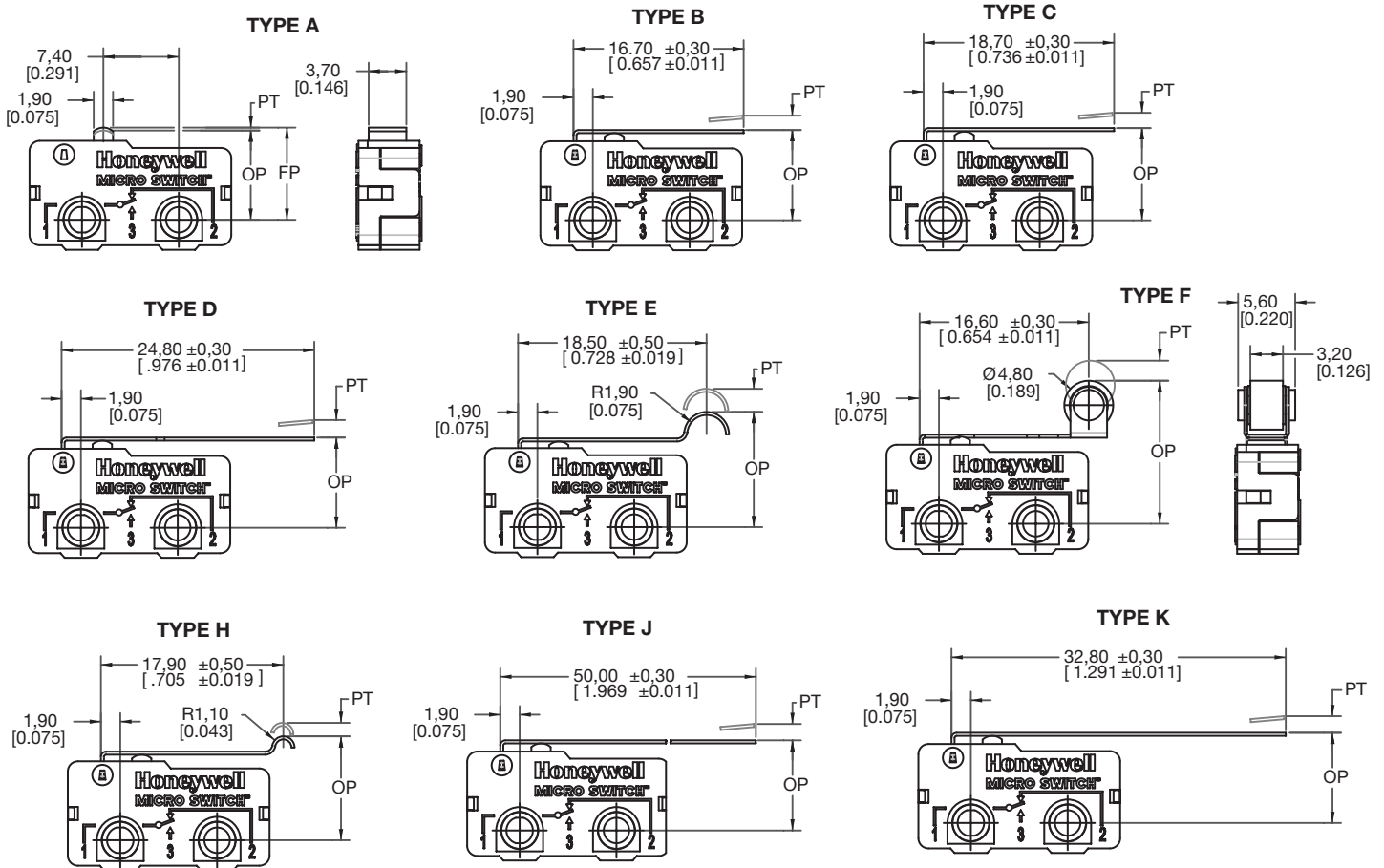


Table 2. Operating Characteristics

		Operate force code					Pretravel (mm) max.	Overtravel (mm) min.	Differential travel (mm) max.	Operate Point (mm)
		B	D	E	G	H				
Maximum Operate Force (grams)										
A	Pin plunger	60	100	150	250	350	1,0	0,4	0,2	8,5 ±0,3
B	16,7 mm straight lever 0101	20	40	50	80	110	3,6	0,6	1,0	8,9 ±1,0
C	18,7 mm straight lever	18	40	45	75	110	4,0	0,6	1,0	8,9 ±1,2
D	24,8 mm straight lever	16	35	45	60	75	6,1	0,8	1,8	9,8 ±0,8
E	Std. simulated roller lever	18	40	45	75	110	5,0	0,6	1,0	12,2 ±1,5
F	Roller lever	18	35	50	80	120	3,8	0,8	1,0	14,6 ±1,0
H	Small simulated roller lever	18	40	50	80	110	4,5	0,8	1,0	10,8 ±1,2
J	50 mm straight lever	6	10	15	30	50	13,3	1	2,9	8,9 ±3
K	32,8 mm straight lever	10	15	25	45	60	7,5	1,5	2	8,9 ±2
Minimum Release Force (grams)										
A	Pin plunger	8	10	35	50	50				
B	16,7 mm straight lever 0101	1	4	8	15	15				
C	18,7 mm straight lever	1	4	6	10	15				
D	24,8 mm straight lever	1	3	4	6	10				
E	Std. simulated roller lever	1	4	6	10	10				
F	Roller lever	1	3	8	8	10				
H	Small simulated roller lever	1	6	6	8	10				
J	50 mm straight lever	1	1	1	3	4				
K	32,8 mm straight lever	1	2	3	7	8				

MICRO SWITCH™ Subminiature Basic Switches

PRODUCT NOMENCLATURE


QM	10	D	10	A	01	—
Switch Type	Current Rating	Operating Force (at pin plunger)	Terminal Type	Actuator Type ² (Levers Mounted Internally)	Circuitry	Special Designator
QM Series Subminiature	10 UL/cUL 0.5 RA 125/250 Vac T105 μ 1E4 0.1 RA 48 Vdc 25T125 μ 5E4 ENEC/CQC 0.5 A 125/250 Vac T105 μ 1E4 0.1 A 48 Vdc 25T125 μ 5E4 *Available with B, D, & E force only	B 60 gf max.	10 Solder	A Pin plunger	01 SPDT 03 SPST-NO 04 SPST-NC	A special designator code is used to indicate some non-standard feature, such as a special actuator or special terminal type. Review product specifications to determine the nature of the non-standard feature. This code will consist of up to three alphanumeric characters. A blank designates no difference from standard listing. One special designator is pre-defined: G : Gold-plated contacts (available only with current rating code 10).
		D 100 gf max.	20 PCB, straight	B Short straight lever (16,7 mm)		
		E 150 gf max.	50 PCB, right side	C Std. straight lever (18,7 mm)		
	50 UL/cUL 5 GPA 1/8 hp 125/250 Vac 25T125 μ 5E4 5 RA 30 Vdc 25T125 μ 5E4 ENEC/CQC 5 A 125/250 Vac 25T125 μ 5E4 5 A 30 Vdc 25T125 μ 5E4 (ENEC) 5 A 48 Vdc 25T125 μ 5E4 (CQC) *Available with B, D, E, & G force only	G 250 gf max.	60 PCB, left side	D Long straight lever (24,8 mm)		
		H 350 gf max.	70 Long solder (2,8 mm x 0,6 mm) Sim to 110# QC	E Standard sim. roller lever, (R 3,4 mm; 18,0 mm)		
			80 Long solder (2,8 mm x 0,5 mm) Sim to 110# QC	F Roller lever (Ø4,8 mm roller, 16,6 mm)		
	90 UL/cUL 10 GPA 125/250 Vac T105 μ 1E4 5(2) A 250 Vac T105 μ 5E4 ENEC/CQC 10 A 125/250 Vac T105 μ 1E4 5(2) A 250 Vac T105 μ 5E4 5 A 48 Vdc 25T125 μ 5E4 (CQC) *Available with G & H force only		99 SPECIAL ³	H Small simulated roller lever (R 1,3 mm; 17,9 mm)		
				J Long straight lever (50,0 mm)		
				K Long straight lever (32,8 mm)		
			S SPECIAL lever ³			

NOTES:

- ¹ Nomenclature is for identification purposes only, not all combinations are possible. Variations not set up would require minimum volumes to establish.
- ² Lever length measured as follows: Straight lever from center line of the pivot to the end of the lever. Roller and simulated roller from the center line of the pivot to the center line of the roller diameter.
- ³ Terminal Type "99" or Actuator Type "S" designates a special and therefore requires a special designator letter at the end of the listing.

QM Series

Table 3. Standard Listings

photos to go here	Catalog listing	Description
	QM10B10F01	MICRO SWITCH™ QM Series subminiature basic switch, 0.5 A 125/250 Vac, 60 gf max. operating force, solder terminals, roller lever, SPDT circuitry
	QM10B70F01	MICRO SWITCH™ QM Series subminiature basic switch, 0.5 A 125/250 Vac, 60 gf max. operating force, long solder (0,6 mm) terminals, roller lever, SPDT circuitry
	QM10E80A01	MICRO SWITCH™ QM Series subminiature basic switch, 0.5 A 125/250 Vac, 150 gf max. operating force, ong solder (0,5 mm) terminals, pin plunger, SPDT circuitry
	QM50B50F01	MICRO SWITCH™ QM Series subminiature basic switch, 5 A 125/250 Vac, 60 gf max. operating force, PCB (right side) terminals, roller lever, SPDT circuitry
	QM50D10A01	MICRO SWITCH™ QM Series subminiature basic switch, 5 A 125/250 Vac, 100 gf max. operating force, solder terminals, pin plunger, SPDT circuitry
	QM50D10A04	MICRO SWITCH™ QM Series subminiature basic switch, 5 A 125/250 Vac, 100 gf max. operating force, solder terminals, pin plunger, SPST-NC circuitry
	QM50D10A03	MICRO SWITCH™ QM Series subminiature basic switch, 5 A 125/250 Vac, 100 gf max. operating force, solder terminals, pin plunger, SPST-NO circuitry
	QM50E10A01	MICRO SWITCH™ QM Series subminiature basic switch, 5 A 125/250 Vac, 150 gf max. operating force, solder terminals, pin plunger, SPDT circuitry
	QM50E10A04	MICRO SWITCH™ QM Series subminiature basic switch, 5 A 125/250 Vac, 150 gf max. operating force, solder terminals, pin plunger, SPST-NC circuitry
	QM50E10B01	MICRO SWITCH™ QM Series subminiature basic switch, 5 A 125/250 Vac, 150 gf max. operating force, solder terminals, short straight (16,7 mm) lever, SPDT circuitry
	QM50E50F01	MICRO SWITCH™ QM Series subminiature basic switch, 5 A 125/250 Vac, 150 gf max. operating force, PCB (right side) terminals, roller lever, SPDT circuitry
	QM50E70F01	MICRO SWITCH™ QM Series subminiature basic switch, 5 A 125/250 Vac, 150 gf max. operating force, long solder (0,6 mm) terminals, roller lever, SPDT circuitry
	QM50E80A01	MICRO SWITCH™ QM Series subminiature basic switch, 5 A 125/250 Vac, 150 gf max. operating force, long solder (0,5 mm) terminals, pin plunger, SPDT circuitry
	QM50G10A03	MICRO SWITCH™ QM Series subminiature basic switch, 5 A 125/250 Vac, 250 gf max. operating force, solder terminals, pin plunger, SPST-NO circuitry
	QM50G20A04	MICRO SWITCH™ QM Series subminiature basic switch, 5 A 125/250 Vac, 250 gf max. operating force, PCB (straight) terminals, pin plunger, SPST-NC circuitry
	QM90G10B01	MICRO SWITCH™ QM Series subminiature basic switch, 10 A 125/250 Vac, 250 gf max. operating force, solder terminals, short straight (16,7 mm) lever, SPDT circuitry
	QM90G10B04	MICRO SWITCH™ QM Series subminiature basic switch, 10 A 125/250 Vac, 250 gf max. operating force, solder terminals, short straight (16,7 mm) lever, SPST-NC circuitry

MICRO SWITCH™ Subminiature Basic Switches

This Honeywell datasheet supports the following
MICRO SWITCH™ QM Series Listings

QM10B10F01	QM50D10A03	QM50E70F01
QM10B70F01	QM50D10F01	QM50E80A01
QM10E10F01	QM50E10A01	QM50E80A01-G
QM10E80A01	QM50E10A04	QM50G10A03
QM10E80B01	QM50E10B01	QM50G10B01
QM10G10B01-G	QM50E10E01	QM50G20A04
QM10G10E01-G	QM50E10E03	QM50G70C03
QM50B50F01	QM50E10F01	QM90G10B01
QM50D10A01	QM50E50F01	QM90G10B04
QM50D10A04	QM50E70A01	QM90G10F01

ADDITIONAL INFORMATION

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

- Product installation instructions

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.

Find out more

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visit **sensing.honeywell.com.cn,**

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