

MICRO SWITCH™ Standard Subminiature Snap-Action Z Series



Snap-Action Switches

DESCRIPTION

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

The MICRO SWITCH™ Z Series consists of six product families with unique features that can drop right into an application.

These reliable and rugged switches offer a variety of actuators, terminations, circuitry configurations, electrical ratings, contact materials, operating characteristics, and sealing allows them to be utilized in numerous potential applications.

Carefully manufactured and thoroughly inspected, the MICRO SWITCH™ Z Series standard subminiatures are a great value for applications requiring sensing presence or absence of an object.

FEATURES




- Small size and light weight switches lend themselves to numerous potential applications
- Choice of low energy or power-duty electrical ratings allow the switch to be specified in more types of applications
- Broad range of amp ratings (from 0.1 A to 10.1 A)
- Watertight IP67 sealing available on some listings allows the switch to be used where sealing and presence/absence detection is required
- UL/CSA, cUL, ENEC, and CE approvals

POTENTIAL APPLICATIONS




- **Industrial:** Appliances, communication equipment, computers, electromechanical timers, mechanical cam assemblies (timers), office equipment, electric tools, HVAC wall controls, instrumentation, valves, vending machines
- **Transportation:** Automotive, truck, and boat wire harnesses; sub-assemblies for convertible roofs; lock modules for tail-gate/trunk; tank and hood latch detection
- **Medical:** Medical and hospital beds, foot pedal controls, and chair lifts
- Applications where a pre-wired sealed on/off switch is required

MICRO SWITCH™ Standard Subminiature Snap-Action Z Series

SPECIFICATIONS

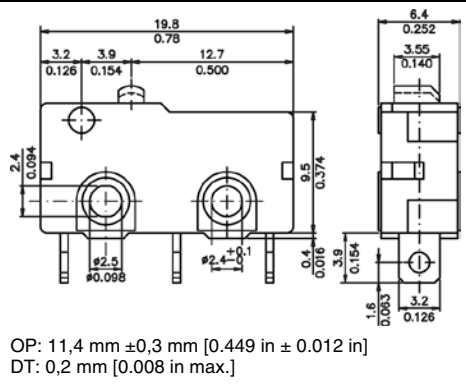
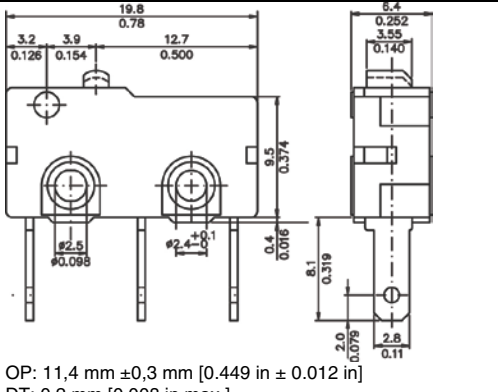
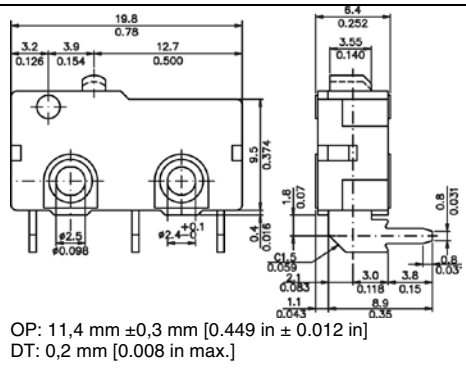
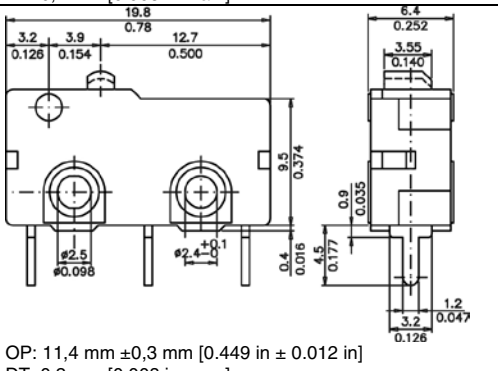
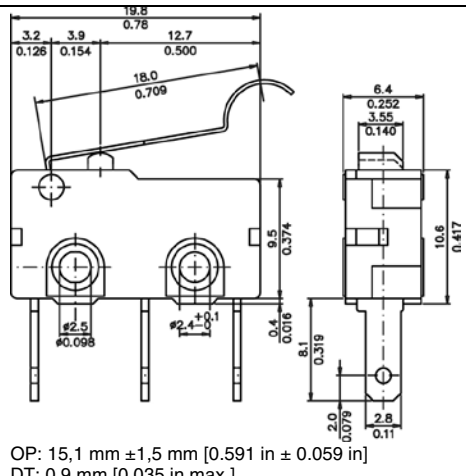
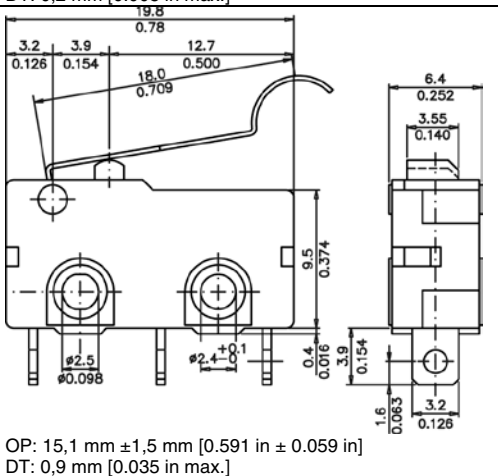
| |  |  |  |
|--------------------------------|---|--|---|
| SERIES | ZM (coil internal spring) | ZM1 (flat internal spring) | ZV (coil spring) |
| Differentiator | Integral lever, no ENEC, and an internal coil spring | Integral lever, ENEC, and a flat internal spring | Snap-on lever, ENEC, and coil spring |
| Use | Use when ENEC is not required and the lever needs to be better secured to the switch | Used when added forces of a flat snap spring, ENEC, and a secured lever are required | Use when ENEC and a snap-on lever are required |
| Potential applications | alarms, computers, food processors, gas detectors, humidifiers, joysticks, money sorters, water pumps | air conditioners, consumer electronics, gas detectors, humidifiers, telephones, time recorders, toys | air conditioners, computers, consumer appliances, gas detectors, joysticks, money sorters, telephones, toys |
| Ampere rating | 0.1 A, 5 A, 10.1 A | 0.1 A, 3 A, 6 A, 10.1 A | 0.1 A, 6 A, 10.1 A |
| Circuitry | SPDT, SPNO | SPDT, SPNO, SPNC | SPDT, SPNO, SPNC |
| Operating force | 0.18 oz to 8.78 oz | 12 gf to 355 gf | 0.78 oz to 11.01 oz |
| Termination | Quick connect, solder, pcb | Quick connect, solder, pcb | quick connect, solder, pcb |
| Actuator | Pin plunger, straight, roller, sim. roller, L-shaped | Pin plunger, straight, roller, sim. roller, L-shaped | pin plunger, straight, roller, sim. roller |
| Voltage | 125 Vac, 250 Vac, 30 Vdc | 125 Vac, 250 Vac | 125 Vac/125 Vdc 6(2) A 250 Vac |
| Agency approvals | UL, CE, CSA | UL, cUL, ENEC | UL, CE, CSA, ENEC |
| Agency file info | CE: 61058-1; UL: E12252; CSA: LR212438 | UL: E12252; c-UL: E12252 | CE: 61058-1; UL:12252; c-UL: E12252 |
| Operating temperature | -40 °C to 120 °C [-40 °F to 248 °F] | -40 °C to 120 °C [-40 °F to 248 °F] | -40 °C to 120 °C [-40 °F to 248 °F] |
| Contacts | Silver, gold-plated silver, gold-plated brass, silver-tin-indium oxide | Silver, gold-plated silver, gold-plated brass, silver-tin-indium oxide | Silver, gold-plated silver, silver-tin-indium oxide |
| Housing | Polyamide (nylon) | Polyamide (nylon) | Polyamide (nylon) |
| Sealing | None | | |
| Storage humidity | 85 % RH max. at 40 °C [104 °F] | | |
| Dielectric strength | 1000 Vac (50 Hz to 60 Hz) between contacts, between terminals and ground, for one minute | 1000 Vac (50 Hz to 60 Hz)/min | 1000 Vac (50 Hz to 60 Hz) between contacts, between terminals and ground, for one minute |
| Contact resistance | 300 mOhm max. | 300 mOhm max. | 300 mOhm max. |
| Insulation resistance | 100 mOhm min. (at 500 Vdc/min) | 100 mOhm min. (at 250 Vdc/min) | 100 mOhm min. (at 500 Vdc/min) |
| Vibration | 10 Hz to 55 Hz, displacement 0,75 mm (p-p) | | |
| Expected mechanical life | 10 million min. | 10 million min. @ <10 A; 1 million min. @ 10 A | 10 million min. |
| Electrical service life | Min. 1,000,000 operations on resistive load current 0.1 A at 125 Vac; 0.1 A at 30 Vdc; Min. 6,000 operations on resistive load 5 A at 125/250 Vac | Min. 10,000 operations | Min. 1,000,000 operations @ 0.1 A; Min 10,000 operations on resistive and motor load current 6(2) A 250 Vac |
| Electrical operating frequency | 0.1 A – 120 operations/min other – 10 to 30 operations/min | 10 to 30 operations/min | 0.1 A – 120 operations/min; Other – 10 to 30 operations/min |
| Mechanical operation frequency | 120 operations/min. | | |

Snap-Action Switches

| |  |  |  |
|--------------------------------|--|--|--|
| SERIES | ZW (water-tight) | ZD (water-tight) | ZX |
| Differentiator | IP67 rating with lead wires; snap-on lever, coil spring, and ENEC | Smaller sized (like the ZX), sealed to IP67 (with leadwires only); plunger travel can be restricted, offers side-post quick mounting | Two-thirds the size of the ZM Series; unsealed, integral lever, and coil spring |
| Use | Use when a sealed position switch in a small and cost-effective package is required | Use for automotive applications due to sealing and quick mounting option | Use when a much smaller unsealed position switch is required |
| Potential applications | air conditioners, computers, consumer appliances, gas detectors, joysticks, money sorters, telephones, toys | automotive (operation systems and engine area interior), air conditioners, communication, electric toothbrushes, toys | calculators, computer mouse, cordless phones, electric knife & stapler, tester machines, walkie-talkies |
| Ampere rating | 0.1 A, 5 A | 0.1 A, 3 A | 0.1 A, 3 A |
| Circuitry | SPDT, SPNO, SPNC | SPDT | SPDT |
| Operating force | 1.94 oz to 7.16 oz | 130 gf to 195 gf | 0.53 oz to 5.3 oz |
| Termination | quick connect, solder, cable bottom exit, cable side exit | Solder, pcb straight, pcb left angle, pcb right angle, pre-wired | solder, pcb snap-in, pcb left angle, pcb right angle |
| Actuator | pin plunger, straight, roller, sim. roller | Pin plunger, straight, sim. roller | pin plunger, straight, roller, special |
| Voltage | 125 Vac, 250 Vac | 125 Vac, 12 Vdc | 125 Vac, 48 Vdc |
| Agency approvals | UL, cUL, CE, ENEC | UL, cUL, CE, ENEC | UL, CE, CSA |
| Agency file info | CE: 61058-1; UL: E12252; c-UL: E12252 | UL: E12252; c-UL: E12252 | CE: 61058-1; UL:12252; CSA: LR212438 |
| Operating temperature | -40 °C to 120 °C [-40 °F to 248 °F] (w/o wires) -40 °C to 105 °C [-40 °F to 221 °F] (w/ wires) | -40 °C to 120 °C [-40 °F to 248 °F] | -40 °C to 120 °C [-40 °F to 248 °F] |
| Contacts | silver, gold-plated silver | Silver, gold-plated silver | silver, gold-plated silver |
| Housing | PBT polyester thermoplastic | PBT polyester thermoplastic | Polyamide (nylon) |
| Sealing | IP67 (with leadwires only) | IP67 (with leadwires only) | None |
| Storage humidity | 85 % RH max. at 40 °C [104 °F] | | |
| Dielectric strength | 1000 Vac (50 Hz to 60 Hz) between contacts and 1250 Vac (50 Hz to 60 Hz), between terminals and ground, for one minute | 150 Vac (50 Hz to 60 Hz)/minute between contacts, 500 Vac (50 Hz to 60 Hz)/minute between live parts and dead metal parts | 1000 Vac (50 Hz to 60 Hz) between contacts, between terminals and ground, for one minute |
| Contact resistance | 30 mOhm max. | 100 mOhm max. | 100 mOhm max. |
| Insulation resistance | 100 mOhm min. (at 500 Vdc/min) | 100 mOhm min. (at 250 Vdc/min) | 100 mOhm min. (at 500 Vdc/min) |
| Vibration | 10 Hz to 55 Hz, displacement 0,75 mm (p-p) | | |
| Expected mechanical life | 2 million min. | 500,000 min. | 1 million min. |
| Electrical service life | Min. 10,000 operations | Min. 500,000 operations on resistive load current 10 mA; Min. 6000 operations on resistive load current 3 A | Min. 1,000,000 operations on resistive load current 0.1 A at 48 Vdc; Min. 10,000 operations on resistive load current 3 A at 125 Vac |
| Electrical operating frequency | 10 to 30 operations/min | 10 mA – 120 operations/min 3 A – 10 to 30 operations/min | 0.1 A – 120 operations/min 3 A – 10 to 30 operations/min |
| Mechanical operation frequency | 120 operations/min. | | |

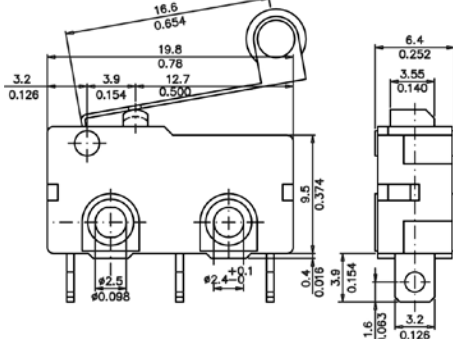
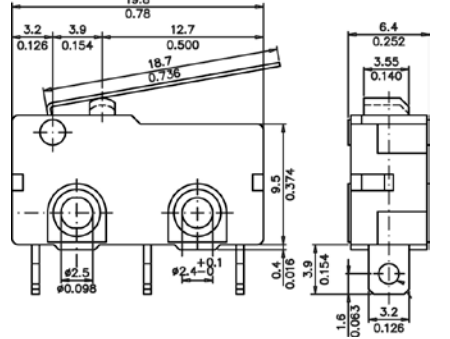
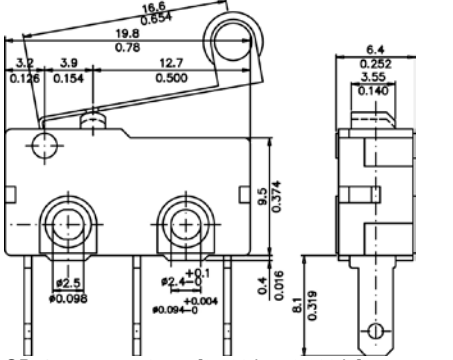
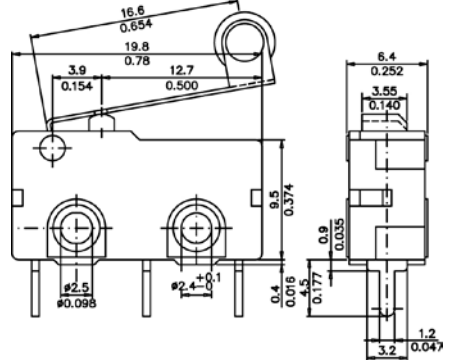
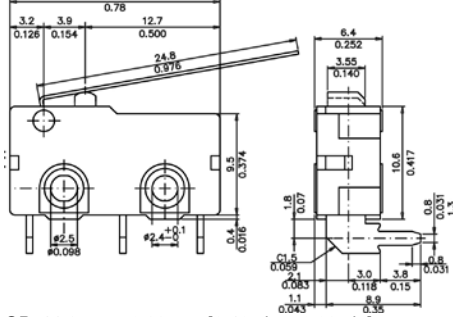
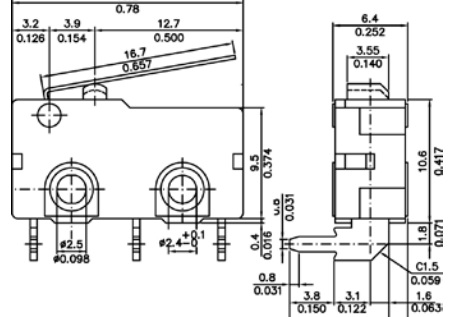
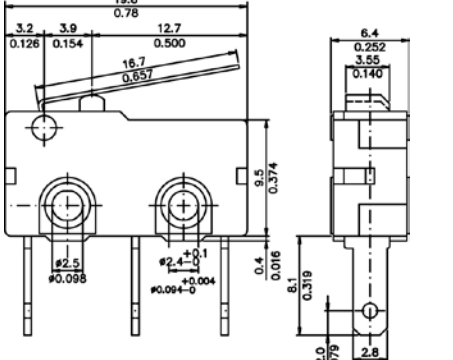
MICRO SWITCH™ Standard Subminiature Snap-Action Z Series

ZM AND ZM1 STANDARD LEVER OPTIONS & DIMENSIONS mm/in

| Lever/ Terminals | Dimensions | Lever/ Terminals | Dimensions |
|--------------------------------------|---|-------------------------------|--|
| Pin plunger/ solder |  <p>OP: 11,4 mm ±0,3 mm [0.449 in ± 0.012 in] DT: 0,2 mm [0.008 in max.]</p> | Pin plunger/ quick connect |  <p>OP: 11,4 mm ±0,3 mm [0.449 in ± 0.012 in] DT: 0,2 mm [0.008 in max.]</p> |
| Pin plunger/ PCB right |  <p>OP: 11,4 mm ±0,3 mm [0.449 in ± 0.012 in] DT: 0,2 mm [0.008 in max.]</p> | Pin plunger/PCB |  <p>OP: 11,4 mm ±0,3 mm [0.449 in ± 0.012 in] DT: 0,2 mm [0.008 in max.]</p> |
| Simulated roller/quick connect |  <p>OP: 15,1 mm ±1,5 mm [0.591 in ± 0.059 in] DT: 0,9 mm [0.035 in max.]</p> | Simulated roller/solder |  <p>OP: 15,1 mm ±1,5 mm [0.591 in ± 0.059 in] DT: 0,9 mm [0.035 in max.]</p> |

Snap-Action Switches

Continued – ZM AND ZM1 STANDARD LEVER OPTIONS & DIMENSIONS mm/in

| Lever/ Terminals | Dimensions | Lever/ Terminals | Dimensions |
|----------------------------|---|----------------------|--|
| Roller/solder |  <p>OP: 17.5 mm ±0.8 mm [0.689 in ± 0.032 in] DT: 0.81 mm [0.032 in max.]</p> | Straight/ solder |  <p>OP: 11.8 mm ±0.89 mm [0.465 in ± 0.035 in] DT: 0.81 mm [0.032 in max.]</p> |
| Roller/ quick connect |  <p>OP: 17.5 mm ±0.8 mm [0.689 in ± 0.032 in] DT: 0.81 mm [0.032 in max.]</p> | Roller/PCB |  <p>OP: 17.5 mm ±0.8 mm [0.689 in ± 0.032 in] DT: 0.81 mm [0.032 in max.]</p> |
| Straight/PCB right |  <p>OP: 11.8 mm ±0.89 mm [0.465 in ± 0.035 in] DT: 0.81 mm [0.032 in max.]</p> | Straight/PCB left |  <p>OP: 11.8 mm ±0.89 mm [0.465 in ± 0.035 in] DT: 0.81 mm [0.032 in max.]</p> |
| Straight/ quick connect |  <p>OP: 11.8 mm ±0.89 mm [0.465 in ± 0.035 in] DT: 0.81 mm [0.032 in max.]</p> | | |

MICRO SWITCH™ Standard Subminiature Snap-Action Z Series

ZV STANDARD LEVER OPTIONS & DIMENSIONS mm/in

| Lever/ Terminals | Dimensions | Lever/ Terminals | Dimensions |
|-------------------------------|--|--------------------------|--|
| Pin plunger/ quick connect | <p>OP: 11,4 mm ±0,3 mm [0.449 in ± 0.012 in] DT: 0,2 mm [0.008 in max.]</p> | Pin plunger/ solder | <p>OP: 11,4 mm ±0,3 mm [0.449 in ± 0.012 in] DT: 0,2 mm [0.008 in max.]</p> |
| Straight/ solder | <p>OP: 11,8 mm ±1,6 mm [0.465 in ± 0.063 in] DT: 0,81 mm [0.032 in max.]</p> | Roller/solder | <p>OP: 17,5 mm ±1,1 mm [0.689 in ± 0.043 in] DT: 0,81 mm [0.032 in max.]</p> |
| Straight/ quick connect | <p>OP: 11,8 mm ±1,2 mm [0.465 in ± 0.047 in] DT: 0,81 mm [0.032 in max.]</p> | Roller/ quick connect | <p>OP: 17,5 mm ±1,1 mm [0.689 in ± 0.043 in] DT: 0,81 mm [0.032 in max.]</p> |

Snap-Action Switches

ZW STANDARD LEVER OPTIONS & DIMENSIONS mm/in

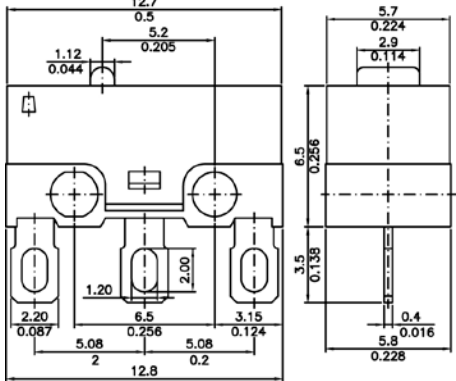
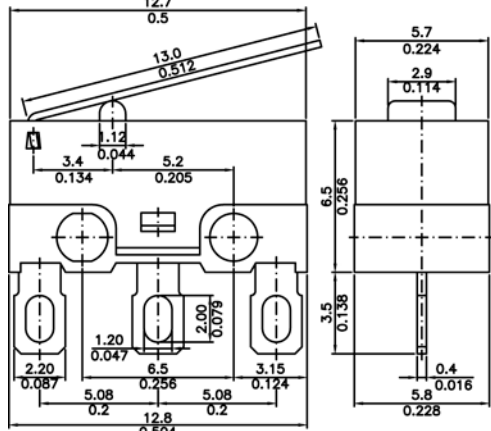
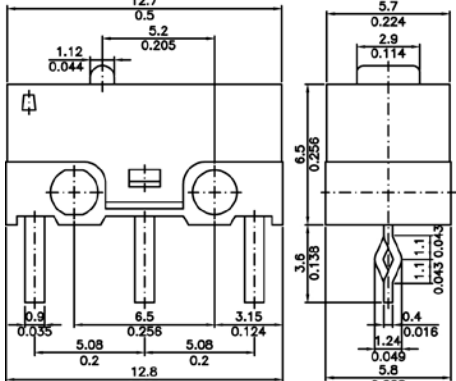
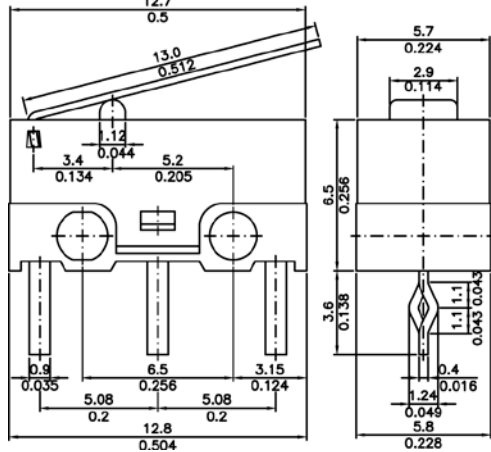
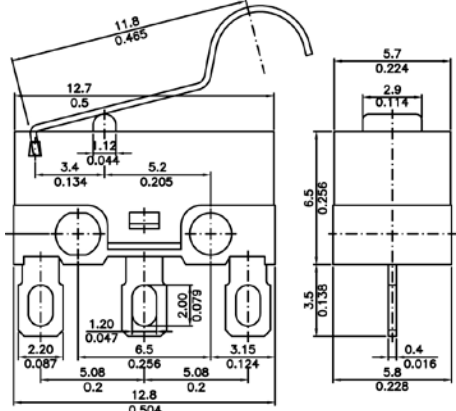
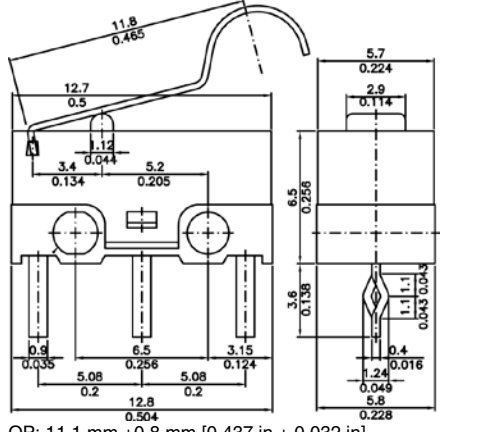
| Lever/Term. | Dimensions |
|-------------------------------|--|
| Straight/ solder angled | <p>OP: 8.8 mm \pm 1.2 mm [0.347 in \pm 0.047 in] DT: 0.71 mm [0.028 in max.]</p> |
| Roller/cable bottom exit | <p>OP: 14.5 mm \pm 1.1 mm [0.571 in \pm 0.043 in] DT: 0.6 mm [0.024 in max.]</p> |
| Pin plunger/ solder angled | <p>OP: 8.4 mm \pm 0.3 mm [0.331 in \pm 0.012 in] DT: 0.2 mm [0.008 in max.]</p> |
| Roller/quick connect | <p>OP: 14.5 mm \pm 1.1 mm [0.571 in \pm 0.043 in] DT: 0.6 mm [0.024 in max.]</p> |

ZD STANDARD LEVER OPTIONS & DIMENSIONS mm/in

| Lever/ Terminals | Dimensions |
|---|--|
| Pin plunger/ solder terminals | <p>OP: 3.05 mm \pm 0.2 mm [0.12 in \pm 0.008 in] DT: 0.30 mm [0.012 in max.]</p> |
| Pin plunger/PCB straight terminals | <p>OP: 3.05 mm \pm 0.2 mm [0.12 in \pm 0.008 in] DT: 0.30 mm [0.012 in max.]</p> |
| Pin plunger/wire leads | <p>OP: 3.05 mm \pm 0.2 mm [0.12 in \pm 0.008 in] DT: 0.30 mm [0.012 in max.]</p> |

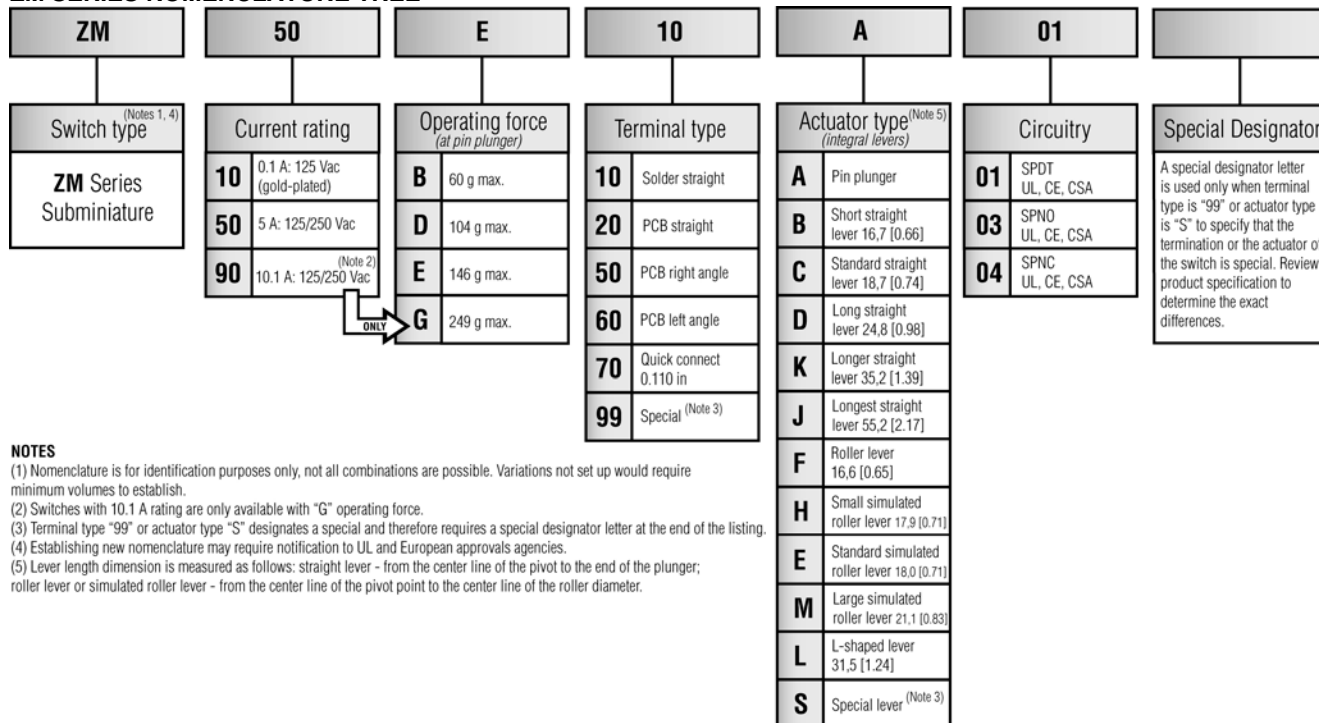
MICRO SWITCH™ Standard Subminiature Snap-Action Z Series

ZX STANDARD LEVER OPTIONS & DIMENSIONS mm/in

| Lever/ Terminals | Dimensions | Lever/ Terminals | Dimensions |
|----------------------------|---|-------------------------|--|
| Pin plunger/ solder |  <p>OP: 7,0 mm ±0,3 mm [0.276 in ± 0.012 in] DT: 0,30 mm [0.012 in max.]</p> | Straight/ Solder |  <p>OP: 8,4 mm ±0,8 mm [0.331 in ± 0.032 in] DT: 1,3 mm [0.051 in max.]</p> |
| Pin plunger/PCB |  <p>OP: 7,0 mm ±0,3 mm [0.276 in ± 0.012 in] DT: 0,30 mm [0.012 in max.]</p> | Straight/PCB |  <p>OP: 8,4 mm ±0,8 mm [0.331 in ± 0.032 in] DT: 1,3 mm [0.051 in max.]</p> |
| Simulated roller/solder |  <p>OP: 11,1 mm ±0,8 mm [0.437 in ± 0.032 in] DT: 1,3 mm [0.051 in max.]</p> | Simulated roller/PCB |  <p>OP: 11,1 mm ±0,8 mm [0.437 in ± 0.032 in] DT: 1,3 mm [0.051 in max.]</p> |

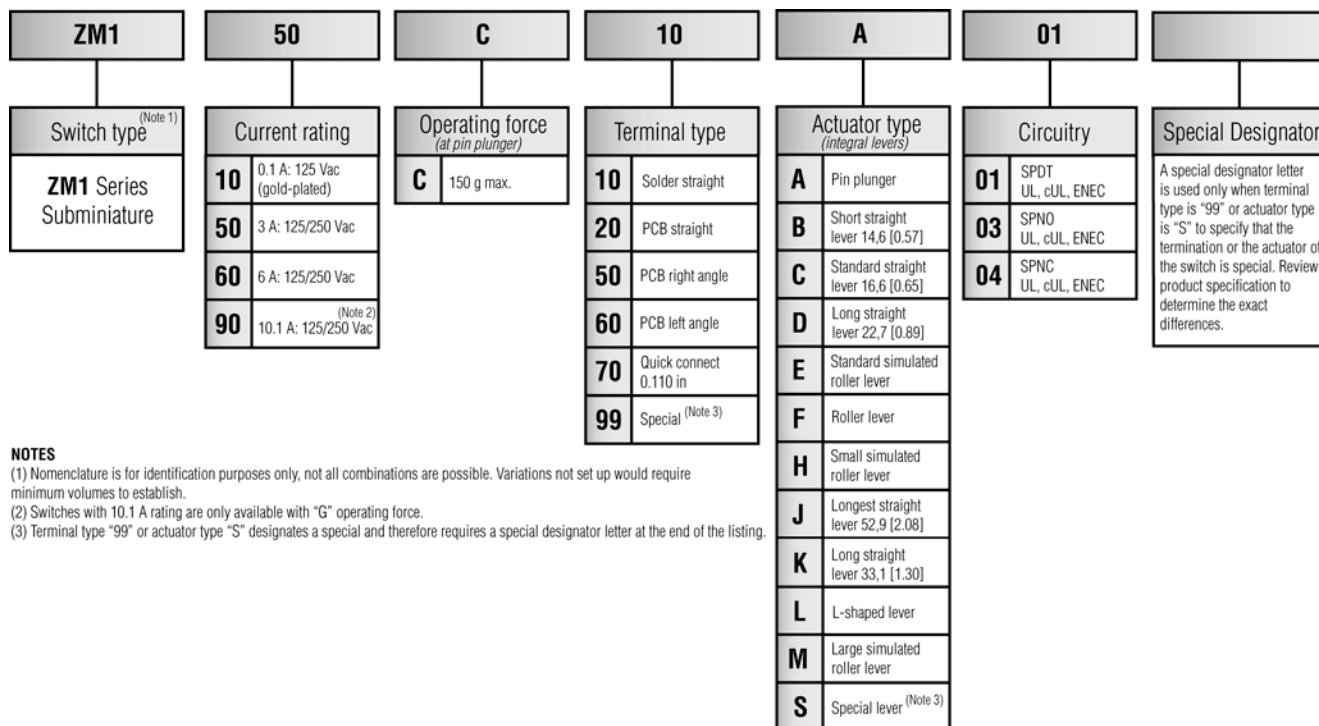
Snap-Action Switches

ZM SERIES NOMENCLATURE TREE



- NOTES**
- (1) Nomenclature is for identification purposes only, not all combinations are possible. Variations not set up would require minimum volumes to establish.
 - (2) Switches with 10.1 A rating are only available with "G" operating force.
 - (3) Terminal type "99" or actuator type "S" designates a special and therefore requires a special designator letter at the end of the listing.
 - (4) Establishing new nomenclature may require notification to UL and European approvals agencies.
 - (5) Lever length dimension is measured as follows: straight lever - from the center line of the pivot to the end of the plunger; roller lever or simulated roller lever - from the center line of the pivot point to the center line of the roller diameter.

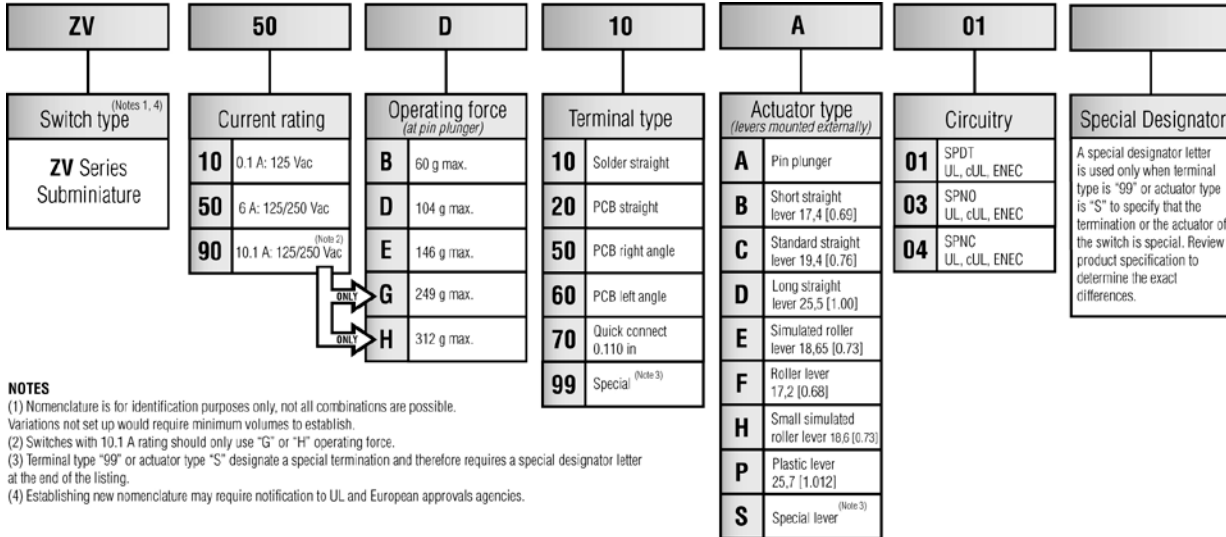
ZM1 SERIES NOMENCLATURE TREE



- NOTES**
- (1) Nomenclature is for identification purposes only, not all combinations are possible. Variations not set up would require minimum volumes to establish.
 - (2) Switches with 10.1 A rating are only available with "G" operating force.
 - (3) Terminal type "99" or actuator type "S" designates a special and therefore requires a special designator letter at the end of the listing.

MICRO SWITCH™ Standard Subminiature Snap-Action Z Series

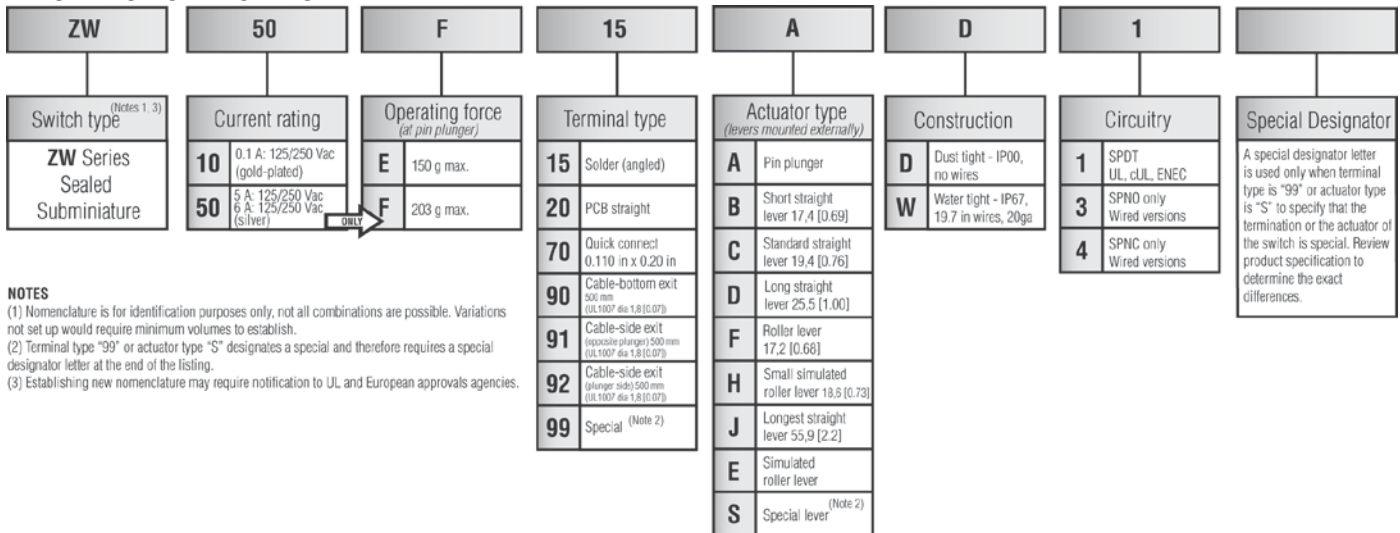
ZV SERIES NOMENCLATURE TREE



NOTES

- (1) Nomenclature is for identification purposes only, not all combinations are possible. Variations not set up would require minimum volumes to establish.
- (2) Switches with 10.1 A rating should only use "G" or "H" operating force.
- (3) Terminal type "99" or actuator type "S" designate a special termination and therefore requires a special designator letter at the end of the listing.
- (4) Establishing new nomenclature may require notification to UL and European approvals agencies.

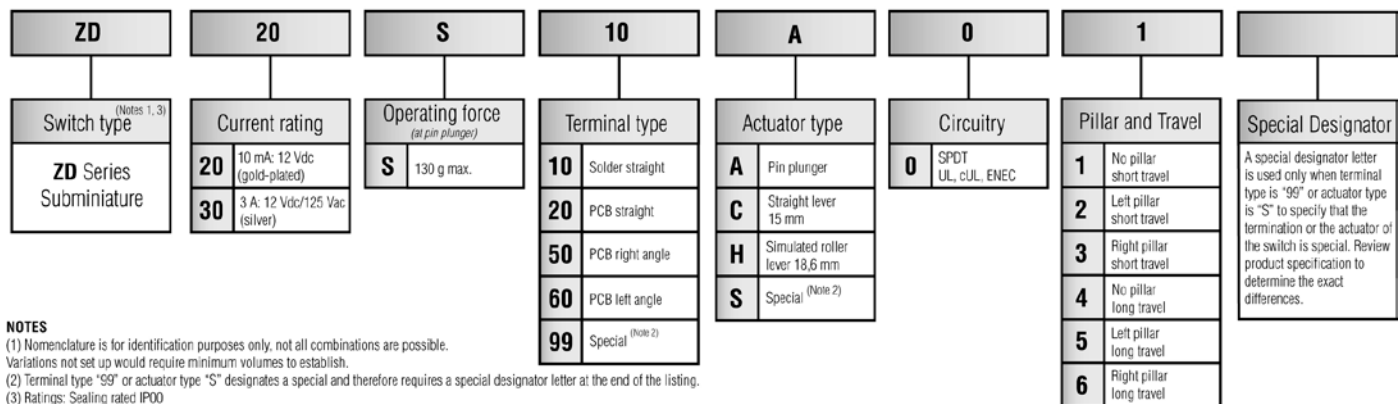
ZW SERIES NOMENCLATURE TREE



NOTES

- (1) Nomenclature is for identification purposes only, not all combinations are possible. Variations not set up would require minimum volumes to establish.
- (2) Terminal type "99" or actuator type "S" designates a special and therefore requires a special designator letter at the end of the listing.
- (3) Establishing new nomenclature may require notification to UL and European approvals agencies.

ZD SERIES (NO WIRES) NOMENCLATURE TREE

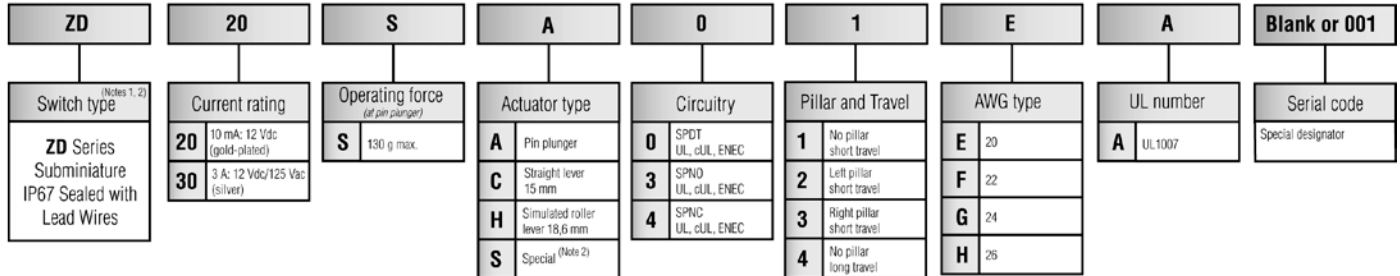


NOTES

- (1) Nomenclature is for identification purposes only, not all combinations are possible. Variations not set up would require minimum volumes to establish.
- (2) Terminal type "99" or actuator type "S" designates a special and therefore requires a special designator letter at the end of the listing.
- (3) Ratings: Sealing rated IP00

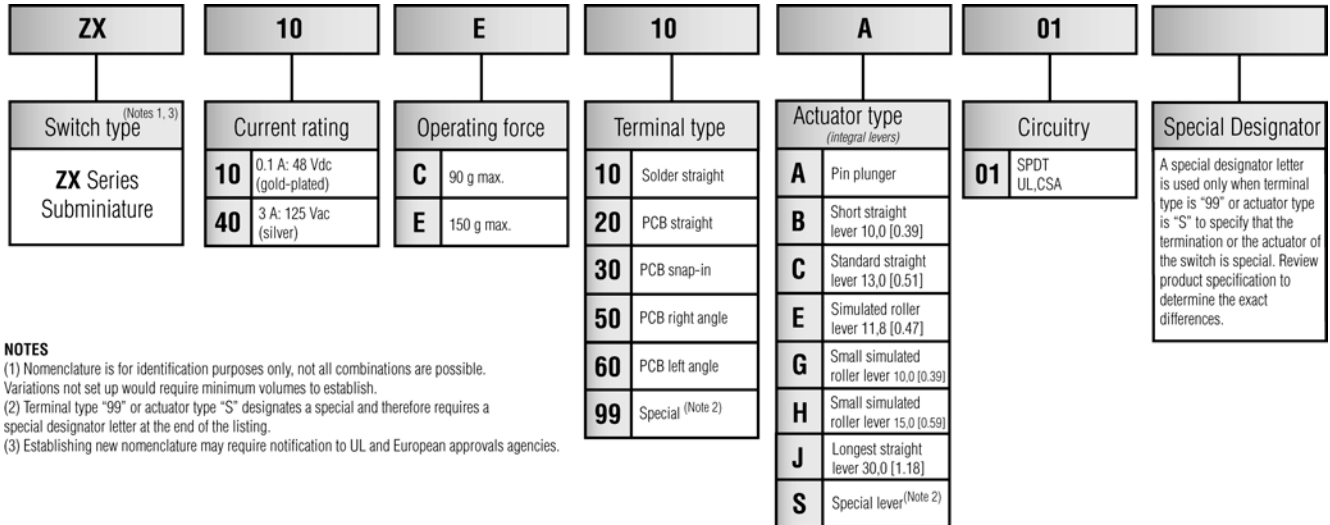
Snap-Action Switches

ZD SERIES (WITH WIRES) NOMENCLATURE TREE



NOTES
 (1) Nomenclature is for identification purposes only, not all combinations are possible. Variations not set up would require minimum volumes to establish.
 (2) Terminal type "99" or actuator type "S" designates a special and therefore requires a special designator letter at the end of the listing.

ZX SERIES NOMENCLATURE TREE



NOTES
 (1) Nomenclature is for identification purposes only, not all combinations are possible. Variations not set up would require minimum volumes to establish.
 (2) Terminal type "99" or actuator type "S" designates a special and therefore requires a special designator letter at the end of the listing.
 (3) Establishing new nomenclature may require notification to UL and European approvals agencies.

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 web site, 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.

SALES AND SERVICE

Honeywell serves its customers through a worldwide network of sales offices, representatives and distributors. For application assistance, current specifications, pricing or name of the nearest Authorized Distributor, contact your local sales office or:

E-mail: info.sc@honeywell.com

Internet: www.honeywell.com/sensing

Phone and Fax:

| | |
|---------------|-------------------------|
| Asia Pacific | +65 6355-2828 |
| | +65 6445-3033 Fax |
| Europe | +44 (0) 1698 481481 |
| | +44 (0) 1698 481676 Fax |
| Latin America | +1-305-805-8188 |
| | +1-305-883-8257 Fax |
| USA/Canada | +1-800-537-6945 |
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Honeywell

Компания «Океан Электроники» предлагает заключение долгосрочных отношений при поставках импортных электронных компонентов на взаимовыгодных условиях!

Наши преимущества:

- Поставка оригинальных импортных электронных компонентов напрямую с производств Америки, Европы и Азии, а так же с крупнейших складов мира;
- Широкая линейка поставок активных и пассивных импортных электронных компонентов (более 30 млн. наименований);
- Поставка сложных, дефицитных, либо снятых с производства позиций;
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- Помощь Конструкторского Отдела и консультации квалифицированных инженеров;
- Техническая поддержка проекта, помощь в подборе аналогов, поставка прототипов;
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- При необходимости вся продукция военного и аэрокосмического назначения проходит испытания и сертификацию в лаборатории (по согласованию с заказчиком);
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Компания «Океан Электроники» является официальным дистрибьютором и эксклюзивным представителем в России одного из крупнейших производителей разъемов военного и аэрокосмического назначения «JONHON», а так же официальным дистрибьютором и эксклюзивным представителем в России производителя высокотехнологичных и надежных решений для передачи СВЧ сигналов «FORSTAR».



JONHON

«JONHON» (основан в 1970 г.)

Разъемы специального, военного и аэрокосмического назначения:

(Применяются в военной, авиационной, аэрокосмической, морской, железнодорожной, горно- и нефтедобывающей отраслях промышленности)

«FORSTAR» (основан в 1998 г.)

ВЧ соединители, коаксиальные кабели, кабельные сборки и микроволновые компоненты:

(Применяются в телекоммуникациях гражданского и специального назначения, в средствах связи, РЛС, а так же военной, авиационной и аэрокосмической отраслях промышленности).



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