## MICRO SWITCH Weather-Sealed, Explosion-Proof Switches



## DESCRIPTION

Honeywell MICRO SWITCH CX switches are built especially for outdoor use in hazardous atmospheres. These enclosures are constructed to withstand the pressure of an internal explosion. Flame paths cool the exploded gases to a point less than the lowest safe operating temperature of the surrounding gas.

MICRO SWITCH 8OCX Series switches have rugged bronze housings that are designed to be resistant to salt water and other corrosive environments. They comply with the NEMA 4X requirement for protection against corrosion, in addition to NEMA enclosure standards met by other CX switches.

The product's o-ring seals make the enclosure rain tight, but are outside of required flame paths so explosion proof requirements are maintained. Unless special ordered, all basic switches operate on clockwise and counterclockwise rotation. The actuating mechanism can be field adjusted for CW or CCW operation only. No tools are required.

## FEATURES

- Certified for applicable portions of NEMA 7 and 9 for explosive environments
- Select CX switches are certified to ATEX, IEC Ex and KOSHA specifications for global applications
- NEMA 1,3, 4, 4X, 6, 6P and 13 sealing
- Watertight and dust-tight for outdoor use
- Meets hazardous area requirements
- UL Listed, file \#E14274 ${ }^{1}$
- CSA Certified, file \#LR57324 ${ }^{1}$
- ATEX certificate DEKRA 22ATEX0048X ${ }^{1}$
- IEC Ex certificate IECEx DEK 22.0033X¹
- KOSHA certificates: 20-AV4BO-0146X, 20AV4BO-0149X, 20-AV4BO-0150X, and 20-AV4BO-0151X1
- Choice of rugged cast aluminum or bronze housings
- Bronze housing offered for corrosion resistance
- Field-adjustability allows pretravel, overtravel and actuating sequence to be field adjusted without tools


## VALUE TO CUSTOMERS

- Building-block design allows for digital switching ouputs
- Weather sealed to NEMA and IP ratings
- UL, CSA, ATEX, IEC Ex, KOSHA certified for hazardous (explosive) environments. ${ }^{1}$
- Designed with the end user in mind, these switches help to create user-friendly interfaces with broad application possibilities to help meet the challenges of many different environments
- Available with gold contacts, low-temp seals and bronze corrosion-resistant housing


## INDUSTRIAL APPLICATIONS

- Seaside grain and fuel loading docks that may require explosion proof and corrosion-resistant switches
- Oil and gas wells, refineries and fuel storage facilities that may require explosion-proof and corrosion-resistant switches
- Chemical plants with corrosive environments


## PORTFOLIO

The CX Series joins an extensive line of limit switches designed specifically for dangerous indoor or outdoor locations. To learn more about the product, or the many other hazardous area switches in this series, click here.

| Characteristic | Parameter |
| :---: | :---: |
| Actuators | Side rotary (choice of levers), side rotary (with flat shaft), plunger actuator |
| Housing material | Aluminum with electrostatic epoxy coating or corrosion-resistant bronze |
| Termination | $3 / 4 \times 14$ NPT, M $25 \times 1,5 \mathrm{~mm}$ conduit |
| Sealing | NEMA 1, 3, 4, 4X, 6, 6P, and 13; IP66 |
| Hazardous area designations | NEMA 7: Class I, Div. 1 \& Div. 2, Groups B (14CX, 16CX, 24CX, 26CX, 36CX only), C, and D; <br> NEMA 9: Class II, Div. 1 \& Div. 2, Groups E, F, and G <br> ATEX/IEC Ex, KOSHA (Gas) II 2 G Ex db IIC T6 Gb <br> ATEX/IEC Ex, KOSHA (Dust) II 2 D Ex tb IIIC T85C Db |
| Operating Temperature | $-25^{\circ} \mathrm{C}$ to $85^{\circ} \mathrm{C}\left[-13^{\circ} \mathrm{F}\right.$ to $185^{\circ} \mathrm{F}$ ] |
| Agency Approvals ${ }^{1}$ | UL Listed, file \#E14274 <br> CSA Certified, file \#LR57324 <br> ATEX certificate DEKRA 22ATEX0048X <br> IEC Ex certificate DEK 22.0033X <br> KOSHA certificates 20-AV4BO-0146X, 20-AV4BO-0149X, 20-AV4BO-0150X, and 20-AV4BO-0151X |

${ }^{1}$ NOTE: All catalog listings do not carry all certifications. International Certifications are product specific and available upon request.
Please contact Honeywell for assistance.

| Rating Code | Switch Description | UL/CSA |
| :---: | :---: | :---: |
| A | BZ basic switch, SPDT | 15 A 120/240/480 Vac; $1 / 8 \mathrm{HP}, 120 \mathrm{Vac}$ $1 / 4 \mathrm{HP}, 240 \mathrm{Vac} ; 0.5 \mathrm{~A}, 125 \mathrm{Vdc} ; 0.25 \mathrm{~A}, 250 \mathrm{Vdc}$ |
| B | BA basic switch, SPDT | 20 A 120/240/480 Vac; 1 HP, $120 \mathrm{Vac} ; 2 \mathrm{HP}, 240 \mathrm{Vac} ;$ 0.5 A, $125 \mathrm{Vdc} ; 0.25 \mathrm{~A}, 250 \mathrm{Vdc}$ |
| C | DT basic switch, DPDT | 10 A 120/240/480 Vac, 0.3 A 125 Vdc ; 0.15 A, 250 Vdc |
| D | HS basic switch (hermetic seal), SPDT | $1 \mathrm{~A}, 125 \mathrm{Vac} ; 5 \mathrm{~A}, 28 \mathrm{Vdc}$ |
| F | BZ basic switch (gold contacts), SPDT | $1 \mathrm{~A}, 125 \mathrm{Vac}$ |

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Figure 1. Product Nomenclature


Other special configurations may be available.
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When factory assembled, all basic switches operate on a clockwise and counter clockwise rotation. The actuating mechanism can be field adjusted for CW or CCW oper


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ation only. No tools are required. For listings not shown, contact your Honeywell representative.

| erating Torque $[\mathrm{ln}-\mathrm{lb}]$ | Pretravel max. | Differential <br> Travel max. | Overtravel min. | Options | Comments |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Nm [4.42 in-lb] | $15^{\circ}$ | $10^{\circ}$ | $90^{\circ}$ | - | - |
| Nm [4.42 in-lb] | $15^{\circ}$ | $10^{\circ}$ | $90^{\circ}$ | ATEX/IEC EX/KOSHA certified | - |
| 5 Nm [11.1 in-lb] | $15^{\circ}$ | $10^{\circ}$ | $90^{\circ}$ | - | - |
| 5 Nm [11.1 in-lb] | $15^{\circ}$ | $10^{\circ}$ | $90^{\circ}$ | ATEX/IEC EX/KOSHA certified | - |
| 5 Nm [11.1 in-lb] | $15^{\circ}$ | $10^{\circ}$ | $90^{\circ}$ | - | Gold-plated switch contacts |
| 5 Nm [11.1 in-lb] | $15^{\circ}$ | $10^{\circ}$ | $90^{\circ}$ | Low-temperature seals | 1 switch operates CW, 1 switch operates CCW |
| Nm [4.42 in-lb] | $15^{\circ}$ | $10^{\circ}$ | $90^{\circ}$ | - | Cam provides $\sim 30^{\circ}$ actuation in $360^{\circ}$ rotation for each basic switch |
| Nm [4.42 in-lb] | $15^{\circ}$ | $10^{\circ}$ | $90^{\circ}$ | - | - |
| Nm [4.42 in-lb] | $15^{\circ}$ | $10^{\circ}$ | $90^{\circ}$ | Flat shaft for direct coupling | - |
| Nm [4.42 in-b] | $15^{\circ}$ | $10^{\circ}$ | $90^{\circ}$ | Flat shaft for direct coupling | 1 switch operates CW, 1 switch operates CCW |
| 5 Nm [11.1 in-lb] | $15^{\circ}$ | $10^{\circ}$ | $90^{\circ}$ | - | - |
| 5 Nm [11.1 in-lb] | $15^{\circ}$ | $10^{\circ}$ | $90^{\circ}$ | Threaded mounting holes, side (8) | - |
| 5 Nm [11.1 in-lb] | $15^{\circ}$ | $10^{\circ}$ | $90^{\circ}$ | Threaded mounting holes, side (8), ATEX/IEC EX/KOSHA certified | - |
| 5 Nm [11.1 in-lb] | $15^{\circ}$ | $10^{\circ}$ | $90^{\circ}$ | ATEX/IEC EX/KOSHA certified | 1 switch operates CW, 1 switch operates CCW |
| Nm [4.42 in-lb] | - | - | - | - | Cam provides approximately $30^{\circ}$ actuation in $360^{\circ}$ rotation for each basic switch |
| 5 Nm [11.1 in-lb] | $30^{\circ}$ | $25^{\circ}$ | $75^{\circ}$ | ATEX/IEC EX/KOSHA certified | - |
| 5 Nm [11.1 in-lb] | $30^{\circ}$ | $20^{\circ}$ | $75^{\circ}$ | - | Hermetically sealed basic switches |
| 5 Nm [11.1 in-lb] | $30^{\circ}$ | $20^{\circ}$ | $75^{\circ}$ | ATEX/IEC EX/KOSHA certified | Hermetically sealed basic switches |
| 5 Nm [11.1 in-lb] | $30^{\circ}$ | $20^{\circ}$ | $75^{\circ}$ | - | Hermetically sealed basic switches |
| 5 Nm [11.1 in-lb] | $30^{\circ}$ | $20^{\circ}$ | $75^{\circ}$ | Low-temperature seals | Hermetically sealed basic switches |
| Nm [4.42 in-lb] | $30^{\circ}$ | $20^{\circ}$ | $75^{\circ}$ | - | Hermetically sealed basic switches |
| 5 Nm [11.1 in-lb] | $15^{\circ}$ | $10^{\circ}$ | $90^{\circ}$ | - | - |
| Nm [4.42 in-lb] | $15^{\circ}$ | $10^{\circ}$ | $90^{\circ}$ | - | Two basic switches. 4 sets of cams \& return springs |
| Nm [4.42 in-lb] | $15^{\circ}$ | $10^{\circ}$ | $90^{\circ}$ | - | - |
| 5 Nm [11.1 in-lb] | $15^{\circ}$ | $10^{\circ}$ | $90^{\circ}$ | - | - |
| 5 Nm [11.1 in-lb] | $30^{\circ}$ | $25^{\circ}$ | $75^{\circ}$ | - | - |
| 5 Nm [11.1 in-lb] | $30^{\circ}$ | $20^{\circ}$ | $75^{\circ}$ | - | Hermetically sealed basic switches |
| Nm [4.42 in-lb] | $30^{\circ}$ | $20^{\circ}$ | $75^{\circ}$ | - | Hermetically sealed basic switches |
| Nm [4.42 in-lb] | $30^{\circ}$ | $20^{\circ}$ | $75^{\circ}$ | - | Hermetically sealed basic switches, two switches operate CW, two switches operate CCW |
| 5 Nm [11.1 in-lb] | $30^{\circ}$ | $25^{\circ}$ | $75^{\circ}$ | - | Threaded mounting holes, side (8) |
| 5 Nm [11.1 in-lb] | $15^{\circ}$ | $10^{\circ}$ | $90^{\circ}$ | - | - |
| 5 Nm [11.1 in-lb] | $15^{\circ}$ | $10^{\circ}$ | $90^{\circ}$ | Threaded mounting holes, side (8) | - |

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## ASSEMBLY MODIFICATIONS

## Modifies Shaft Enables Direct Coupling

CX switches are available with a 3/8-inch diameter by 3/4-inch long flatted shaft which conforms to standard NEMA motor shaft specifications. It accepts commercially available shaft couplers, permitting easy, direct coupling to most equipment actuators.

To specify a "direct-couple" CX switch: Add-DO1 to catalog listings shown in the order guides, i.e. 11CX12-DO1.

Flatted Shaft Version


## Mounting Holes

Add the letter A to listings with side mounting holes tapped 5/16-18(8). Example: 11CX2A

Add the letter B to listings with thru mounting holes tapped 3/8-24(4). Example: 11CX2B.

## CX Series Replacement Basic Switch Assemblies

These assemblies are factory-adjusted to the same operating characteristics as a new CX switch. They include components subject to mechanical or electrical wear: basic switches, cams, cam followers and springs.

To order, change the first number in the complete switch catalog listing to $\underline{9}$ for rotary switches. For example:

Rotary switch 11CX2 Replacement = 91 CX 2
Note: Basic switch assemblies for rotary-actuated switches, with or without spring return, will be the same

For example: 11CX2 and 11CX12 use 91CX2.

## Low-Temperature Switches

Add the letter C to listings for low temperature versions For example: $21 \mathrm{CX14C}=-40^{\circ} \mathrm{F}\left[-40^{\circ} \mathrm{C}\right]$ Rotary

## Mounting Brackets

15PA500-CX adapter bracket for mounting CX products to NAMUR footprint is available upon request.


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Levers for use with side-rotary-actuated switches are available in a wide choice of sizes and materials. The most common listings are shown below. Rollers may be on either side of the lever to best match the external actuating mechanism.


[^0]Non-sparking rollers and actuators must be used in hazardous areas.

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[^1]
## MICRO SWITCH WEATHER-SEALED, EXPLOSION PROOF SWITCHES CX SERIES

## DIMENSIONS MM[IN]

Figure 1. MICRO SWITCH CX - side rotary standard housing


Figure 2. MICRO SWITCH CX - side rotary short housing


Figure 3. MICRO SWITCH CX - plunger standard and short housing


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## ATEX COVER CLAMP ASSEMBLY

## For European Compliance

To specify a CX switch with ATEX, IEC Ex, or KOSHA certifications, add the letter "E" to the end of the catalog listing: 11CX2E


## WARRANTY/REMEDY

Honeywell warrants goods of its manufacture as being free of defective materials and faulty workmanship during the applicable warranty period. Honeywell's standard product warranty applies unless agreed to otherwise by Honeywell in writing; please refer to your order acknowledgment 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 that Honeywell, in its sole discretion, 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 Honeywell may provide application assistance personally, through our literature and the Honeywell web site, it is buyer's sole responsibility 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 writing. However, Honeywell assumes no responsibility for its use.

## $\triangle$ 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.

## $\triangle$ 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.

## For more information

Honeywell Advanced Sensing Technologies services its customers through a worldwide network of sales offices and distributors. For application assistance, current specifications, pricing, or the nearest Authorized Distributor,
visit sps.honeywell.com/ast or call:

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| :--- | :--- |
| Latin America | +13058058188 |
| Europe | +441344238258 |
| Japan | $+81(0) 3-6730-7152$ |
| Singapore | +6563552828 |
| Greater China | +864006396841 |

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[^0]:    ** May require orientation of switch and lever to enable gravity to help restore switch's free position.

[^1]:    * May require orientation of switch and lever to enable gravity to help restore switch to free position.

