# MICRO SWITCH ${ }^{\text {™ }}$ Electromechanical Safety Switches 



## DESCRIPTION

Honeywell's MICRO SWITCH ${ }^{\text {M }}$ GSS Series electromechanical safety switches are comprised of different groups of safety switches designed to either EN50041 or EN50047 standards. GSS Series safety switches are agency certified for global applications, and feature positive opening normally closed contacts $\leftrightarrow$. The switch's red body color easily identifies the switch for safety applications. Although these switches are designed for safety applications, they can also be applied in non-safety applications.

The GSA Series metal limit switches are designed to the EN50041 standard with the $30 \mathrm{~mm} \times 60 \mathrm{~mm}$ mounting pattern. Available with up to four contacts and a variety of actuator heads, the GSA Series limit switches are suitable for a wide variety of applications.

The GSC Series and GSE Series metal safety switches are designed with an integral hinge lever. The body of the switch is designed to the EN50047 standard with 20 mm to 22 mm mounting. For applications requiring a similar safety switch to the EN50047 standard with a high-strength thermoplastic housing and the integral hinge lever, the GSD Series safety switch can fill the need for this requirement. Where there is limited space on equipment or machinery, the GSC and GSD Series switches with the smaller housing are the preferred solution. As an alternative, the GSC, GSD, and GSE Series can be supplied with the traditional style of side rotary lever or top plunger actuation.

## FEATURES

- Epoxy coated metal zinc housing (GSA Series, GSC Series, or GSE Series)
- Glass-reinforced thermoplastic housing (GSD Series)
- Red body color for easy safety recognition
- Mounting to EN50041 (GSA Series), or EN50047 (GSC Series, GSD Series, and GSE Series)
- Choice of head/actuator types: pin plunger, roller plunger, side rotary standard lever, side rotary offset lever, top roller lever, or hinge lever
- Wide selection of NC (normally closed) and NO (normally open) contact options
- Different threaded conduit options for global applications
- Environmentally sealed for indoor or outdoor applications
- CE, CSA, and UL agency certifications
- Designed and agency evaluated for safety functions up to and including a SIL3 level (GSA and GSD Hinge Lever)


## POTENTIAL APPLICATIONS

- Gates, guards, or doors for:
- Agricultural and construction equipment
- Die cast machinery
- Elevators and moving stairs
- Machine tools
- Material handling
- Packaging machinery
- Plastic molding machinery
- Scissor/platform lifts
- Special purpose machinery


## DIFFERENTIATION

- Up to four electrically independent contacts for control and monitoring as required
- Gold contacts available for low energy applications
- Side rotary actuator incorporates dual bearing design for increased life
- Specialty contact option, sequential action (GSA Series)
- Catalog listings designed and evaluated up to and including a safety integrity level 3 (SIL3) per IEC 61508-2:2010 (GSA Series and GSD Hinge Lever Series)


## VALUE TO CUSTOMERS

- Operating heads can be rotated in $90^{\circ}$ increments for installation flexibility
- All NC contacts (normally closed contacts) are positive opening when actuated
- Removable contact block for ease of wiring



## MICRO SWITCH ${ }^{\text {TM }}$ Electromechanical Safety Switches, GSS Series

Table 1. Specifications

| Characteristic | Parameter |
| :---: | :---: |
| Description | GSA Safety Switch Series: EN50041 mounting ( $30 \mathrm{~mm} \times 60 \mathrm{~mm}$ ) GSC/GSD/GSE Safety Switch Series: EN50047 mounting ( 20 mm to 22 mm ) |
| Certifications | CE; DOC \# 231, EN/IEC 60947-5-1 CSA; File 57323, CSA C22.2 No. 14 UL; File E37138, UL508 |
| Housing material | GSA/GSC/GSE Series; electrostatic epoxy coated die-cast zinc GSD Series; high strength glass-filled thermoplastic |
| Actuator heads | GSA Series: Side rotary, top pin plunger, top roller plunger, top roller lever GSC/GSD/GSE Series: hinge lever positioned at left, top, or right position |
| Conduit/electrical connection ${ }^{1}$ | 0.5-14 NPT; 20 mm; PG 13,5; G1/2 (PF1/2) |
| Contact/switch options ${ }^{2}$ | GLA \& GLE Series; 1NC/1NO, 2NC, 2NC/2NO, 3NC/1NO, 4NC GLC \& GLD Series; 1NC/1NO, 2NC |
| Contact type | Snap action, snap action sequential (2 step), slow action break-before-make (BBM), slow action make-before-break (MBB), slow action |
| Contact design | Double break, electrically separated |
| Contact material | Silver alloy (standard), gold-plated (low energy applications) |
| Utilization category | AC-15, A300/A600³; DC-13, Q300 |
| Rated operational voltage (Ue) | $240 \mathrm{Vac}, 600 \mathrm{Vac}, 250 \mathrm{Vdc}$ |
| Rated operational current (le) | $3 \mathrm{~A}, 1.2 \mathrm{~A}, 0.27 \mathrm{~A}$ |
| Thermal current (lth) | 10 A |
| Rated insulation voltage (Ui) | $300 \mathrm{~V}, 600 \mathrm{~V}$ |
| Rated impulse withstand voltage (Uimp) | 2500 V |
| Short circuit protective device (SCPD) | Class J fuse (10 A/600 V) |
| Pollution degree | 3 |
| Environmental sealing | GSA Series (metal body): IP67, NEMA 1, 4, 12, and 13 GSC \& GSE Series (metal body): IP66, NEMA 1, 4, 12, and 13 GSD Series (plastic body): IP66/67, NEMA 1, 4X (indoor), 12, and 13 |
| Operating temperature | GSA Series with side rotary actuator head: $-40^{\circ} \mathrm{C}$ to $85^{\circ} \mathrm{C}\left[-40^{\circ} \mathrm{F}\right.$ to $\left.185^{\circ} \mathrm{F}\right]$ GSA Series without side rotary actuator head: $-25^{\circ} \mathrm{C}$ to $85^{\circ} \mathrm{C}\left[-13^{\circ} \mathrm{F}\right.$ to $\left.185^{\circ} \mathrm{F}\right]$ GSC/GSD/GSE Series: $-25^{\circ} \mathrm{C}$ to $85^{\circ} \mathrm{C}$ [ $-13^{\circ} \mathrm{F}$ to $185^{\circ} \mathrm{F}$ ] |
| Shock | 50 G per IEC 60068-2-27 |
| Vibration | 10 G per IEC 60068-2-6 |
| MCTF (Mechanical life) | GSA Series: >1,000,000 cycles with single-sided confidence limit of $100 \%$ GSD Series (hinge lever actuator): $>1,000,000$ cycles |
| MCTF (Electrical life) | GSA Series: >25,000 cycles with single-sided confidence limit of $100 \%$ GSD Series (hinge lever actuator): $>25,000$ cycles with single-sided confidence limit of $100 \%$ |
| SIL capability | GSA \& GSD Series (hinge lever actuator); IEC 61508-2:2010; SIL2 capable with HFT=0*; SIL3 capable with HFT=1* |
| Proof test interval | 1 year |

${ }^{1}$ GSE Series has three (3) threaded conduits.
${ }^{2}$ All normally closed (NC) contacts are positive opening
${ }^{3}$ A600 for GSA Series only. GSA Series with 2NC contacts (06 or 36 switch code) limited to A300.

* Hardware Fault Tolerance (HFT)


## MICRO SWITCH ${ }^{\text {M }}$ Electromechanical Safety Switches, GSS Series

Table 2. Electrical Rating

| ac |  |  |  | dc |  |  |  | gold-plated contacts |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| A300/A600** | AC15 |  |  | Ue | $\begin{array}{c\|} \hline \text { le } \\ \hline \text { Amps } \\ \hline \end{array}$ | VA Rating |  |  |
| Ue | le | VA Rating |  |  |  |  |  | $1 \mathrm{~V} 10 \mu \mathrm{Amin}$. |
| Volts | Amps | Make | Break | Volts |  | Make | Break | 50 V 100 mA max. |
| 120 | 6 | 7200 | 720 | 24 | 2.8 | 69 | 69 |  |
| 240 | 3 | 7200 | 720 | 125 | 0.55 | 69 | 69 |  |
| 380* | 1.9 | 7200 | 720 | 250 | 0.27 | 69 | 69 |  |
| 480* | 1.5 | 7200 | 720 |  |  |  |  |  |
| 500* | 1.4 | 7200 | 720 |  |  |  |  |  |
| 600* | 1.2 | 7200 | 720 |  |  |  |  |  |

*GSA Series only. GSA Series with 2NC contacts (06 or 36 switch code) limited to A300.

Figure 1. GSA Safety Switch Application
Two GSA limit switches used to monitor gate position.


Figure 2. GSS Hinge Safety Switch Application
Hinge-lever safety switches used to monitor gate position.


## MICRO SWITCH ${ }^{\text {™ }}$ Electromechanical Safety Switches, GSS Series

Figure 3. Product Nomenclature: GSA Series Safety Switch


Figure 4. Product Nomenclature: GSS Series Hinge Safety Switch


## MICRO SWITCH ${ }^{\text {M }}$ Electromechanical Safety Switches, GSS Series

Figure 5. GSS Series Product Circuitry/Switch Code

| Available for GSA Switches Only |  |
| :---: | :---: |
| 01 | $\Theta$ |
| 03 33 |  |
| $\begin{aligned} & 04 \\ & 34 \end{aligned}$ |  |
| 06 36 |  |
| $\begin{aligned} & 20 \\ & 22 \end{aligned}$ | $\Theta$ <br>  |
|  |  |
| $\begin{aligned} & 40 \\ & 41 \end{aligned}$ |  |
| $\begin{aligned} & 42 \\ & 43 \end{aligned}$ | 2 NORMALLY CLOSED I NORMALLY OPEN BREAK BEFORE MAKE Y |
| $\begin{aligned} & 44 \\ & 45 \end{aligned}$ | NORMALLY CLOSED 2 NORMALLY OPEN BREAK BEFORE MAKE <br> $\Theta$ |
| $\begin{aligned} & 46 \\ & 47 \end{aligned}$ | 3 NORMALLYY CLOSED/ I NORMALLY OPEN BREAK BEFORE MAKE <br> $\rightarrow$ <br>  |



## MICRO SWITCH ${ }^{\text {M }}$ Electromechanical Safety Switches, GSS Series

Table 3. GSA Safety Switch (Side Rotary) with 0.5-14NPT Conduit Order Guide

*Other conduit options are available, reference Product Nomenclature on page 4.
**Positive opening occurs.

## MICRO SWITCH ${ }^{\text {M }}$ Electromechanical Safety Switches, GSS Series

Table 4. GSA Safety Switch (Top Plunger) with 0.5 -14NPT Conduit Order Guide


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## MICRO SWITCH ${ }^{\text {TM }}$ Electromechanical Safety Switches, GSS Series

Table 5. GSC, GSD, GSE Safety Switch (Hinge) with 0.5-14NPT Conduit Order Guide

|  | Catalog Listing with 0.5-14 NPT Conduit* | Hinge Lever Position on Head (safety contacts closed) | Body Material | Contacts | Contact Material | Operating Torque max. | Bar Chart (degrees) contact closed contact open |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | GSCA01S1 | Left | Metal | 1NC/1NO snap action | Silver alloy | $\begin{aligned} & 0,12 \mathrm{Nm} \\ & {[1.1 \mathrm{in}-\mathrm{lb}]} \end{aligned}$ |  |
|  | GSCA07S1 | Left | Metal | 1NC/1NO snap action | Gold plated | $\begin{gathered} 0,12 \mathrm{Nm} \\ {[1.1 \mathrm{in}-\mathrm{lb}]} \end{gathered}$ |  |
|  | GSCA03S1 | Left | Metal | 1NC/1NO slow action, BBM | Silver alloy | $\begin{aligned} & 0,12 \mathrm{Nm} \\ & {[1.1 \mathrm{in}-\mathrm{lb}]} \end{aligned}$ |  |
|  | GSCA33S1 | Left | Metal | 1NC/1NO slow action, BBM | Gold plated | $\begin{aligned} & \text { 0,12 } \mathrm{Nm} \\ & {[1.1 \mathrm{in}-\mathrm{lb}]} \end{aligned}$ |  |
|  | GSCA06S1 | Left | Metal | 2NC slow action | Silver alloy | $\begin{gathered} 0,12 \mathrm{Nm} \\ {[1.1 \mathrm{in}-\mathrm{lb}]} \end{gathered}$ |  |
|  | GSCA01S2 | Top | Metal | 1NC/1NO snap action | Silver alloy | $\begin{gathered} 0,12 \mathrm{Nm} \\ {[1.1 \mathrm{in}-\mathrm{lb}]} \end{gathered}$ |  |
|  | GSCA03S2 | Top | Metal | 1NC/1NO slow action, BBM | Silver alloy | $\begin{gathered} 0,12 \mathrm{Nm} \\ {[1.1 \mathrm{in}-\mathrm{lb}]} \end{gathered}$ |  |
|  | GSCA06S2 | Top | Metal | 2NC slow action | Silver alloy | $\begin{gathered} 0,12 \mathrm{Nm} \\ {[1.1 \mathrm{in}-\mathrm{lb}]} \end{gathered}$ | $\underset{11^{\circ * *} 5^{\circ}}{\Rightarrow} 0^{\circ} 5^{\circ}{ }_{11^{\circ * *}}$ |
|  | GSCA36S2 | Top | Metal | 2NC slow action | Gold plated | $\begin{gathered} 0,12 \mathrm{Nm} \\ {[1.1 \mathrm{in}-\mathrm{lb}]} \end{gathered}$ | $\begin{array}{llll} 11-12 & 90^{\circ} & 11^{\circ} & \frac{1}{\circ} \\ \hline 11^{\circ} & \\ \hline \end{array}$ |
|  | GSCA01S3 | Right | Metal | 1NC/1NO snap action | Silver alloy | $\begin{aligned} & 0,12 \mathrm{Nm} \\ & {[1.1 \mathrm{in}-\mathrm{lb}]} \end{aligned}$ |  |
|  | GSCA07S3 | Right | Metal | 1NC/1NO snap action | Gold plated | $\begin{gathered} 0,12 \mathrm{Nm} \\ {[1.1 \mathrm{in}-\mathrm{lb}]} \end{gathered}$ |  |
|  | GSCA03S3 | Right | Metal | 1NC/1NO slow action, BBM | Silver alloy | $\begin{gathered} 0,12 \mathrm{Nm} \\ {[1.1 \mathrm{in}-\mathrm{lb}]} \end{gathered}$ |  |
|  | GSCA06S3 | Right | Metal | 2NC slow action | Silver alloy | $\begin{gathered} 0,12 \mathrm{Nm} \\ {[1.1 \mathrm{in}-\mathrm{lb}]} \end{gathered}$ |  |

[^1]** Positive opening occurs.

## MICRO SWITCH ${ }^{\text {M }}$ Electromechanical Safety Switches, GSS Series

Table 5. GSC, GSD, GSE Safety Switch (Hinge) with 0.5-14NPT Conduit Order Guide, continued

|  | Catalog Listing with 0.5-14 NPT Conduit* | Hinge Lever Position on Head (safety contacts closed) | Body Material | Contacts | Contact Material | Operating Torque max. | Bar Chart (degrees) contact closed contact open |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | GSDA01S1 | Left | Plastic | 1NC/1NO snap action | Silver alloy | $\begin{gathered} 0,12 \mathrm{Nm} \\ {[1.1 \mathrm{in}-\mathrm{lb}]} \end{gathered}$ |  |
|  | GSDA03S1 | Left | Plastic | 1NC/1NO slow action, BBM | Silver alloy | $\begin{gathered} 0,12 \mathrm{Nm} \\ {[1.1 \mathrm{in}-\mathrm{lb}]} \end{gathered}$ |  |
|  | GSDA06S1 | Left | Plastic | 2NC slow action | Silver alloy | $\begin{gathered} 0,12 \mathrm{Nm} \\ {[1.1 \mathrm{in}-\mathrm{lb}]} \end{gathered}$ |  |
|  | GSDA01S2 | Top | Plastic | 1NC/1NO snap action | Silver alloy | $\begin{aligned} & 0,12 \mathrm{Nm} \\ & {[1.1 \mathrm{in}-\mathrm{lb}]} \end{aligned}$ |  |
|  | GSDA03S2 | Top | Plastic | 1NC/1NO slow action, BBM | Silver alloy | $\begin{gathered} 0,12 \mathrm{Nm} \\ {[1.1 \mathrm{in}-\mathrm{lb}]} \end{gathered}$ |  |
|  | GSDA06S2 | Top | Plastic | 2NC slow action | Silver alloy | $\begin{gathered} 0,12 \mathrm{Nm} \\ {[1.1 \mathrm{in}-\mathrm{lb}]} \end{gathered}$ |  |
|  | GSDA01S3 | Right | Plastic | 1NC/1NO snap action | Silver alloy | $\begin{gathered} 0,12 \mathrm{Nm} \\ {[1.1 \mathrm{in}-\mathrm{lb}]} \end{gathered}$ |  |
|  | GSDA03S3 | Right | Plastic | 1NC/1NO slow action, BBM | Silver alloy | $\begin{aligned} & 0,12 \mathrm{Nm} \\ & {[1.1 \mathrm{in}-\mathrm{lb}]} \end{aligned}$ |  |
|  | GSDA06S3 | Right | Plastic | 2NC slow action | Silver alloy | $\begin{gathered} 0,12 \mathrm{Nm} \\ {[1.1 \mathrm{in}-\mathrm{lb}]} \end{gathered}$ |  |

[^2]** Positive opening occurs.

## MICRO SWITCH ${ }^{\text {M }}$ Electromechanical Safety Switches, GSS Series

Table 5. GSC, GSD, GSE Safety Switch (Hinge) with 0.5-14NPT Conduit Order Guide, continued

|  | Catalog Listing with 0.5-14 NPT Conduit* | Hinge Lever Position on Head (safety contacts closed) | Body Material | Contacts | Contact Material | Operating Torque max. | Bar Chart (degrees) <br> contact closed contact open |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Three Conduits | GSEA44S1 | Left | Metal | 2NC/2NO slow action, BBM | Silver alloy | $\begin{gathered} 0,12 \mathrm{Nm} \\ {[1.1 \mathrm{in}-\mathrm{lb}]} \end{gathered}$ |  |
|  | GSEA46S1 | Left | Metal | 3NC/1NO slow action, BBM | Silver alloy | $\begin{gathered} 0,12 \mathrm{Nm} \\ {[1.1 \mathrm{in}-\mathrm{lb}]} \end{gathered}$ |  |
|  | GSEA41S1 | Left | Metal | 4NC slow action | Goldplated | $\begin{gathered} 0,12 \mathrm{Nm} \\ {[1.1 \mathrm{in}-\mathrm{lb}]} \end{gathered}$ |  |
|  | GSEA44S2 | Top | Metal | 2NC/2NO slow action, BBM | Silver alloy | $\begin{gathered} 0,12 \mathrm{Nm} \\ {[1.1 \mathrm{in}-\mathrm{lb}]} \end{gathered}$ |  |
|  | GSEA46S2 | Top | Metal | 3NC/1NO slow action, BBM | Silver alloy | $\begin{gathered} 0,12 \mathrm{Nm} \\ {[1.1 \mathrm{in}-\mathrm{lb}]} \end{gathered}$ |  |
|  | GSEA40S2 | Top | Metal | 4NC slow action | Silver alloy | $\begin{gathered} 0,12 \mathrm{Nm} \\ {[1.1 \mathrm{in}-\mathrm{lb}]} \end{gathered}$ |  |
|  | GSEA41S2 | Top | Metal | 4NC slow action | Goldplated | $\begin{aligned} & 0,12 \mathrm{Nm} \\ & {[1.1 \mathrm{in}-\mathrm{lb}]} \end{aligned}$ |  |
|  | GSEA44S3 | Right | Metal | 2NC/2NO slow action, BBM | Silver alloy | $\begin{gathered} 0,12 \mathrm{Nm} \\ {[1.1 \mathrm{in}-\mathrm{lb}]} \end{gathered}$ |  |
|  | GSEA46S3 | Right | Metal | 3NC/1NO slow action, BBM | Silver alloy | $\begin{gathered} 0,12 \mathrm{Nm} \\ {[1.1 \mathrm{in}-\mathrm{lb}]} \end{gathered}$ |  |
|  | GSEA41S3 | Right | Metal | 4NC slow action | Goldplated | $\begin{gathered} 0,12 \mathrm{Nm} \\ {[1.1 \mathrm{in}-\mathrm{lb}]} \end{gathered}$ |  |

[^3][^4]
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Figure 4. GSA Side Rotary (Head Code A1) Dimensions


Figure 6. GSA Pin Plunger (Head Code B) Dimensions


Figure 8. GSA Roller Arm (Head Code D) Dimensions


Figure 5. GSA Side Rotary (Head Code A5) Dimensions


Figure 7. GSA Roller Plunger (Head Code C) Dimensions


Figure 9. GSA Pin Plunger (Head Code R) Dimensions


## MICRO SWITCH ${ }^{\text {™ }}$ Electromechanical Safety Switches, GSS Series

Figure 10. GSC/GSD Series with Hinge Overall Dimensions mm [in]


Figure 11. GSE Series with Hinge Overall Dimensions mm [in]




Actuator Code 3

## . WARNING <br> RISK TO LIFE OR PROPERTY

Never use this product for an application involving serious risk to life or property without ensuring that the system as a whole has been designed to address the risks, and that this product is properly rated and installed for the intended use within the overall system.
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.


## 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.

## Honeywell


[^0]:    Other conduit options are available, reference Product Nomenclature on page 4.
    **Positive opening occurs.

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