

# SIGUARD Safety Systems – Safety Integrated

## SIGUARD Position Switches



**3SE. 100 to 3SE. 150 / 3SE. 404**  
Metal enclosure

### Operation, operating speed and travel or angle of actuators

#### 2 contacts · Narrow and wide enclosure

Bars, cams, stops, etc. are used as actuating devices. The shape of the actuating device must provide the given angles for the leading and trailing edges.

For operation from the side, sparingly greased steel, POM (polyoxymethylene or polyacetal) or PA (polyamide) should be used as cam and bar material.

#### Operating speed along plunger axis

The actuating speed in the case of position switches with slow-action contacts is not permitted

to go lower than 15 mm/s for DC and 1 mm/s for AC. Position switches with snap-action contacts should be used when the speeds are lower.

#### 3SE3 404 position switches · 4 contacts · Wide enclosure

The data for operation, operating speed, travel and angle of operation is the same as for the

position switches with 2 switch blocks.

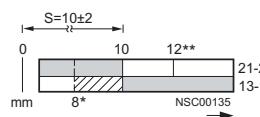
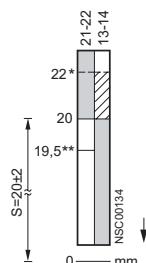
Two switch blocks with 2 contacts are used for position switches with 4 contacts.

| Operation by a bar   | Switch blocks                          | Nominal travel<br>and related terminals  | Switch blocks   | Nominal travel<br>and related terminals |
|--|--|--|---|---|
| <ul style="list-style-type: none"> <li>○ operating pt acc. to EN 50 041</li> <li><math>v_{max}</math> max. operating speed</li> <li>0-line ref. line acc. to EN 50 041</li> <li>H travel difference</li> <li>→ direction of operation</li> </ul> | Terminal designation acc. to EN 50 013 | 0-line<br>S<br><br>*<br>**<br>reference line acc. to EN 50 041<br>travel acc. to EN 50 041<br>contact closed<br>contact open<br>operating point on return<br>positive opening acc. to IEC 60 947-5-1 |   |   |
| <b>Plunger</b>   |  |  |   |   |
| <b>3SE. 100-B,<br/>3SE. 120-B,<br/>3SE. 404-B</b>  |  |  |   |   |
| <br>NSCO 00126a<br>Narrow enclosure<br><br>NSCO 00130<br>Narrow enclosure  |  |  | along plunger axis<br>perpendicular to plunger axis<br>along plunger axis |   |
| $v_{max} = 1.5 \text{ m/s}$  |  |  |   |   |
| $v_{max} = 0.5 \text{ m/s}$  |  |  |   |   |
| Minimum force required in direction of operation: 12 N   |  |  |   |   |
| <b>Slow-action contacts</b>  |  |  |   |   |
| <b>1 NC + 1 NO</b>   |  |  | <b>2 NC</b>   |   |
| <br>3SE3 000-0A,<br>3SE3 010-0A,<br>Ident. No. 11  |  | <br>3SE3 000-6A,<br>Ident. No. 02  |   |   |
| <br>NSC00128   |  | <br>NSC00129   |   |   |
| $S=22\pm 2$ mm   |  | $S=10\pm 2$ mm   |   |   |
| $19$ mm  |  | $9.5^{**}$ mm  |   |   |
| $22^{**}$ mm   |  | $13-1$   |   |   |
| <b>Snap-action contacts</b>  |  |  |   |   |
| <b>1 NO + 1 NC<br/>with make-before-break</b>  |  |  | <b>2 NO</b>   |   |
| <br>3SE3 000-3A,<br>3SE3 010-3A,<br>Ident. No. 11  |  | <br>3SE3 000-7A,<br>Ident. No. 20  |   |   |
| <br>NSC00131   |  | <br>NSC00127   |   |   |
| $S=19.5\pm 2$ mm   |  | $S=20.5\pm 2$ mm   |   |   |
| $19$ mm  |  | $20.5$ mm  |   |   |
| $19.5^{**}$ mm   |  | $19.52$ mm   |   |   |

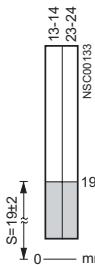
#### Snap-action contacts

##### 1 NC + 1 NO

3SE3 000-1A,  
3SE3 010-1A,  
Ident. No. 11



$S=10\pm 2$  mm  
 $8^*$  mm  
 $10$  mm  
 $12^{**}$  mm  
 $13-1$



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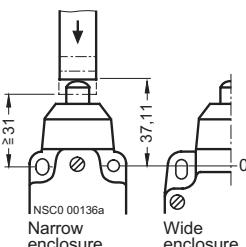
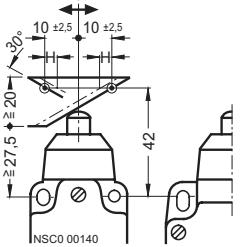
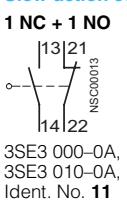
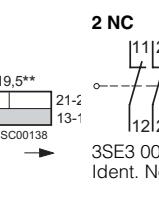
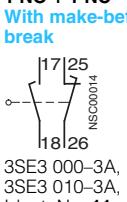
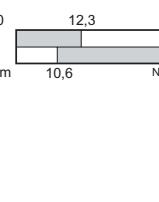
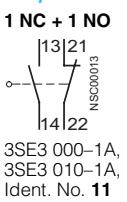
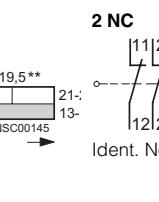
## SIGUARD Position Switches



**3SE. 100 to 3SE. 150 / 3SE. 230 / 3SE. 404**  
Moulded plastic / metal enclosure

### Operation, operating speed and travel or angle of actuators

#### 2 contacts · Narrow and wide enclosure

| Operation by a bar  | Switch blocks   | Nominal travel<br>and related terminals   | Switch blocks  | Nominal travel<br>and related terminals |
|---|---|---|--|---|
| $\odot$<br>$v_{max}$<br>$O\text{-line}$<br>$H$<br>$\rightarrow$   | operating pt acc. to EN 50 041<br>max. operating speed<br>ref. line acc. to EN 50 041<br>travel difference<br>direction of operation  | Terminal designation<br>acc. to EN 50 013 | 0-line<br>S<br>*<br>**<br>reference line acc. to EN 50 041<br>travel acc. to EN 50 041<br>contact closed<br>contact open<br>operating point on return<br>positive opening acc. to IEC 60 947-5-1 |   |
| <b>Overtravel plunger, Type B</b>   |   |   |  |   |
| <b>Slow-action contacts</b>   |   |   |  |   |
| <b>3SE. 100-C,<br/>3SE. 120-C,<br/>3SE. 230-C,<br/>3SE. 404-C</b><br><br><br>$v_{max} = 1.5 \text{ m/s}$<br><br> | <b>1 NC + 1 NO</b><br><br><b>3SE3 000-0A,<br/>3SE3 010-0A,<br/>Ident. No. 11</b>                             | along plunger axis<br>$S=35 \pm 2$ mm     | <b>2 NC</b><br><br><b>3SE3 000-6A,<br/>Ident. No. 02</b>  | along plunger axis<br>$S=34.5 \pm 2$ mm |
| <b>3SE3 000-3A,<br/>3SE3 010-3A,<br/>Ident. No. 11</b>  | <b>1 NO + 1 NC<br/>With make-before-break</b><br><br><b>3SE3 000-3A,<br/>3SE3 010-3A,<br/>Ident. No. 11</b> | $S=33.5 \pm 2$ mm                         | <b>2 NO</b><br><br><b>3SE3 000-7A,<br/>Ident. No. 20</b>  | $S=32.5 \pm 2$ mm                       |
| <b>Snap-action contacts</b>   |   |   |  |   |
| $v_{max} = 0.5 \text{ m/s}$<br>Minimum force required in direction of operation: 32 N   | <b>1 NC + 1 NO</b><br><br><b>3SE3 000-1A,<br/>3SE3 010-1A,<br/>Ident. No. 11</b>                           | $S=34.5 \pm 2$ mm<br>$>31^{**}$ mm        | <b>2 NC</b><br><br><b>Ident. No. 02</b>   | $S=34.5 \pm 2$ mm<br>$35.5^*$ mm        |

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## SIGUARD Position Switches



**3SE. 100 to 3SE. 150 / 3SE. 230 / 3SE. 404**  
Moulded plastic / metal enclosure

### Operation, operating speed and travel or angle of actuators

#### 2 contacts · Narrow and wide enclosure

| Operation by a bar   | Switch blocks                                 | Nominal travel<br>and related terminals   | Switch blocks                         | Nominal travel<br>and related terminals |
|--|---|---|---------------------------------------|---|
| <p>○ operating pt acc. to EN 50 041<br/> <math>v_{max}</math> max.operating speed<br/>         0-line ref. line acc. to EN 50 041<br/>         H travel difference<br/> <math>\rightarrow</math> direction of operation</p>  | Terminal designation<br>acc. to EN 50 013     | <p>O-line reference line acc. to EN 50 041<br/>         S travel acc. to EN 50 041<br/>  contact closed<br/>  contact open<br/> <math>*</math> operating point on return<br/> <math>**</math> positive opening acc. to IEC 60 947-5-1</p> |                                       |   |
| <b>Roller plunger, type C</b>  |   | along plunger axis  | perpendicular to plunger axis         | along plunger axis                      |
| <b>3SE. 100-D,<br/>3SE. 120-D,<br/>3SE. 230-D,<br/>3SE. 404-D</b>  |   |   |                                       |   |
| <p>NSC0 00150a<br/>Narrow enclosure</p> <p>Wide enclosure</p> <p><math>v_{max.} = 1.5 \text{ m/s}</math></p> <p>NSC0 00464<br/>Narrow enclosure</p> <p>Wide enclosure</p> <p><math>v_{max.} = 1 \text{ m/s}</math> (3SE3 230-1D),<br/> <math>v_{max.} = 0.5 \text{ m/s}</math> (3SE3 1.0-1D),<br/>         Minimum force required<br/>         in direction of operation: 32 N</p> |   |   |                                       |   |
| <b>Slow-action contacts</b>  |   |   |                                       |   |
|  | <b>1 NC + 1 NO</b>                            | <p>3SE3 000-0A,<br/>3SE3 010-0A,<br/>Ident. No. 11</p>  | <p>3SE3 000-6A,<br/>Ident. No. 02</p> |   |
|  | <b>1 NO + 1 NC<br/>With make-before-break</b> | <p>3SE3 000-3A,<br/>3SE3 010-3A,<br/>Ident. No. 11</p>  | <p>3SE3 000-7A,<br/>Ident. No. 20</p> |   |
| <b>Snap-action contacts</b>  |   |   |                                       |   |
|  | <b>1 NC + 1 NO</b>                            | <p>3SE3 000-1A,<br/>3SE3 010-1A,<br/>Ident. No. 11</p>  |                                       |   |
|  |   |   |                                       |   |

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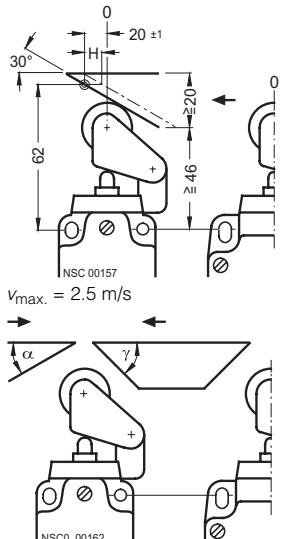
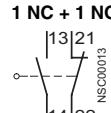
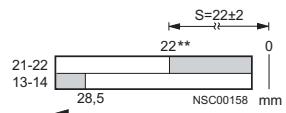
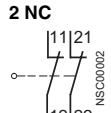
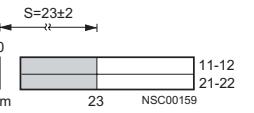
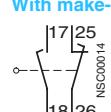
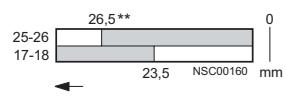
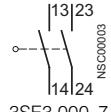
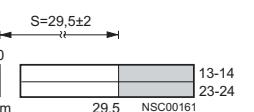
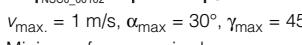
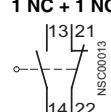
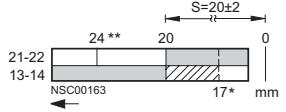
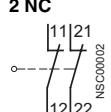
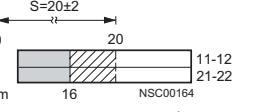
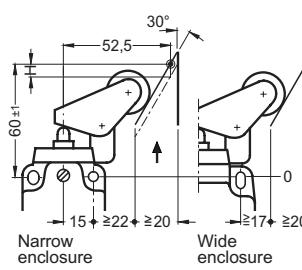
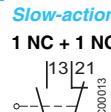
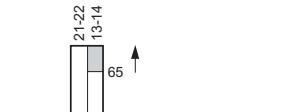
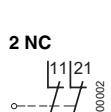
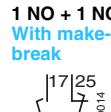
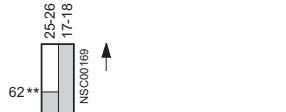
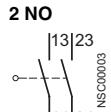
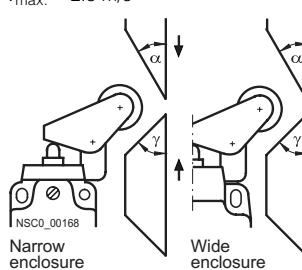
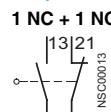
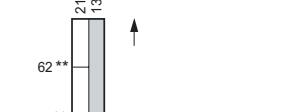
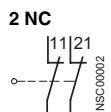
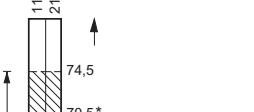
## SIGUARD Position Switches



**3SE. 100 to 3SE. 150 / 3SE. 230 / 3SE. 404**  
Moulded plastic / metal enclosure

### Operation, operating speed and travel or angle of actuators

#### 2 contacts · Narrow and wide enclosure

| Operation by a bar  | Switch blocks   | Nominal travel<br>and related terminals   | Switch blocks   | Nominal travel<br>and related terminals  |
|---|---|---|---|--|
| $\odot$<br>$\alpha, \gamma$<br>$v_{max}$<br>$O\text{-line}$<br>$H$<br>$\rightarrow$   | operating pt acc. to EN 50 041<br>approach angle<br>max. operating speed<br>ref. line acc. to EN 50 041<br>travel difference<br>direction of operation                                | Terminal designation<br>acc. to EN 50 013   | 0-line<br>S<br>contact closed<br>contact open<br>*<br>**  | reference line acc. to EN 50 041<br>travel acc. to EN 50 041<br>contact closed<br>contact open<br>operating point on return<br>positive opening to<br>IEC 60 947-5-1 |
| <b>Roller lever</b>   |   |   |   |  |
| perpendicular to plunger axis   |   |   |   |  |
| <b>3SE. 100-E, 3SE. 120-E,<br/>3SE. 230-E, 3SE. 404-E</b>   | <b>Slow-action contacts</b>   |   |   |  |
|   | <b>1 NC + 1 NO</b><br><br>3SE3 000-0A,<br>3SE3 010-0A,<br>Ident. No. 11                              | <br>NSC00158   | <b>2 NC</b><br><br>3SE3 000-6A,<br>Ident. No. 02   | <br>NSC00159  |
| $v_{max.} = 2.5 \text{ m/s}$  | <b>1 NO + 1 NC<br/>With make-before-break</b><br><br>3SE3 000-3A,<br>3SE3 010-3A,<br>Ident. No. 11   | <br>NSC00160   | <b>2 NO</b><br><br>3SE3 000-7A,<br>Ident. No. 20   | <br>NSC00161  |
| $v_{max.} = 1 \text{ m/s}, \alpha_{max.} = 30^\circ, \gamma_{max.} = 45^\circ$<br>Minimum force required<br>in direction of operation: 12 N | <b>Snap-action contacts</b>   |   |   |  |
|    | <b>1 NC + 1 NO</b><br><br>3SE3 000-1A,<br>3SE3 010-1A,<br>Ident. No. 11                            | <br>NSC00163 | <b>2 NC</b><br><br>Ident. No. 02                 | <br>NSC00164  |
| <b>Angular roller lever</b>   |   |   |   |  |
| along plunger axis  |   |   |   |  |
| <b>3SE. 100-F, 3SE. 120-F,<br/>3SE. 230-F, 3SE. 404-F</b>   | <b>Slow-action contacts</b>   |   |   |  |
|    | <b>1 NC + 1 NO</b><br><br>3SE3 000-0A,<br>3SE3 010-0A,<br>Ident. No. 11                            | <br>NSC00166 | <b>2 NC</b><br><br>3SE3 000-6A,<br>Ident. No. 02 | <br>NSC00167  |
| $v_{max.} = 2.5 \text{ m/s}$  | <b>1 NO + 1 NC<br/>With make-before-break</b><br><br>3SE3 000-3A,<br>3SE3 010-3A,<br>Ident. No. 11 | <br>NSC00169 | <b>2 NO</b><br><br>3SE3 000-7A,<br>Ident. No. 20 | <br>NSC00170  |
|    | <b>Snap-action contacts</b>   |   |   |  |
| $v_{max.} = 1 \text{ m/s}, \alpha_{max.} = 30^\circ, \gamma_{max.} = 45^\circ$<br>Minimum force required<br>in direction of operation: 12 N | <b>1 NC + 1 NO</b><br><br>3SE3 000-1A,<br>3SE3 010-1A,<br>Ident. No. 11                            | <br>NSC00171 | <b>2 NC</b><br><br>Ident. No. 02                 | <br>NSC00172  |

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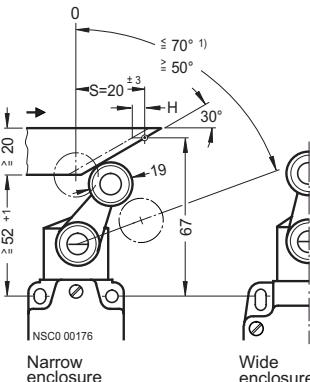
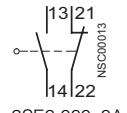
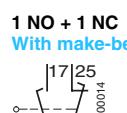
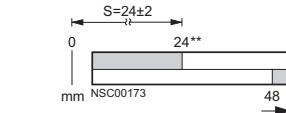
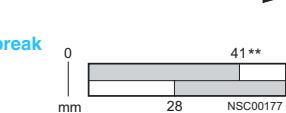
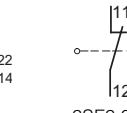
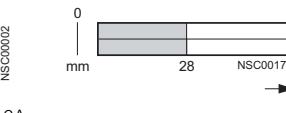
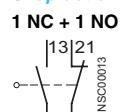
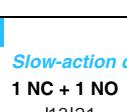
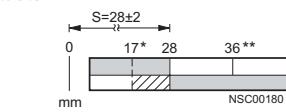
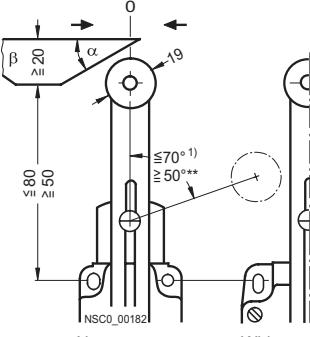
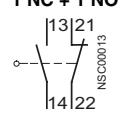
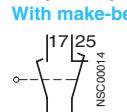
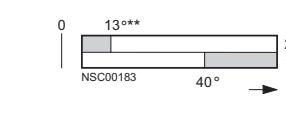
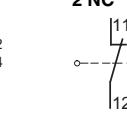
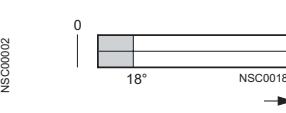
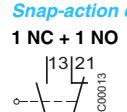
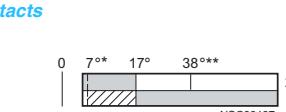
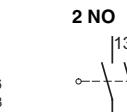
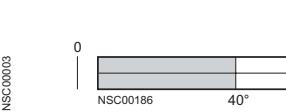
## SIGUARD Position Switches



**3SE. 100 to 3SE. 150 / 3SE. 230 / 3SE. 404**  
Moulded plastic / metal enclosure

### Operation, operating speed and travel or angle of actuators

#### 2 contacts · Narrow and wide enclosure

| Operation by a bar  | Switch blocks  | Nominal travel<br>and related terminals   | Switch blocks  | Nominal travel<br>and related terminals   |
|---|--|---|--|---|
| $\odot$ operating pt acc. to EN 50 041<br>$\alpha$ approach angle<br>$\beta$ trailing angle<br>$v_{max}$ max. operating speed<br>0-line reference line acc. to EN 50 041<br>S travel acc. to EN 50 041<br>H travel difference<br>$\rightarrow$ direction of operation | Terminal designation<br>acc. to EN 50 013  | 0-line ref. line acc. to EN 50 041<br>S travel acc. to EN 50 041<br>* contact closed<br>** contact open<br>operating point on return<br>positive opening to IEC 60 947-5-1                            |  |   |
| <b>Roller crank, type A</b>   |  | perpendicular to plunger axis   |  | perpendicular to plunger axis   |
| repositionable and finely adjustable from 10° to 10°<br><b>3SE. 100-GW, 3SE. 120-GW, 3SE. 230-GW, 3SE. 404-GW</b>   |  |   |  |   |
| <br>Narrow enclosure      Wide enclosure<br>NSC00176            NSC00177  | <b>Slow-action contacts</b><br><br><b>1 NC + 1 NO</b><br><br>3SE3 000-0A, 3SE3 010-0A, Ident. No. <b>11</b><br><br><b>1 NO + 1 NC With make-bef.-break</b><br><br>3SE3 000-3A, 3SE3 010-3A, Ident. No. <b>11</b>     | <br>NSC00173<br><br>NSC00175<br>40° | <b>2 NC</b><br><br>NSC00172<br><br><b>3 SE3 000-6A, Ident. No. <b>02</b></b>   | <br>NSC00174<br>mm               |
| $v_{max} = 3 \text{ m/s}$<br>Minimum torque required in direction of operation: 25 Ncm<br>In special designs ( $Z = A31$ ), contacts can only be operated from right or left. By twisting the plunger from the right and left.  | <b>Snap-action contacts</b><br><br><b>1 NC + 1 NO</b><br><br>3SE3 000-1A, 3SE3 010-1A, Ident. No. <b>11</b><br><br><b>1 NO + 1 NC With make-bef.-break</b><br><br>7°*  | <br>NSC00180<br>NSC00181<br>mm   | <b>2 NO</b><br><br>NSC00183<br>NSC00184<br>mm                                | <br>NSC00186<br>NSC00187<br>mm |
| <b>Roller crank, adjustable length</b>  |  | Deflection in direction of rotation   |  | Deflection in direction of rotation   |
| finely adjustable from 10° to 10°<br><b>3SE. 100-UW, 3SE. 120-UW, 3SE. 230-U, 3SE. 404-UW</b>   |  |   |  |   |
| <br>Narrow enclosure      Wide enclosure<br>NSC00182   | <b>Slow-action contacts</b><br><br><b>1 NC + 1 NO</b><br><br>3SE3 000-0A, 3SE3 010-0A, Ident. No. <b>11</b><br><br><b>1 NO + 1 NC With make-bef.-break</b><br><br>3SE3 000-3A, 3SE3 010-3A, Ident. No. <b>11</b> | <br>NSC00183<br>40°  | <b>2 NC</b><br><br>NSC00182<br><br><b>3 SE3 000-6A, Ident. No. <b>02</b></b> | <br>NSC00184<br>18°            |
| $v_{max} = 1 \text{ m/s}, \alpha_{max} = 30^\circ, \beta_{max} = 30^\circ$<br>Minimum torque required in direction of operation: 25 Ncm<br>Contact operation either from right or left or from right and left.  | <b>Snap-action contacts</b><br><br><b>1 NC + 1 NO</b><br><br>3SE3 000-1A, 3SE3 010-1A, Ident. No. <b>11</b>   | <br>NSC00187<br>mm   | <b>2 NO</b><br><br>NSC00186<br>NSC00187<br>mm                                | <br>NSC00188<br>40°            |

1) Max. operating angle 70°.

# SIGUARD Safety Systems – Safety Integrated

## SIGUARD Position Switches

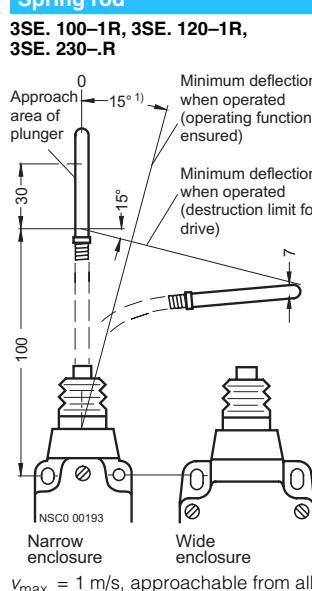


**3SE. 100 to 3SE. 150 / 3SE. 230 / 3SE. 404**  
Moulded plastic / metal enclosure

### Operation, operating speed and travel or angle of actuators

#### 2 contacts · Narrow and wide enclosure

| Operation by a bar  | Switch blocks                                 | Nominal travel<br>and related terminals   | Switch blocks  | Nominal travel<br>and related terminals                             |
|---|---|---|--|---|
| <p>Operating pt acc. to EN 50 041<br/><math>v_{max}</math> max. operating speed<br/>0-line ref. line acc. to EN 50 041<br/>→ direction of operation</p> | Terminal designation acc. to EN 50 013        | <p>0-line ref. line acc. to EN 50 041<br/>contact closed<br/>contact open<br/>* operating point on return<br/>** positive opening to IEC 60 947-5-1</p> |  |   |
| <b>Rod actuator</b>   |   | in direction of rotation  |  | in direction of rotation  |
| finely adjustable from 10° to 10°   |   |   |  |   |
| <b>3SE. 100-WW, 3SE. 120-WW,<br/>3SE. 230-W, 3SE. 404-WW</b>  | <b>Slow-action contacts</b>                   |   | <b>2 NC</b>  |   |
| <b>3SE. 100-VW, 3SE. 120-VW,<br/>3SE. 230-V, 3SE. 404-VW</b>  | <b>1 NC + 1 NO</b>                            | <p>0 20° NSC00188 46° 21-22<br/>13-14</p> <p>3SE3 000-0A, 3SE3 010-0A, Ident. No. 11</p>  | <p>0 24° NSC00110 11-12 21-22</p> <p>3SE3 000-6A, Ident. No. 02</p>                            |   |
|   | <b>1 NO + 1 NC<br/>With make-before-break</b> | <p>0 43°** NSC00189 26° 25-26<br/>17-18</p> <p>3SE3 000-3A, 3SE3 010-3A, Ident. No. 11</p>  |  | <p>0 48° NSC00190 13-14 23-24</p> <p>3SE3 000-7A, Ident. No. 20</p> |
|   | <b>Snap-action contacts</b>                   |   | <b>1 NC + 1 NO</b>   |   |
|   |   |   | <p>0 7°* 24° 38°** NSC00192 21-22<br/>13-14</p> <p>3SE3 000-1A, 3SE3 010-1A, Ident. No. 11</p> |   |
|   |   |   |  |   |
| <b>Spring rod</b>   |   | Deflection of spring rod  |  |   |
| <b>3SE. 100-1R, 3SE. 120-1R,<br/>3SE. 230-R</b>   | <b>Snap-action contacts</b>                   |   |  |   |
|   | <b>1 NC + 1 NO</b>                            | <p>0 10° NSC00194 4°* 21-22<br/>13-14</p> <p>3SE3 000-1A, 3SE3 010-1A, Ident. No. 11</p>  |  |   |
|   |   |   |  |   |
|   |   |   |  |   |



$v_{max}$  = 1 m/s, approachable from all sides

Minimum force required in direction of operation: 12 N  
with lateral deflection at the tip: 2.5 N

1) Max. operating angle 70°.

# SIGUARD Safety Systems – Safety Integrated

## SIGUARD Position Switches



**3SE. 100 to 3SE. 150 / 3SE. 404**  
Metal enclosure

### Operation, operating speed and travel or angle of actuators

#### 2 contacts · Narrow and wide enclosure

| Operation by a bar   | Switch blocks  | Nominal travel<br>and related terminals  | Minimum force<br>required in<br>direction of<br>operation |
|--|--|--|---|
| <p>Operating pt acc. to EN 50 041<br/> <math>v_{max}</math> max. operating speed<br/>     O-line reference line acc. to EN 50 041<br/> <math>\rightarrow</math> direction of operation</p> | Terminal designation acc. to EN 50 013   | <p>O-line reference line acc. to EN 50 041<br/>  contact closed<br/>  contact open<br/> <math>*</math> operating point on return</p> |   |
| <b>Fork lever</b>  |  | Deflection in direction of rotation  |   |
| <b>3SE. 100-1T, 3SE. 120-1T, 3SE. 404-1T</b><br>lateral actuation  |  |  | 30 N  |
| <br><br><br><b>Narrow enclosure</b><br><br><br><b>Wide enclosure</b><br>$v_{max} = 2 \text{ m/s}$  | <p><b>Snap-action contacts</b></p> <p><b>1 NC + 1 NO</b></p><br><p>3SE3 000-1A,<br/>3SE3 010-1A,<br/>Ident. No. 11</p> | <br><br><p>mm</p> <p>NSC 00196</p> <p>NSC 00197</p>  |   |
| <b>Overtravel plunger</b>  |  |  |   |
| <b>3SE. 120-1XP</b><br>lateral actuation   |  |  | 30 N  |
| <br><br><br>$v_{max} = 1 \text{ m/s}$  | <p><b>Snap-action contacts</b></p> <p><b>1 NC + 1 NO</b></p><br><p>3SE3 000-1A,<br/>3SE3 010-1A,<br/>Ident. No. 11</p> | <br><br><p>mm</p> <p>NSC 00199</p> <p>NSC 00200</p>  |   |
| <b>Roller plunger</b>  |  |  |   |
| <b>3SE. 120-1XQ</b><br>Roller in vertical position,<br>lateral actuation   |  |  | 30 N  |
| <br><br><br>$v_{max} = 1 \text{ m/s}$  | <p><b>Snap-action contacts</b></p> <p><b>1 NC + 1 NO</b></p><br><p>3SE3 000-1A,<br/>3SE3 010-1A,<br/>Ident. No. 11</p> | <br><br><p>mm</p> <p>NSC 00199</p> <p>NSC 00200</p>  |   |
| <b>Roller plunger</b>  |  |  |   |
| <b>3SE. 120-1XR</b><br>Roller in horizontal position,<br>lateral actuation   |  |  | 30 N  |
| <br><br><br>$v_{max} = 1 \text{ m/s}$  | <p><b>Snap-action contacts</b></p> <p><b>1 NC + 1 NO</b></p><br><p>3SE3 000-1A,<br/>3SE3 010-1A,<br/>Ident. No. 11</p> | <br><br><p>mm</p> <p>NSC 00199</p> <p>NSC 00200</p>  |   |

# SIGUARD Safety Systems – Safety Integrated

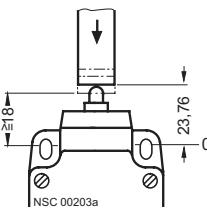
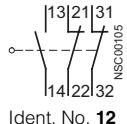
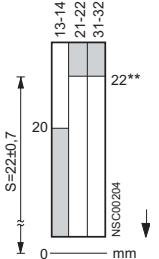
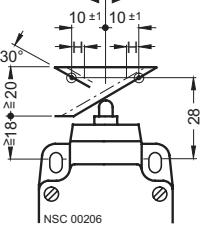
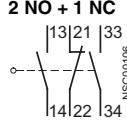
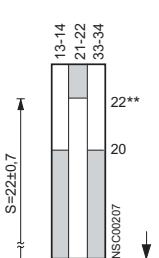
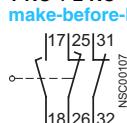
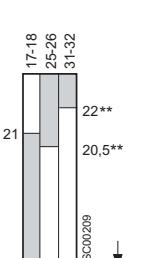
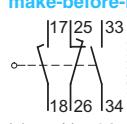
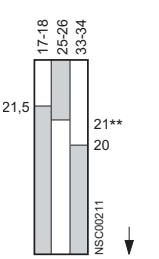
## SIGUARD Position Switches



**3SE. 303**  
Metal enclosure

### Operation, operating speed and travel or angle of actuators

#### 3 contacts · Wide enclosure

| Operation by a bar  | Switch blocks   | Nominal travel<br>and related terminals   | Minimum force<br>required in<br>direction of<br>operation |
|---|---|---|---|
| <p>○ operating pt acc. to EN 50 041<br/> <math>v_{max}</math> max. operating speed<br/>         0-line reference line acc. to EN 50 041<br/>         H travel difference<br/> <math>\rightarrow</math> direction of operation</p> | Terminal designation acc.<br>to EN 50 013   | <p>O-line reference line acc. to EN 50 041<br/>         S travel acc. to EN 50 041<br/>         contact closed<br/>         contact open<br/>         * operating point on return<br/>         ** positive opening to<br/>         IEC 60 947-5-1</p> |   |
| <b>Plunger</b>  | <b>Slow-action contacts</b>   |   |   |
| <b>3SE. 303-B</b>   | <b>1 NO + 2 NC</b>  | along plunger axis  | perpendicular to plunger axis                             |
| <br>$v_{max.} = 1.5 \text{ m/s}$   |    |    | 16 N  |
| <br>$v_{max.} = 0.5 \text{ m/s}$  |   |   | 18 N  |
|   | <b>1 NO + 2 NC<br/>make-before-break</b>  |   |   |
|   |  |    | 16 N  |
|   | <b>2 NO + 1 NC<br/>make-before-break</b>  |   |   |
|   |  |    | 18 N  |

# SIGUARD Safety Systems – Safety Integrated

## SIGUARD Position Switches



**3SE. 303**  
Metal enclosure

### Operation, operating speed and travel or angle of actuators

#### 3 contacts · Wide enclosure

| Operation by a bar  | Switch blocks                             | Nominal travel<br>and related terminals   | Minimum force<br>required in<br>direction of<br>operation |
|---|---|---|---|
| <p>○ operating pt acc. to EN 50 041<br/> <math>v_{max}</math> max. operating speed<br/>         0-line reference line acc. to EN 50 041<br/>         H travel difference<br/> <math>\rightarrow</math> direction of operation</p> | Terminal designation acc.<br>to EN 50 013 | <p>0-line reference line acc. to EN 50 041<br/>         S travel acc. to EN 50 041<br/>         contact closed<br/>         contact open<br/>         * operating point on return<br/>         ** positive opening to<br/>         IEC 60 947-5-1</p> |   |
| <b>Overtravel plunger</b>   | <b>Slow-action contacts</b>               |   |   |
| <b>3SE. 303-C</b>   | <b>1 NO + 2 NC</b>                        | along plunger axis  | perpendicular to plunger axis                             |
| <p><math>v_{max.} = 1.5 \text{ m/s}</math></p>  | <p>Ident. No. <b>12</b></p>               | <p><math>S = 35 \pm 1.5</math> mm</p>   | <p><math>S = 10 \pm 1.5</math> mm</p>                     |
| <p><math>v_{max.} = 0.5 \text{ m/s}</math></p>  | <p>Ident. No. <b>21</b></p>               | <p><math>S = 35 \pm 1.5</math> mm</p>   | <p><math>S = 10 \pm 1.5</math> mm</p>                     |
|   | <b>1 NO + 2 NC<br/>make-before-break</b>  |   | 35 N  |
|   | <p>Ident. No. <b>12</b></p>               | <p><math>S = 35 \pm 1.5</math> mm</p>   | <p><math>S = 10 \pm 1.5</math> mm</p>                     |
|   | <b>2 NO + 1 NC<br/>make-before-break</b>  |   | 37 N  |
|   | <p>Ident. No. <b>21</b></p>               | <p><math>S = 35 \pm 1.5</math> mm</p>   | <p><math>S = 10 \pm 1.5</math> mm</p>                     |
|   |   |   | 35 N  |
|   |   |   | 37 N  |

Only supplied in packings

# SIGUARD Safety Systems – Safety Integrated

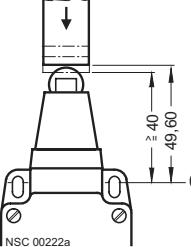
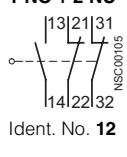
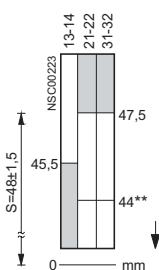
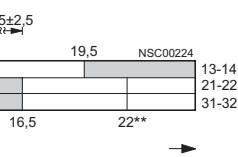
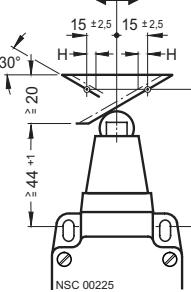
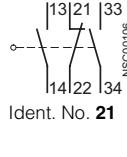
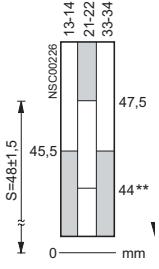
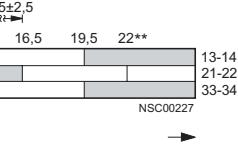
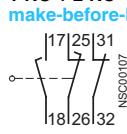
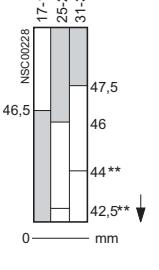
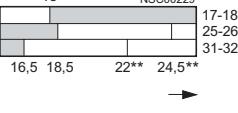
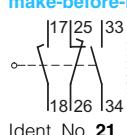
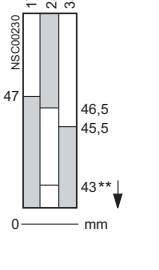
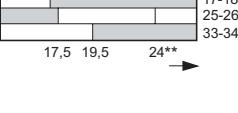
## SIGUARD Position Switches



**3SE. 303**  
Metal enclosure

### Operation, operating speed and travel or angle of actuators

#### 3 contacts · Wide enclosure

| Operation by a bar   | Switch blocks  | Nominal travel<br>and related terminals  | Minimum force<br>required in<br>direction of<br>operation   |
|--|--|--|---|
| <p>○ operating pt acc. to EN 50 041<br/> <math>v_{max}</math> max. operating speed<br/>         0-line reference line acc. to EN 50 041<br/> <math>H</math> travel difference<br/> <math>\rightarrow</math> direction of operation</p> | Terminal designation acc.<br>to EN 50 013  | <p>0-line reference line acc. to EN 50 041<br/> <math>S</math> travel acc. to EN 50 041<br/> <math>*</math> contact closed<br/> <math>**</math> contact open<br/> <math>*</math> operating point on return<br/> <math>**</math> positive opening to IEC 60 947-5-1</p>             |   |
| <b>Roller plunger</b>  | <b>Slow-action contacts</b>  |  |   |
| <b>3SE. 303-D</b>  | <b>1 NO + 2 NC</b>   | along plunger axis   | perpendicular to plunger axis   |
|  <p>NSC 0022a</p> <p><math>v_{max.} = 1.5 \text{ m/s}</math></p>  |  <p>Ident. No. 12</p>   |  <p>NSC00223, 13-14, 21-22, 31-32</p> <p><math>S=48\pm1.5</math> mm</p> <p><math>45.5</math> mm</p> <p><math>47.5</math> mm</p> <p><math>44^{**}</math> mm</p>                                    |  <p>NSC00224, 13-14, 21-22, 31-32</p> <p><math>S=15\pm2.5</math> mm</p> <p><math>0</math> mm</p> <p><math>19.5</math> mm</p> <p><math>22^{**}</math> mm</p> <p>35 N</p>  |
|  <p>NSC 00225</p> <p><math>v_{max.} = 1 \text{ m/s}</math></p>   |  <p>Ident. No. 21</p>  |  <p>NSC00226, 13-14, 21-22, 33-34</p> <p><math>S=48\pm1.5</math> mm</p> <p><math>45.5</math> mm</p> <p><math>47.5</math> mm</p> <p><math>44^{**}</math> mm</p>                                   |  <p>NSC00227, 13-14, 21-22, 33-34</p> <p><math>S=15\pm2.5</math> mm</p> <p><math>0</math> mm</p> <p><math>16.5</math> mm</p> <p><math>19.5</math> mm</p> <p><math>22^{**}</math> mm</p> <p>37 N</p>                           |
|  | <b>1 NO + 2 NC<br/>make-before-break</b>   |  |   |
|  |  <p>Ident. No. 12</p> |  <p>NSC00228, 17-18, 25-26, 31-32</p> <p><math>S=48\pm1.5</math> mm</p> <p><math>46.5</math> mm</p> <p><math>47.5</math> mm</p> <p><math>44^{**}</math> mm</p> <p><math>42.5^{**}</math> mm</p> |  <p>NSC00229, 17-18, 25-26, 31-32</p> <p><math>0</math> mm</p> <p><math>18</math> mm</p> <p><math>16.5</math> mm</p> <p><math>18.5</math> mm</p> <p><math>22^{**}</math> mm</p> <p><math>24.5^{**}</math> mm</p> <p>35 N</p> |
|  | <b>2 NO + 1 NC<br/>make-before-break</b>   |  |   |
|  |  <p>Ident. No. 21</p> |  <p>NSC00230, 17-18, 25-26, 33-34</p> <p><math>S=48\pm1.5</math> mm</p> <p><math>47</math> mm</p> <p><math>46.5</math> mm</p> <p><math>45.5</math> mm</p> <p><math>43^{**}</math> mm</p>        |  <p>NSC00231, 17-18, 25-26, 33-34</p> <p><math>0</math> mm</p> <p><math>17</math> mm</p> <p><math>17.5</math> mm</p> <p><math>19.5</math> mm</p> <p><math>24^{**}</math> mm</p> <p>37 N</p>                                  |

# SIGUARD Safety Systems – Safety Integrated

## SIGUARD Position Switches



**3SE. 303**  
Metal enclosure

### Operation, operating speed and travel or angle of actuators

#### 3 contacts · Wide enclosure

| Operation by a bar  | Switch blocks  | Nominal travel<br>and related terminals   | Minimum force<br>required in<br>direction of<br>operation |
|---|--|---|---|
| <ul style="list-style-type: none"> <li>○ operating pt acc. to EN 50 041</li> <li>α approach angle</li> <li>β trailing angle</li> <li>γ approach angle</li> <li><math>v_{max}</math> max. operating speed</li> <li>O-line reference line acc. to EN 50 041</li> <li>H travel difference</li> <li>→ direction of operation</li> </ul> | Terminal designation acc. to EN 50 013                               | <p>0-line reference line acc. to EN 50 041</p> <p>S contact closed</p> <p>** contact open</p> <p>positive opening to IEC 60 947-5-1</p> |   |
| <b>Roller lever</b>   | <b>Slow-action contacts</b>  | perpendicular to plunger axis   |   |
| <b>3SE. 303-E</b>   |  |   |   |
|   | <b>1 NO + 2 NC</b><br><br>Ident. No. <b>12</b>                       | <br>S=20±1 mm<br>0 mm<br>20** mm  | 15 N  |
|   | <b>2 NO + 1 NC</b><br><br>Ident. No. <b>21</b>                       | <br>S=20±1 mm<br>0 mm<br>20** mm  | 17 N  |
|   | <b>1 NO + 2 NC<br/>make-before-break</b><br><br>Ident. No. <b>12</b> | <br>S=20±1 mm<br>0 mm<br>20** mm  | 15 N  |
|   | <b>2 NO + 1 NC<br/>make-before-break</b><br><br>Ident. No. <b>21</b> | <br>S=20±1 mm<br>0 mm<br>20** mm  | 17 N  |
| For operation perpendicular to plunger axis:<br>$v_{max} = 1 \text{ m/s}$ at $\alpha_{max} = 30^\circ$<br>$v_{max} = 2.5 \text{ m/s}$ at $\gamma_{max} = 45^\circ$<br>$\beta_{max} = 45^\circ$  |  |   |   |
| For operation along plunger axis: $v_{max} = 1.5 \text{ m/s}$   |  |   |   |
| <b>Angular roller lever</b>   | <b>Slow-action contacts</b>  | along plunger axis  |   |
| <b>3SE. 303-F</b>   |  |   |   |
|   | <b>1 NO + 2 NC</b><br><br>Ident. No. <b>12</b>                       | <br>S=60±1 mm<br>0 mm<br>60** mm  | 15 N  |
|   | <b>2 NO + 1 NC</b><br><br>Ident. No. <b>21</b>                       | <br>S=60±1 mm<br>0 mm<br>60** mm  | 17 N  |
|   | <b>1 NO + 2 NC<br/>make-before-break</b><br><br>Ident. No. <b>12</b> | <br>S=60±1 mm<br>0 mm<br>60** mm  | 15 N  |
|   | <b>2 NO + 1 NC<br/>make-before-break</b><br><br>Ident. No. <b>21</b> | <br>S=60±1 mm<br>0 mm<br>60** mm  | 17 N  |
| For operation along plunger axis:<br>$v_{max} = 1 \text{ m/s}$ at $\alpha_{max} = 30^\circ$<br>$v_{max} = 2.5 \text{ m/s}$ at $\gamma_{max} = 45^\circ$<br>$v_{max} = 2.5 \text{ m/s}$ at $\beta_{max} = 45^\circ$  |  |   |   |

# SIGUARD Safety Systems – Safety Integrated

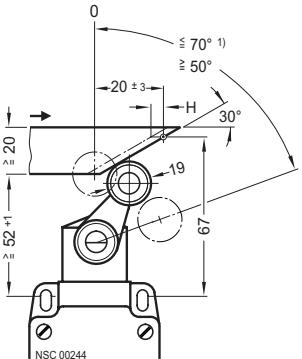
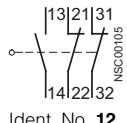
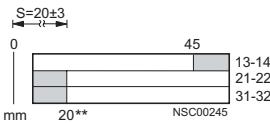
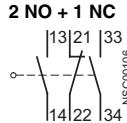
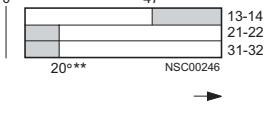
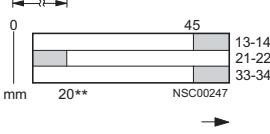
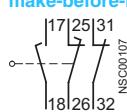
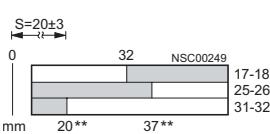
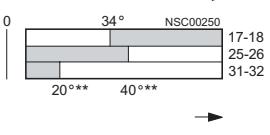
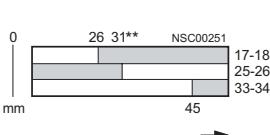
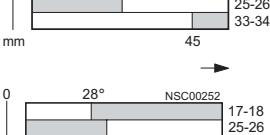
## SIGUARD Position Switches



**3SE. 303**  
Metal enclosure

### Operation, operating speed and travel or angle of actuators

#### 3 contacts · Wide enclosure

| Operation by a bar  | Switch blocks   | Nominal travel<br>and related terminals  | Minimum force<br>required in<br>direction of<br>rotation |
|---|---|--|--|
| <ul style="list-style-type: none"> <li>○ operating pt acc. to EN 50 041</li> <li><math>v_{max}</math> max. operating speed</li> <li>O-line reference line acc. to EN 50 041</li> <li>H travel difference</li> <li>→ direction of operation</li> </ul>                   | Terminal designation acc. to EN 50 013  | 0-line reference line acc. to EN 50 041<br>S travel acc. to EN 50 041<br><br>** positive opening to IEC 60 947-5-1 |  |
| <b>Roller crank</b>   | <b>Slow-action contacts</b>   | perpendicular to plunger axis  |  |
| finely adjustable from 10° to 10°   |   |  | 25 Ncm   |
| <b>3SE. 303-GW-Z</b><br><b>A31</b>  |   |  |  |
|  <p><math>v_{max.} = 3 \text{ m/s}</math></p> <p>In special designs (Z = A31), contacts can only be operated from right or left. By twisting the plunger from the right and left.</p> | <b>1 NO + 2 NC</b><br><br>NSC00105                               | <br>NSC00245                     |  |
|   | <b>2 NO + 1 NC</b><br><br>NSC00106                              | <br>NSC00246                     |  |
|   |   |  |  |
|   |   | <br>NSC00247                    |  |
|   |   |  |  |
|   | <b>1 NO + 2 NC</b><br><i>make-before-break</i><br><br>NSC00107 | <br>NSC00249                   |  |
|   |   |  |  |
|   | <b>2 NO + 1 NC</b><br><i>make-before-break</i><br><br>NSC00108 | <br>NSC00250                   |  |
|   |   |  |  |
|   |   | <br>NSC00251                   |  |
|   |   |  |  |
|   |   | <br>NSC00252                   |  |

1) Max. operating angle 70°.  
Max. deflection for adjustment purposes 90°.

# SIGUARD Safety Systems – Safety Integrated

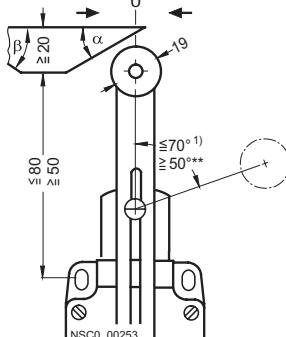
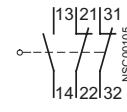
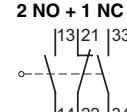
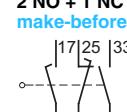
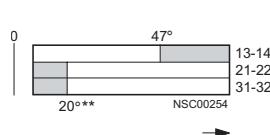
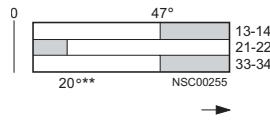
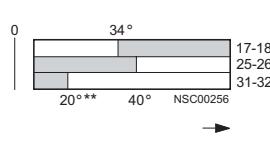
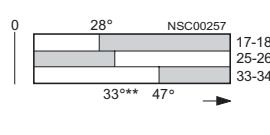
## SIGUARD Position Switches



**3SE. 303**  
Metal enclosure

### Operation, operating speed and travel or angle of actuators

#### 3 contacts · Wide enclosure

| Operation by a bar   | Switch blocks   | Nominal travel<br>and related terminals   | Minimum force<br>required in<br>direction of<br>rotation |
|--|---|---|--|
| $\odot$ operating pt acc. to EN 50 041<br>$\alpha$ approach angle<br>$\beta$ trailing angle<br>$v_{max}$ max. operating speed<br>0-line reference line acc. to EN 50 041<br>$\rightarrow$ direction of operation   | Terminal designation acc. to EN 50 013  | 0-line reference line acc. to EN 50 041<br>S travel acc. to EN 50 041<br><br>**   |  |
| <b>Roller crank, adjustable length</b>   | <b>Slow-action contacts</b>   | perpendicular to plunger axis   |  |
| finely adjustable from 10° to 10°  |   |   | 25 Ncm   |
| <b>3SE. 303-UW</b>   |   |   |  |
|  <p><math>\beta = 20^\circ</math><br/> <math>\alpha = 19^\circ</math><br/> <math>v_{max} = 3 \text{ m/s}</math>,<br/> <math>\alpha_{max} = 30^\circ</math>,<br/> <math>\beta_{max} = 30^\circ</math></p> <p>In special designs (Z = A31), contacts can only be operated from right or left. By twisting the plunger from the right <u>and</u> left.</p> | <b>1 NO + 2 NC</b><br><br>Ident. No. <b>12</b><br><br><b>2 NO + 1 NC</b><br><br>Ident. No. <b>21</b><br><br><b>1 NO + 2 NC<br/>make-before-break</b><br><br>Ident. No. <b>12</b><br><br><b>2 NO + 1 NC<br/>make-before-break</b><br><br>Ident. No. <b>21</b> | <br><br><br> |  |

1) Max. operating angle 70°.

# SIGUARD Safety Systems – Safety Integrated

## SIGUARD Position Switches

**3SE. 303 / 3SE3 02.**  
Metal enclosure / Open type



### Operation, operating speed and travel or angle of actuators

#### 3 contacts · Wide enclosure

| Operation by a bar   | Switch blocks  | Nominal travel<br>and related terminals  | Minimum force<br>required in<br>direction of<br>rotation |
|--|--|--|--|
| <input checked="" type="radio"/> operating pt acc. to EN 50 041<br>$v_{max}$ max. operating speed<br>O-line reference line acc. to EN 50 041<br>$\rightarrow$ direction of operation   | Terminal designation acc. to EN 50 013   | 0-line reference line acc. to EN 50 041<br>S travel acc. to EN 50 041<br><br>** contact closed<br><br>contact open<br><br>positive opening to IEC 60 947-5-1 |  |
| <b>Rod actuator</b><br>finely adjustable from 10° to 10°<br><b>3SE. 303-WW,<br/>3SE. 303-VW</b>  | <b>Slow-action contacts</b>  | Deflection in direction of rotation  |  |
| <p>A = Operating range<br/>B = Lower edge of actuator<br/><math>v_{max} = 3 \text{ m/s}</math></p> <p>In special designs (Z = A31), contacts can only be operated from right or left. By twisting the plunger from the right and left.</p> | <b>1 NO + 2 NC</b><br><br>Ident. No. <b>12</b><br><br><b>2 NO + 1 NC</b><br><br>Ident. No. <b>21</b> | <br>   | 25 Ncm   |
|  | <b>1 NO + 2 NC<br/>make-before-break</b><br><br>Ident. No. <b>12</b>                                 |  |  |
|  | <b>2 NO + 1 NC<br/>make-before-break</b><br><br>Ident. No. <b>21</b>                                 |  |  |

1) Max. operating angle 70°, Max. deflection for adjustment purposes 90°.