INGUN Switching Probes are so-called “closing probes”, i.e. the interrupted circuit is closed when the plunger is activated. The plunger is pushed down past the actual switching point to provide the necessary contact force. The stated rated current can be transferred in the state 2 (closed).

**Application Examples**
- Presence-check of components on a PC-Board (see following section)
- Presence-check of the PC-Board on the Test Fixture
- Compact switching unit for assembly in many areas
- Signal input for procedure check of moving items on automates and other machines
- Electroless check with insulated tip

“Quick-exchange” Receptacle for Switching Probes

To simplify the changing of Switching Probes - especially in the case of maintenance - so-called “Quick-exchange Receptacle” are available for the most common series (i.e. SKS-215 and SKS-415/465).

**Advantages**
- One-time wiring of the Receptacle at the time of customizing the Test Fixture or Unit
- Insertion of the SKS from above (Test Fixture need not be opened)
- Reduction of the maintenance costs
- No wiring faults in the case of maintenance
Mounting and Functional Dimensions

**Mechanical Data**

- **Switching Path:** 4.0 mm (0.157) ± 0.2 mm (.008)
- **Recomm. Working Stroke:** 5.0 mm (.197)
- **Maximum Stroke:** 6.0 mm (.236) resp. 6.3 mm (.248)

- **Spring Force at Switch:** 1.0 N (3.6oz)
- **Spring Force at Working Stroke:** 2.0 N (7.2oz)

**Electrical Data**

- **Current Rating:** 3 A (see page 77)

**Available Tip Styles**

<table>
<thead>
<tr>
<th>Material</th>
<th>Tip Style</th>
<th>Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>BeCu, gold-plated</td>
<td>02</td>
<td>1.30 (.051)</td>
</tr>
<tr>
<td>Bronze, gold-plated</td>
<td>06</td>
<td>1.00 (.039)</td>
</tr>
<tr>
<td>Steel, gold-plated</td>
<td>52</td>
<td>0.73 (.029)</td>
</tr>
</tbody>
</table>

**Application Areas:**
- combined component test with presence check
- active switching element

**Warning:**
Do not solder the cable to the crimp points of the Receptacle.

**Tools:**
Insertion and Extraction Tools for SKS and KS see Page 118.

**Ordering Example**

<table>
<thead>
<tr>
<th>Series</th>
<th>Tip Material</th>
<th>Tip Style</th>
<th>Tip Diameter (1/100 mm)</th>
<th>Plating A = Gold</th>
<th>Spring Force (dN)</th>
<th>Collar Height (mm)</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>SKS 100 306 100</td>
<td>0 = Delrin</td>
<td>3 = BeCu</td>
<td>1.68 - 1.69 mm (.0661-.0665)</td>
<td>A</td>
<td>2.0</td>
<td>0.0</td>
<td>A</td>
</tr>
<tr>
<td>SKS 100 352 073 A 2000 A</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SKS 100 X02 100</td>
<td>in KS-100 35 G</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SKS 100 X02 100</td>
<td>in KS-100 35 G</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SKS-100 306 100</td>
<td>in KS-100 35 G</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Collar Height and Installation Height

To adjust the Installation Height Receptacles with a Press-ring are used. The Receptacles can be inserted up to the Press-ring or with the Press-ring pressed into the mounting hole.

<table>
<thead>
<tr>
<th>Tip</th>
<th>Installation Height with KS (inch)</th>
<th>Maximum Stroke (inch)</th>
</tr>
</thead>
<tbody>
<tr>
<td>02</td>
<td>16.4 mm (.646) / var.</td>
<td>6.3 mm (.248)</td>
</tr>
<tr>
<td>06</td>
<td>19.1 mm (.752) / var.</td>
<td>6.0 mm (.236)</td>
</tr>
</tbody>
</table>

**Materials**

- **Spring:** Steel, gold-plated
- **Plunger:** BeCu, gold-plated
- **Barrel:** Bronze, gold-plated
- **Receptacle:** Nickel-silver, gold-plated
- **Contact Terminal:** Brass, gold-plated
- **Insulator:** Peek

**Application Areas:**
- combined component test with presence check
- active switching element

**Warning:**
Do not solder the cable to the crimp points of the Receptacle.

**Tools:**
Insertion and Extraction Tools for SKS and KS see Page 118.
Mounting and Functional Dimensions

**SKS-215**

Switching Path: 1,5 mm (.059) ± 0,2 (.008)

Maximum Stroke: 5,0 mm (.197)

Spring Force: 0,8 / 1,5 / 3,0 N

Spring Force at Switch Point: 0,23N (0.8oz); 0,45 N (1.6oz); 0,9 N (3.2oz)

Spring Force at 80% Stroke: 0,8 N (2.9oz); 1,5 N (5.4oz); 3,0 N (10.8oz)

**Electrical Data**

Current Rating: 3 A (see page 77)

**Available Tip Styles**

<table>
<thead>
<tr>
<th>Material</th>
<th>Tip Style</th>
<th>Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>02</td>
<td>ø 1,90 (.071)</td>
<td>A</td>
</tr>
<tr>
<td>03</td>
<td>ø 1,80 (.071)</td>
<td>A</td>
</tr>
<tr>
<td>05</td>
<td>ø 1,00 (.039)</td>
<td>A</td>
</tr>
<tr>
<td>06</td>
<td>ø 1,80 (.071)</td>
<td>N</td>
</tr>
</tbody>
</table>

**Collar Height and Installation Height**

The Installation Height of the Tip (Dimension without KS) is determined by the Collar Height.

<table>
<thead>
<tr>
<th>Collar Height</th>
<th>Installation Height (without Receptacle)</th>
</tr>
</thead>
<tbody>
<tr>
<td>02</td>
<td>10,0 mm (.394)</td>
</tr>
</tbody>
</table>

**Application Areas:**
- combined component test with presence check
- active switching element

**Warning:**
Do not solder the cable to the crimp points of the Receptacle.

The Receptacle KS-215 S enables easy changing of the Switching Probe without removing the wiring connection. This Receptacle can only be used with SKS-215 ... E.

**Note:**
The special Tool “SW/ZW GKS-112” must be used to install the Switching Probe (see Page 118).

**Note:**

**Ordering Example**

<table>
<thead>
<tr>
<th>Series</th>
<th>Tip Material</th>
<th>Tip Dia (1/100 mm)</th>
<th>Plating A</th>
<th>Spring Force (N)</th>
<th>Collar Height (mm)</th>
<th>Type (alternative E)</th>
</tr>
</thead>
<tbody>
<tr>
<td>SKS</td>
<td>0 = Delrin</td>
<td>1 8 0</td>
<td>A</td>
<td>3 0</td>
<td>0 2</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3 = BeCu</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>KS – 2 1 5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>KS – 2 1 5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>S E – 2 1 5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

All specifications are subject to change without prior notification.
Mounting and Functional Dimensions

SKS-415 ... 2

Available Tip Styles

<table>
<thead>
<tr>
<th>Material</th>
<th>Tip Style</th>
<th>Further Versions</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>00</td>
<td></td>
</tr>
<tr>
<td></td>
<td>02</td>
<td>Ø 3,00 (0.118)</td>
</tr>
<tr>
<td></td>
<td>03</td>
<td>Ø 2.30 (0.091)</td>
</tr>
<tr>
<td></td>
<td>06</td>
<td>Ø 1,00 (0.039)</td>
</tr>
<tr>
<td></td>
<td>08</td>
<td>0.4</td>
</tr>
<tr>
<td></td>
<td>05**</td>
<td>0.4</td>
</tr>
<tr>
<td></td>
<td>03**</td>
<td>0.4</td>
</tr>
</tbody>
</table>

Collar Height and Installation Height

To adjust the Installation Height (Dimension without KS) Test Probes with different Collar Heights are available.

Note:
The Receptacle can be used from Grid 4.50 mm (177 Mil) up.

Screw-in Version:
see SKS-465 MF and SKS-465 SF on Page 149/150.

The Receptacle KS-415 S enables easy changing of the Switching Probe SKS-415 ... 02 E without removing the wiring connection.

Materials

<table>
<thead>
<tr>
<th>Plunger:</th>
<th>BeCu, gold-plated (or gold-plated with Insulator Cap)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Barrel:</td>
<td>Brass, gold-plated</td>
</tr>
<tr>
<td>Spring:</td>
<td>Steel, gold-plated</td>
</tr>
<tr>
<td>Receptacle:</td>
<td>Brass, gold-plated</td>
</tr>
</tbody>
</table>

Electrical Data

Current Rating: 5 A (see page 77)

Switching Path: 1.7 mm (.067) + 0.2 (.008)

Maximum Stroke: 5.2 mm (.205)

Spring Force at Switch Point: 0.7 N (2.5oz)

Spring Force 80% Stroke: 2.3 N (8.3oz)

Mounting Hole Size

<table>
<thead>
<tr>
<th>with Receptacle:</th>
<th>Ø 2.98 - 2.99 mm (0.1173 - 0.1177)</th>
</tr>
</thead>
<tbody>
<tr>
<td>without Receptacle:</td>
<td>Ø 2.65 mm (.1043)</td>
</tr>
</tbody>
</table>

Ordering Example

Test Probe:

1. Select the Series
2. Choose the Tip Style
3. Add the Tip Diameter (1/100 mm)
4. Specify the Plating A = Cold
5. Add the Spring Force (dN)
6. Add the Collar Height (mm)
7. Add the Type (alternative E)

Receptacle:

Lamellar Plugs:
Mounting and Functional Dimensions

### Mechanical Data
- **Switching Path:** 2,4 mm (.094) ± 0,2 (.008)
- **Maximum Stroke:** 8,0 mm (.315)
- **Spring Force at Switch Point:** 0,9 N (3.2oz)
- **Spring Force 80% Stroke:** 2,5 N (9.0oz)

### Electrical Data
- **Current Rating:** 5 A (see page 77)

### Materials
- **Plunger:** BeCu, gold-plated (or gold-plated with Insulator Cap)
- **Barrel:** Brass, gold-plated
- **Spring:** Steel, gold-plated
- **Receptacle:** Brass, gold-plated

### Ordering Example
<table>
<thead>
<tr>
<th>Series</th>
<th>Tip Material</th>
<th>Tip Style</th>
<th>Tip Diameter (1/100 mm)</th>
<th>Plating</th>
<th>Spring Force (dN)</th>
<th>Collar Height (mm)</th>
<th>Type (alternative E)</th>
</tr>
</thead>
<tbody>
<tr>
<td>S K S</td>
<td>0 = Delrin</td>
<td>3 = BeCu</td>
<td></td>
<td>A</td>
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</tbody>
</table>

### Available Tip Styles

<table>
<thead>
<tr>
<th>Material</th>
<th>Tip Style</th>
<th>Rating</th>
<th>Further Versions</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 02</td>
<td>Ø 3,0 (1.18)</td>
<td>A 5,00 (.197)</td>
<td></td>
</tr>
<tr>
<td>3 04</td>
<td>Ø 2,30 (.091)</td>
<td>A 4,00 (.157)</td>
<td></td>
</tr>
<tr>
<td>3 06</td>
<td>Ø 2,30 (.091)</td>
<td>A 4,00 (.157)</td>
<td></td>
</tr>
</tbody>
</table>

### Collar Height and Installation Height
- The Installation Height of the Tip (Dimension without KS) is determined by the Collar Height.

### Note:
The Receptacle can be used from Grid 4,5 mm (180 Mil) up.

### Tools:
- Insertion and Extraction Tools for GKS and KS see Page 118.

---

All specifications are subject to change without prior notification.
SKS 419 / 429
Switching Probe with long Stroke, high Stability

Mounting and Functional Dimensions

SKS 419

SKS 429

Mechanical Data

Switching Path: 2.0 mm (.079) ± 0.2 (.008)

Maximum Stroke: 14.0 mm (.551)

Spring Force at Switch.Point: 2.6 N (9.4oz)

Spring Force 80% Stroke: 5.2 N (18.8oz)

Electrical Data

Current Rating: 5 A
(see Page 77)

Mounting Hole Size

with Receptacle: 5.49 mm (.2161)
without Receptacle: 5.00 mm (.1969)

Materials

Plunger: BeCu, gold-plated with Insulator Cap (Delrin)
Barrel: Brass, gold-plated
Spring: Steel, gold-plated
Receptacle: Brass, gold-plated

SKS 429

Mechanical Data

Switching Path: 2.0 mm (.079) ± 0.2 (.008)

Maximum Stroke: 16.0 mm (.630)

Spring Force at Switch.Point: 2.9N (10.5oz)

Spring Force 80% Stroke: 6.4 N (23.2oz)

Electrical Data

Current Rating: 5 A
(see page 77)

Mounting Hole Size

with Receptacle: 7.99 mm (.3146)
without Receptacle: 7.00 mm (.2756)

Materials

Plunger: BeCu, gold-plated with Insulator Cap (Delrin)
Barrel: Brass, gold-plated
Spring: Steel, gold-plated
Receptacle: Brass, gold-plated

Tools:
The special Insertion tools for SKS must be used to install the Switching Probes (see Page 118).

Ordering Example

Test Probe:
SKS 419
SKS 429
SKS 419
SKS 429
Receptacle for SKS-419:
K S - 4 1 9 2 3
Receptacle for SKS-429
K S - 4 2 9 2 3

All specifications are subject to change without prior notification