

# Switch Probes

Specialty Test Products



# Board Test Spring Probes

Smiths Interconnect offers a wide range of spring contact probes to meet your testing requirements and has long been recognized as the world's largest probe manufacturer. With over 60 different probe series that includes our standard Board Test Fixture Probes as well as our Specialty Test Probes, we provide a full portfolio designed for general purpose test on bare boards, loaded printed circuit boards, surface mount assemblies and other forms of test.



## MICRO SERIES PROBES

The Micro probe series range in pitch from 0.20" (0.51 mm) to 0.030" (0.76 mm) pitch and are typically between half an inch to an inch in length.

## ROTATOR PROBES

Ideal for non-clean and lead-free applications, this aggressive probe rotates 90° at the rated travel, virtually drilling through contaminants with a low spring force.

## STANDARD PROBES

Our standard probes range in pitch from 0.039" (1.00 mm) to 0.187" (4.75 mm). Within most series, there are multiple length and travel options, including more aggressive probes dimensionally equivalent to the standard probes.

## HIGH CURRENT PROBES

We offer two different high current probe designs in four different pitches. The SH series features a bias ball, which is the most aggressive biasing technique to aid in assuring a low and consistent resistance, cycle after cycle. The SHE Series features a bias spring, an effective biasing technique for many applications.

## DOUBLE-ENDED PROBES & RECEPTACLES

Double-ended probes feature both a top-side and bottom-side compliant plunger. Double-ended receptacles are available with a permanent bottom-side plunger and a replaceable probe on the top side. They are also available with both a top and bottom-side replaceable probe.

## SWITCH PROBES

A Switch Probe is a spring contact probe and receptacle that has two individual current paths. One current path is closed, the other is open and after a designated travel the second current path closes.

## LEAD FREE PROBES

The Lead Free probe series is based on our ICT Probe Series. The plunger material, plating and tip geometry have been optimized to provide less wear and contamination build-up while using a moderate spring force of 7 to 8 ounces.

## THERMOCOUPLE PROBES

The Thermocouple Probe is an ungrounded, thermally conductive probe used for the measurement of variations in temperature. We offer two Thermocouple Probes: Type T for up to 220°F, and Type K for up to 350°F.

## ICT PROBES

The ICT probe design features a bifurcated barrel with four separate fingers. The barrel is compliant and formed against the plunger, thus eliminating any gap between the plunger and barrel. ICT probes are more accurate and stable in resistance than standard designs.

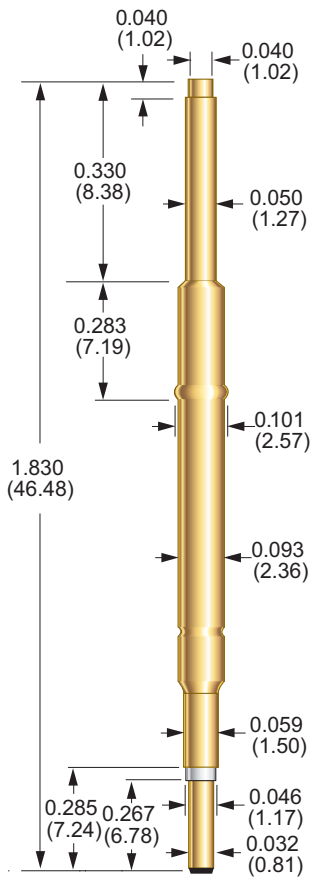
## COAXIAL PROBES


Our Coax Probes provide a low noise, controlled impedance signal path with reliable, easy connect/disconnect options. Our designs include a spring-loaded signal probe and a spring-loaded shielding plunger for the ground.

# Size 3 Switch Probe Series

## 0.125 (3.18) Centers

Does not require a receptacle. The barrel of the switch probe is designed to mount directly in the mounting plate.



Becu Tip	Diameter
 CS	0.050 (1.27) 0.040 (1.02)

### Probe Specifications

Minimum Centers	0.125 (3.18)
Current Rating	Up to 3 Amps
Spring Force	4.00 oz (114 g) @ 0.197 (5.00) travel
Preload Force	1.40 oz (40 g)
Maximum Travel	0.295 (7.49)
Working Travel	0.197 (5.00)
Travel to Switch Point	0.025 (0.64)
Spring Force at Switch Point	1.80 oz. (51 g)

### Materials

Barrel	Nickel/silver, gold plated
Spring	Music wire
Plungers	Full-hard beryllium copper, gold plated
Insulator	Delrin
Contact	Beryllium copper, gold plated

### Mounting

Drill Size	#41
Mounting Hole Size	0.094/0.096 (2.39/2.44)

### How to Order

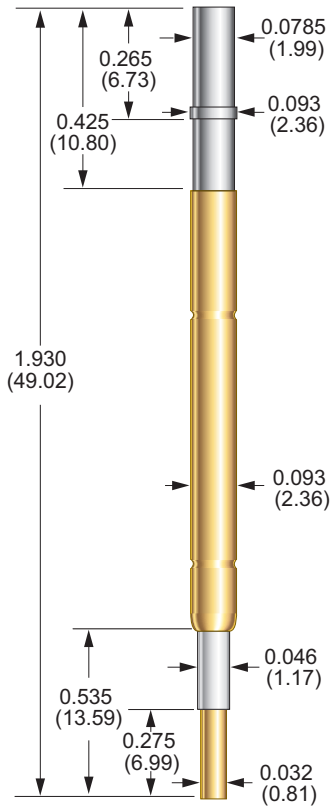
SW - 3 - CS - 1.8 - G  
1 2 3 4 5

1 Series	SW
2 Size	3
3 Tip Style	CS
4 Spring Force at Switch	1.8 oz
5 Plunger Plating	G Gold

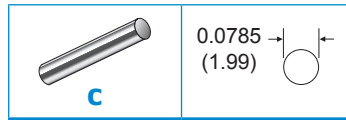
## Size 4 Switch Probe Series

0.156 (3.96) Centers

For R-4-CR Series Receptacles see pg. 6



### Nickel Tip Diameter



### Probe Specifications

Minimum Centers	0.156 (3.96)
Current Rating	Up to 3 Amps
Spring Force	4.80 oz (136 g) @ 0.120 (3.05) travel
Preload Force	2.50 oz (71 g)
Maximum Travel	0.160 (4.06)
Working Travel	0.120 (3.05)
Travel to Switch Point	0.107 (2.72)
Spring Force at Switch Point	4.40 oz. (125 g)

### Materials

Barrel	Nickel/silver, gold plated
Spring	Stainless steel
Plungers	Beryllium copper, nickel plated
Insulator	Delrin
Contact	Beryllium copper, gold plated

### How to Order

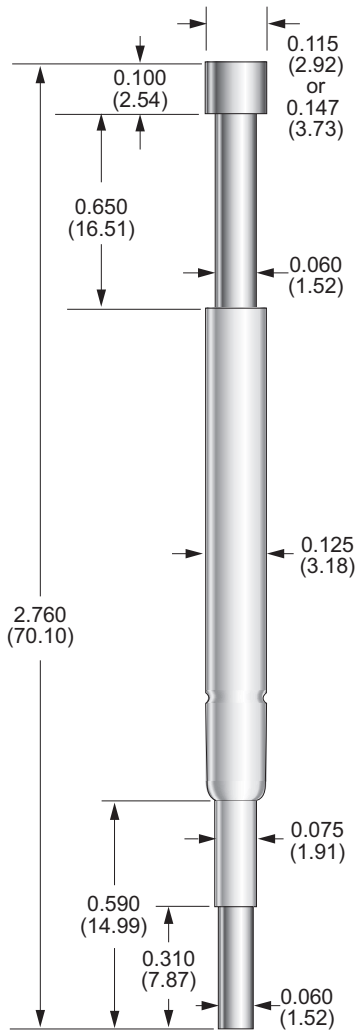
SW - 4 - C - 4.4 - EN  
1 2 3 4 5


1 Series	SW
2 Size	4
3 Tip Style	C
4 Spring Force at Switch	4.4 oz
5 Plunger Plating	EN Nickel

# Size 5 Switch Probe Series

## 0.187 (4.75) Centers

For R-5-SW Series Receptacles see pg. 7



Becu Tip	Diameter
	0.115 (2.92) or 0.147 (3.73)

### Probe Specifications

Minimum Centers	0.187 (4.75)
Current Rating	Up to 3 Amps
Spring Force	8.60 oz (244 g) or 20.40 oz (579 g) @ 0.137 (3.48) travel
Preload Force	1.80 oz (51 g) (8.60 oz spring/stainless steel) 5.20 oz (148 g) (20.40 oz spring/music wire)
Maximum Travel	0.190 (4.83)
Working Travel	0.137 (3.48)
Travel to Switch Point	0.030 (0.76)
Spring Force at Switch Point	4.00 oz. (113 g) (8.60 oz spring/stainless steel) or 10.30 oz. (293 g) (20.40 oz spring/music wire)

### Materials

Barrel	Nickel/silver, silver plated
Spring	Music wire or stainless steel
Plunger	Beryllium copper, nickel plated
Insulator	Delrin
Contact	Beryllium copper, nickel plated

### How to Order

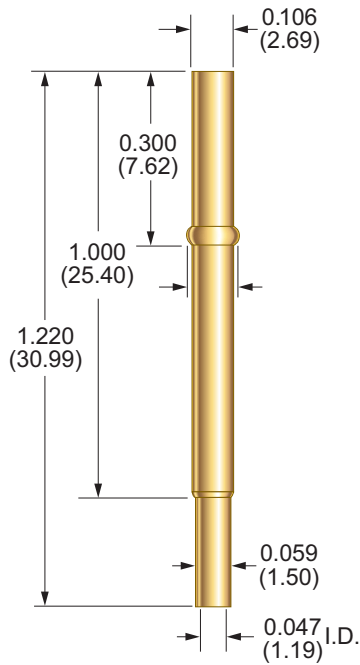
SW - 5 - F - 4 - EN - 1 1 5  
1 2 3 4 5 6

1 Series	SW
2 Size	5
3 Tip Style	F
4 Spring Force at Switch	4 oz 10.3 oz
5 Plunger Plating	EN Nickel
6 Head Diameter	1 1 5 0.115"
	1 4 7 0.147"

## R-4-CR Series

### 0.156 (3.96) Centers

For Size 4 Switch Probes see pg. 4



### Probe Specifications

Minimum Centers	0.156 (3.96)
Drill Size	#35
Mounting Hole Size	0.108/0.110 (2.74/2.79)
Materials	Nickel/silver, gold plated

### Tools

Insertion Tool	RT-4
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### How to Order

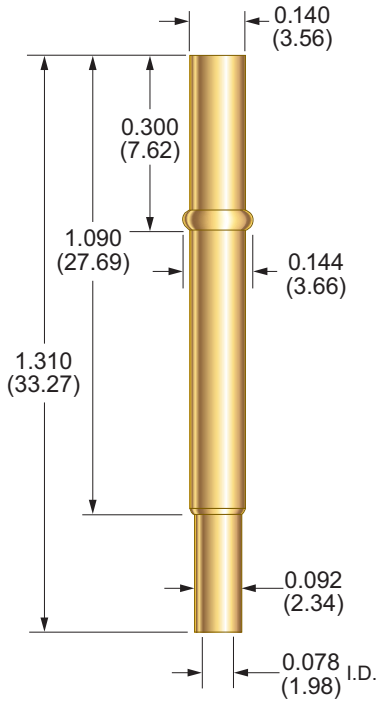
**R - 4 - CR**  
**1 2 3**

<b>1 Series</b>	<b>R</b>
<b>2 Size</b>	<b>4</b>
<b>3 Termination</b>	<b>CR</b> Crimp

# R-5-SW Series

## 0.187 (4.75) Centers

For Size 5 Switch Probes see pg. 5



### Probe Specifications

Minimum Centers	0.187 (4.75)
Drill Size	3.60 mm
Mounting Hole Size	0.141/0.143 (3.58/3.63)
Materials	Nickel/silver, gold plated

### Tools

Insertion Tool	RT-5
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### How to Order

**R** - **5** - **SW**  
**1**    **2**    **3**

<b>1 Series</b>	<b>R</b>
<b>2 Size</b>	<b>5</b>
<b>3 Termination</b>	<b>SW</b> Switch

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