

# Model S series

## High Superior Surface Probes

Model S series probes are high-performance temperature sensors developed using Anritsu Meter's full range of proprietary technologies to achieve the highest levels of response time and durability. These probes are available in four types: for stationary surfaces, for extremely small surfaces, for moving/rotating surfaces, and for self-supporting measurement.

Specific components may be combined to customize products for the needs of a customer's specific application.

Patented in Japan, the United States, England, France, and Germany.

モデルSシリーズは安立計器独自の技術により、応答速度、耐久性を極めた高性能の温度センサです。静止表面用、微小表面用、移動表面用、自重形の4種類をご用意しています。

各パーツの仕様を組み合わせる事により、お客様の用途に合わせてカスタマイズする事が出来ます。

特許：日本、アメリカ、イギリス、フランス、ドイツ

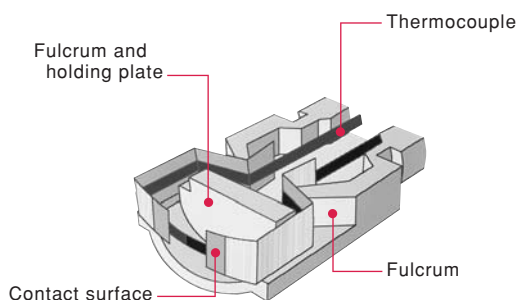
### S模式系列

S模式系列产品是使用安立计器自己的独创技术，在测速、耐用性等各方面都具有极度高性能的温度感应器。备有静止表面用、微型表面用、移动表面用和自重型4种类型。

通过对各个规格的组件进行重新组合的方式，可以按照客户的使用需求进行选配。

专利注册：日本，美国，英国，法国，德国

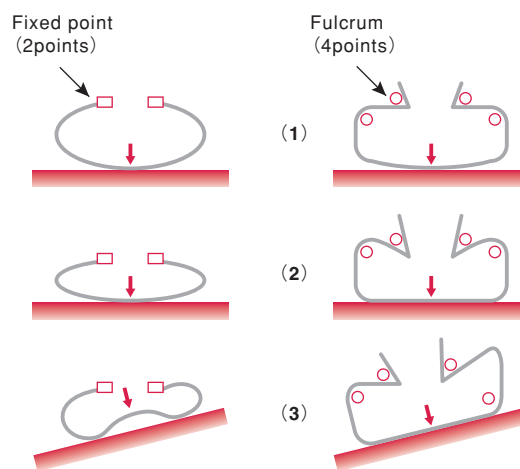
## The greatest feature of Model S series is the four-fulcrum structure.



Right illustration represents the transformation of the contact strip in Model S series and traditional probe. Figure (2) of ideal contact condition is possible to measure the accurate temperature.

But, on condition of Figure (3) can not measure the accurate temperature because of transformation. Even if you repeated the measurement over and over times on conditions of (1) → (2) → (3), Model S series is not transformed at all.

### ●Transformation of a contact strip



"↓" mark point the position of junction

## Accuracy, Test certificate

The traceability of temperature is administrated by the fixed point of temperature (ice point, boiling point of water, etc.), but it can not apply the rule in the surface temperature measurement. Anritsu Meter Co.,Ltd. established the original standard of surface temperature by development of the surface temperature calibration system. Model S series are attached the test certificate by this calibration system.

## Durability

The greatest feature of Model S series is the four fulcrum structure. Model S series realize a extreme durability to the severe temperature measurement.

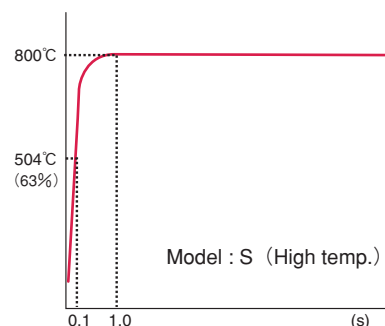
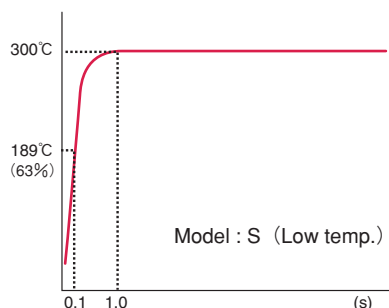
### ●Model S series for the stationary surface

On the metallic surface at 300°C	more than 100,000 contacts
On the metallic surface at 800°C	more than 60,000 contacts

### ●Model S series for the moving surface

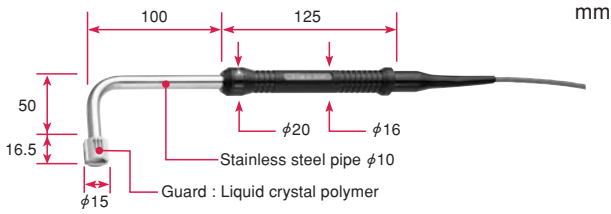
On the steel plate with smooth surface at 300°C and speed of 200m/min	more than 2000 hours
On the steel plate with smooth surface at 600°C and speed of 200m/min	more than 1000 hours

## Response curve



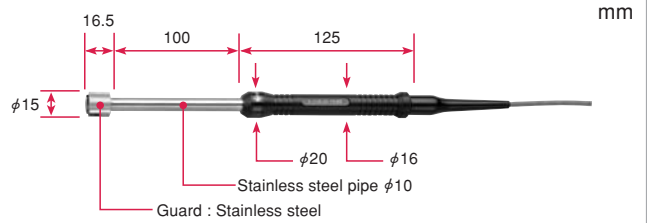
# Typical probes of S series

**Type K Model S-113K-01-1-TPC1-ANP**  
**Type E Model S-113E-01-1-TPC1-ANP**



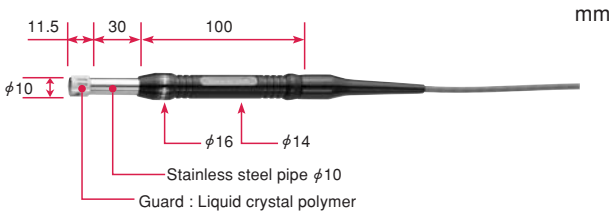
Temp. range	Tolerance	Response time	Durability
-50~300°C	±2.5°C (at 100°C surface)	1.0 s	A

**Type K Model S-221K-01-1-TPC1-ANP**  
**Type E Model S-221E-01-1-TPC1-ANP**



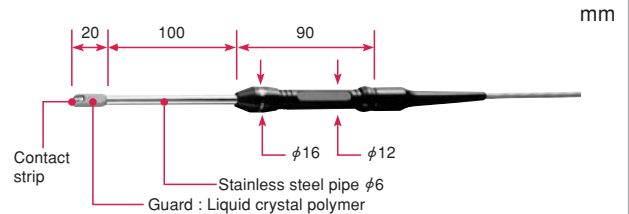
Temp. range	Tolerance	Response time	Durability
-50~800°C	±2.5°C (at 100°C surface)	1.0 s	A

**Type K Model S-311K-00-1-TPC1-ANP**  
**Type E Model S-311E-00-1-TPC1-ANP**



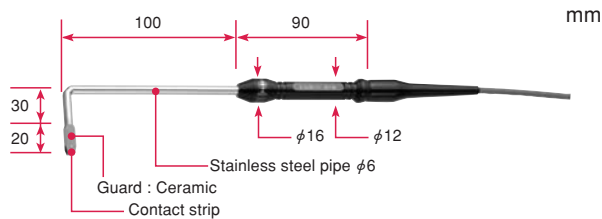
Temp. range	Tolerance	Response time	Durability
-50~300°C	±2.5°C (at 100°C surface)	1.0 s	A

**Type K Model S-411K-01-1-TPC1-ANP**  
**Type E Model S-411E-01-1-TPC1-ANP**



Temp. range	Tolerance	Response time	Durability
-50~300°C	±2.5°C (at 100°C surface)	1.0 s	A

**Type K Model S-423K-01-1-TPC1-ANP**  
**Type E Model S-423E-01-1-TPC1-ANP**



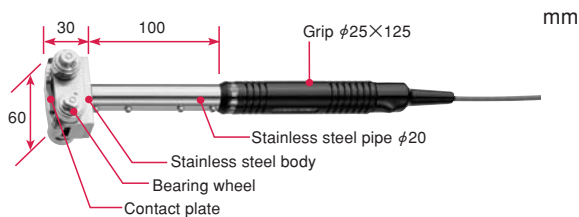
Temp. range	Tolerance	Response time	Durability
-50~800°C	±2.5°C (at 100°C surface)	1.0 s	A

**Type K Model S-551K-01-1-TPC1-ANP**  
**Type E Model S-551E-01-1-TPC1-ANP**



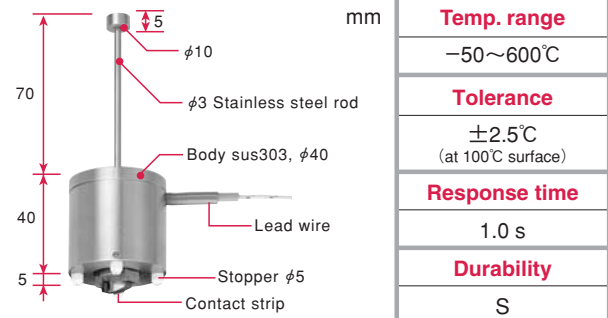
Temp. range	Tolerance	Response time	Durability
-50~600°C	±2.5°C (at 100°C surface)	3.0 s	A

**Type K Model S-641K-01-1-TPC1-ANP**  
**Type E Model S-641E-01-1-TPC1-ANP**



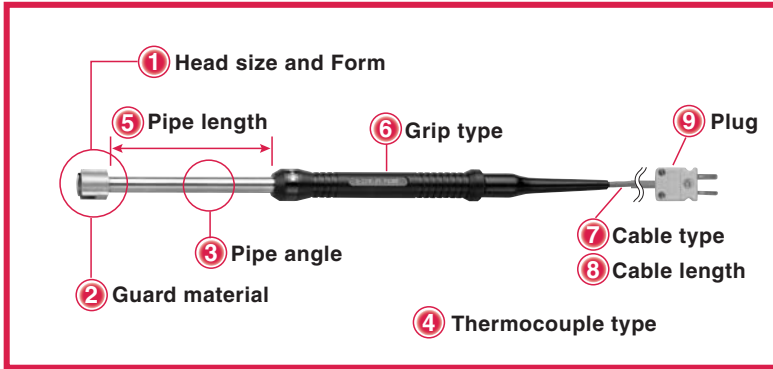
Temp. range	Tolerance	Response time	Durability
-50~400°C	±2.5°C (at 100°C surface)	3.0 s	A

**Type K Model S-780K-GW1-ANP**  
**Type E Model S-780E-GW1-ANP**



Temp. range
-50~600°C
Tolerance
±2.5°C (at 100°C surface)
Response time
1.0 s
Durability
S

# How to order of S series



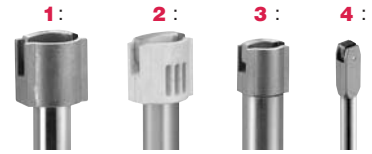
## S-121K-01-1-TPC1-ANP



<b>① Head size and Form</b>	<b>1</b> : $\phi$ 15mm (allowable tilt $\pm 4^\circ$ ) <b>2</b> : $\phi$ 15mm (allowable tilt $\pm 8^\circ$ ) <b>3</b> : $\phi$ 10mm <b>4</b> : $6 \times 7$ mm <b>5</b> : Guard type for flat moving surface (60 $\times$ 40mm) <b>6</b> : Wheel type for flat moving surface (60 $\times$ 50mm) <b>7</b> : Self Supporting type ( $\phi$ 40mm)	
<b>② Guard material (Max. temp.)</b>	<b>1</b> : Liquid crystal polymer (300 $^\circ$ C) *1 <b>2</b> : Stainless (800 $^\circ$ C) *1*2 *1: Only S-1**, S-2**, S-3**, S-4** *2: It is ceramics for S-4** <b>4</b> : With wheels (400 $^\circ$ C) *3 <b>5</b> : Special mica guard (600 $^\circ$ C) *4 <b>6</b> : Ceramics guard (800 $^\circ$ C) *4 *3: Only S-64* *4: Only S-5** <b>7</b> : Ceramics (300 $^\circ$ C) *5 <b>8</b> : Ceramics (600 $^\circ$ C) *5 *5: Only S-7**	
<b>③ Pipe angle</b>	<b>0</b> : Nothing (Only S-7**)	<b>1</b> : Straight <b>3</b> : 90 degrees
<b>④ Thermocouple type</b>	<b>K</b> : Chromel-Alumel <b>E</b> : Chromel-Constantan	
<b>⑤ Pipe length</b>	S-1**, S-2**, S-3**	<b>00</b> : 30mm <b>01</b> : 100mm ..... <b>10</b> : 1000mm
	S-4**	<b>00</b> : 30mm <b>01</b> : 100mm ..... <b>05</b> : 500mm
	S-5**, S-64*	<b>01</b> : 100mm <b>02</b> : 200mm ..... <b>10</b> : 1000mm <b>15</b> : 1500mm <b>20</b> : 2000mm
	S-7**	Nothing
<b>⑥ Grip type</b>	S-1**, S-2**, S-3**, S-4**, S-5**, S-64*	<b>0</b> : No grip <b>1</b> : Standard grip
	S-7**	Nothing
<b>⑦ Cable type (See page 5)</b>	S-1**, S-2**, S-3**, S-4**, S-5**, S-64*	TPC (Only 1m) , TC
	S-4** (No grip)	TS
	S-7**	GW
<b>⑧ Cable length</b>	<b>1</b> : 1m <b>1.5</b> : 1.5m <b>2</b> : 2m <b>2.5</b> : 2.5m .....	
<b>⑨ Plug (See page 4)</b>	<b>ANP</b> : P plug <b>ASP</b> : S plug <b>W</b> : Without plug	

### ① Head size and Form

For stationary surface



For moving surface



Self supporting type

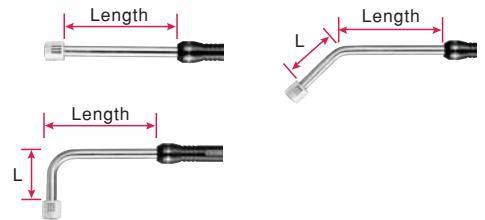


### ③ Pipe angle

You can choose pipe angle as below.



### ⑤ Pipe length



The pipe height "L" is 50mm. (For S-1\*\*, S-2\*\*, S-3\*\*)  
 The pipe height "L" is 30mm. (For S-4\*\*)  
 The pipe height "L" is 110mm. (For S-5\*\*, S-64\*)

### ⑥ Grip type

No grip	For device, system, auto-machines, mechanical system etc
Standard grip	For handheld measurement

### Specifications

Tolerance	$\pm 2.5^\circ\text{C}$ (at 100 $^\circ\text{C}$ surface)	
Response time	S-1**, S-2**, S-3**, S-4**, S-7**	1.0 s
	S-5**, S-64*	3.0 s
Durability rank	S-1**, S-2**, S-3**, S-4**, S-5**, S-64*	A
	S-7**	S