

Model N series

General Stationary Surface Probes

N模式系列

N模式系列产品是适用于静止表面温度测试的通用型温度感应器。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。

Model N series probes are general-purpose temperature sensors designed to measure the temperatures of stationary surfaces.

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

モデルNシリーズは、静止表面の温度測定に適した汎用的な温度センサです。

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。

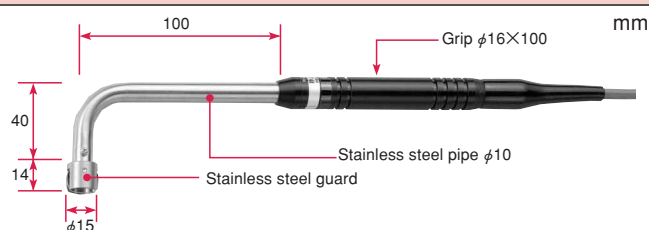
Typical Probes of N series

Type K Model N-231K-00-1-TC1-ANP
Type E Model N-231E-00-1-TC1-ANP



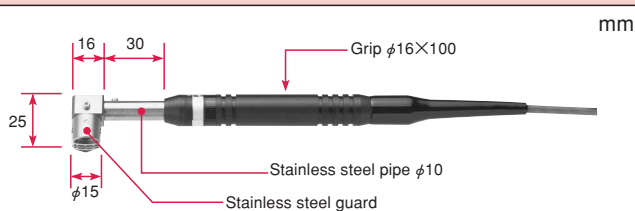
Temp. Range	Accuracy	Response time	Durability
-50~500°C	±1.2°C (at 100°C Surface)	1.5 s	A

Type K Model N-233K-01-1-TC1-ANP
Type E Model N-233E-01-1-TC1-ANP



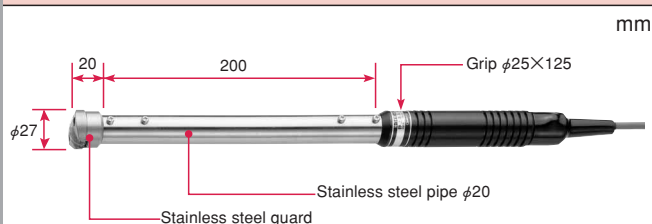
Temp. Range	Accuracy	Response time	Durability
-50~500°C	±1.2°C (at 100°C Surface)	1.5 s	A

Type K Model N-234K-00-1-TC1-ANP
Type E Model N-234E-00-1-TC1-ANP



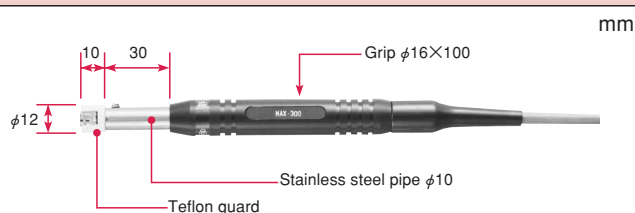
Temp. Range	Accuracy	Response time	Durability
-50~500°C	±1.2°C (at 100°C Surface)	1.5 s	A

Type K Model N-141K-02-1-TC1-ANP
Type E Model N-141E-02-1-TC1-ANP



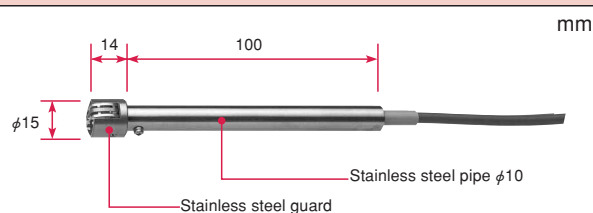
Temp. Range	Accuracy	Response time	Durability
-50~800°C	±1.2°C (at 100°C Surface)	1.5 s	A

Type K Model N-311K-00-1-TC1-ANP
Type E Model N-311E-00-1-TC1-ANP



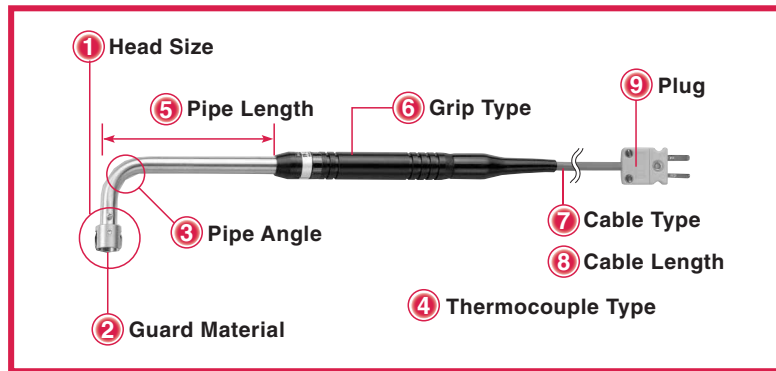
Temp. Range	Accuracy	Response time	Durability
-50~300°C	±1.2°C (at 100°C Surface)	1.5 s	A

Type K Model N-231K-01-0-TC1-ANP
Type E Model N-231E-01-0-TC1-ANP



Temp. Range	Accuracy	Response time	Durability
-50~500°C	±1.2°C (at 100°C Surface)	1.5 s	A

How to order of N series



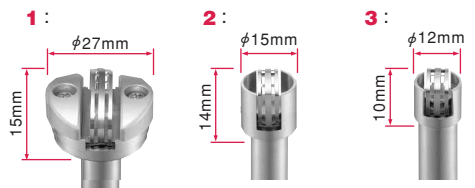
N-233K-01-1-TC1-ANP

① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨

① Head Size	1 : $\phi 27\text{mm}$ 2 : $\phi 15\text{mm}$ 3 : $\phi 12\text{mm}$
② Guard Material (Max. Temp.)	1 : Teflon (300°C) 2 : Polyimide (400°C) 3 : Stainless (500°C) 4 : Stainless for High Temp. (800°C) 5 : Teflon (200°C) (Element is coated by Teflon.) 6 : Polyimide (300°C) (Element is coated by polyimide.) 7 : Without guard (500°C) (Only N-1**)
③ Pipe Angle	1 : Straight 2 : 45 degrees 3 : 90 degrees 4 : 90 degrees (elbow) 5 : 45 degrees* 6 : 90 degrees* 7 : 90 degrees (elbow)* *Element direction of right angle
④ Thermocouple Type	K : Chromel-Alumel E : Chromel-Constantan
⑤ Pipe Length	00 : 30mm 01 : 100mm 02 : 200mm 10 : 1000mm 15 : 1500mm (only N-14*) 20 : 2000mm (only N-14*)
⑥ Grip Type	0 : No Grip (For fixed-position measurement) 1 : Standard Grip (For handheld measurement)
⑦ Cable Type (See page 5)	TC :
⑧ Cable Length	1 : 1m 1.5 : 1.5m 2 : 2m 2.5 : 2.5m
⑨ Plug (See page 4)	ANP : P plug ASP : S plug W : Without plug

① Head Size

You can choose Head Size as below.



③ Pipe Angle

You can choose Pipe Angle as below.

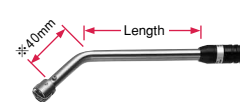
	Pipe-Element	Pipe-Element
	1	
	2	5
	3	6
	4	7

⑤ Pipe Length

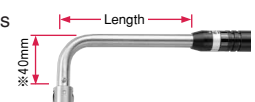
Straight



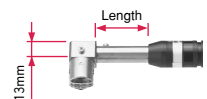
45 degrees



90 degrees



90 degrees
(elbow)



Only the pipe of N-14 is 110mm in height.

⑥ Grip Type

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

Specifications

Accuracy	$\pm 1.2^{\circ}\text{C}$ (at 100°C surface)
Response time	1.5 s 6 s in the case of coated element (N-*5*, N-*6*)
Durability rank	A
Maximum allowable tilt	$\pm 4^{\circ}$ (N-2**, N-3**) $\pm 8^{\circ}$ (N-1**)

Model **WE** series

Self Supporting Probes

Model WE series probes are temperature sensors designed for stationary surfaces. These self-supporting probes can be used to measure temperature simply by placing the probe on the measurement target. Specific components may be combined to customize products for the needs of a customer's specific application.

WE模式系列

WE模式系列产品是静止表面用温度感应器，因感应器自身的重力作用，只需置放在测试对象表面即可测试温度。

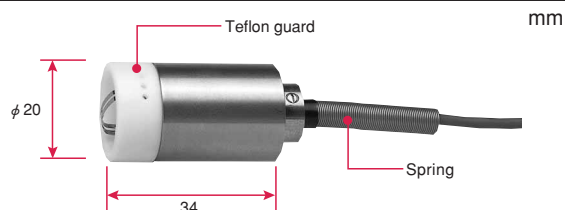
通过对各个规格的组件进行重新组合的方式，可以按照客户的使用需求进行选配。

モデルWEシリーズは、センサ自身の重さにより計測対象の上に置くだけで温度測定できる静止表面用温度センサです。

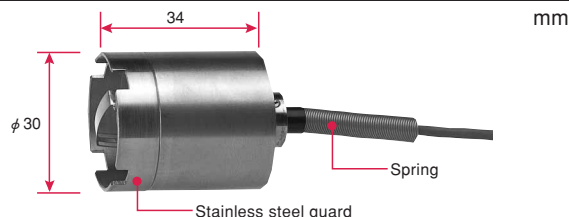
各パーツの仕様を組み合わせる事により、お客様の用途に合わせてカスタマイズする事が出来ます。

Typical Probes of WE series

Type K Model **WE-11K-TS1-ANP**
Type E Model **WE-11E-TS1-ANP**



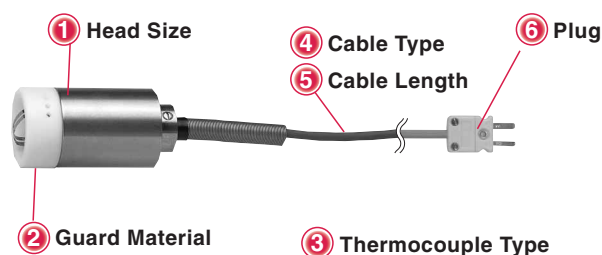
Type K Model **WE-22K-GW1-ANP**
Type E Model **WE-22E-GW1-ANP**



Temp. Range	Accuracy	Response time	Durability
-50~250°C	±1.2°C (at 100°C Surface)	0.5 s	A

Temp. Range	Accuracy	Response time	Durability
-50~500°C	±1.2°C (at 100°C Surface)	1.0 s	A

How to order of WE series

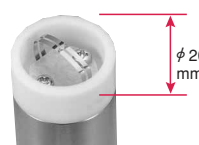


① Head Size

You can choose Head Size as below.

1 : Weight : app.70g.
(High temp. app.80g)

2 : Weight : app.150g.
(High temp. app.160g)



② Guard Material

You can choose Low or High Temp. as below.

1 : Teflon guard

2 : Stainless guard



WE-11K-TS1-ANP



① Head Size	1 : φ20mm 2 : φ30mm
② Guard Material (Max Temp.)	1 : Teflon (250°C) 2 : Stainless (500°C)
③ Thermocouple Type	K : Chromel-Alumel E : Chromel-Constantan
④ Cable Type (See page 5)	TS : For WE-*1 GW : For WE-*2
⑤ Cable Length	1 : 1m 1.5 : 1.5m 2 : 2m 2.5 : 2.5m
⑥ Plug (See page 4)	ANP : P plug ASP : S plug W : Without plug

Specifications

Accuracy	±1.2°C (at 100°C surface)
Response time	WE-*1 : 0.5s WE-*2 : 1s
Durability rank	A
Max. Temp.	WE-*1 : 250°C WE-*2 : 500°C

Model **MG** series

Magnet Probes

Model MG series probes are temperature sensors designed for stationary surfaces. Built-in magnets allow these probes to be attached to measurement targets. Specific components may be combined to customize products for the needs of a customer's specific application.

MG模式系列

MG模式系列产品是内部装有磁石的静止表面用温度感应器，可固定在测试对象上测试温度。

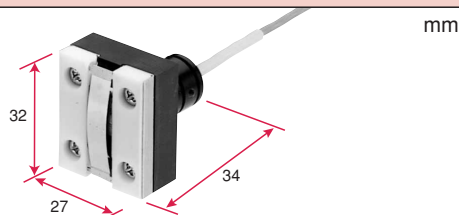
通过对各个规格的组件进行重新组合的方式，可以按照客户的使用需求进行选配。

モデルMGシリーズは、内蔵した磁石により測定対象に固定できる静止表面用温度センサです。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。

Typical Probes of MG series

Type K Model **MG-11K-TS1-ANP**

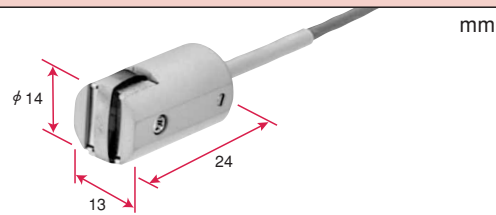
Type E Model **MG-11E-TS1-ANP**



Temp. Range	Accuracy	Response time	Durability
-50~250°C	±1.3°C (at 100°C Surface)	2.0 s	A

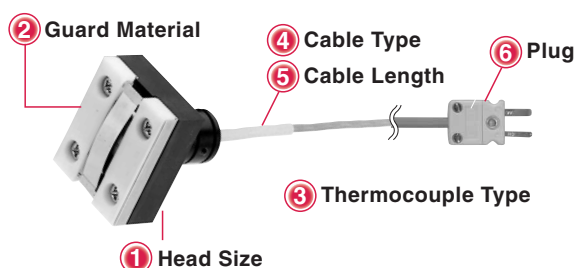
Type K Model **MG-22K-GW1-ANP**

Type E Model **MG-22E-GW1-ANP**



Temp. Range	Accuracy	Response time	Durability
-50~400°C	±1.4°C (at 100°C Surface)	2.0 s	A

How to order of MG series



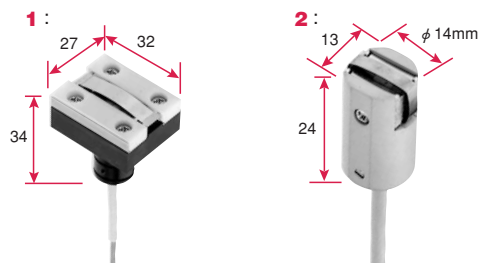
MG-11K-TS1-ANP

① ② ③ ④ ⑤ ⑥

① Head Size	1 : 27×32mm (Standard type) 2 : φ14 (Miniature type)
② Guard Material (Max Temp.)	1 : Teflon (250°C) 2 : MG-1* Glass cloth (400°C) MG-2* Polyimide (400°C)
③ Thermocouple Type	K : Chromel-Alumel E : Chromel-Constantan
④ Cable Type (See page 5)	TS : For MG-*1 GW : For MG-*2
⑤ Cable Length	1 : 1m 1.5 : 1.5m 2 : 2m 2.5 : 2.5m
⑥ Plug (See page 4)	ANP : P plug ASP : S plug W : Without plug

① Head Size

You can choose Head Size as below.

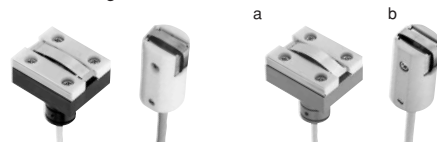


② Guard Material

You can choose Guard Material as below.

1 : Teflon guard

2 :



a. Standard type: Glass cloth guard
b. Miniature type: polyimide guard

Specifications

Accuracy	MG-1* : ±1.3°C (at 100°C surface) MG-2* : ±1.4°C (at 100°C surface)
Response time	2.0 s
Durability rank	A
Max. Temp.	MG-*1 : 250°C MG-*2 : 400°C

Model U series

General Moving / Rotating Surface Probes

U模式系列

U模式系列产品是将感应器与测试面的摩擦系数降至最小极限的温度感应器，适用于移动或旋转表面的温度测试。

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。


Model U series probes offer minimal coefficient of friction between the sensor and measuring surface, making them ideal for measuring the temperatures of moving or rotating surfaces.

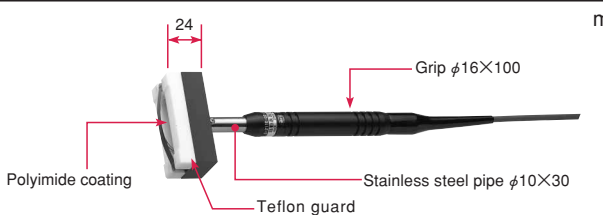
Specific components may be combined to customize products for the needs of a customer's specific application.


モデルUシリーズは、センサと測定面との摩擦係数を極限まで小さくした、移動または回転する表面の温度測定に適した温度センサです。

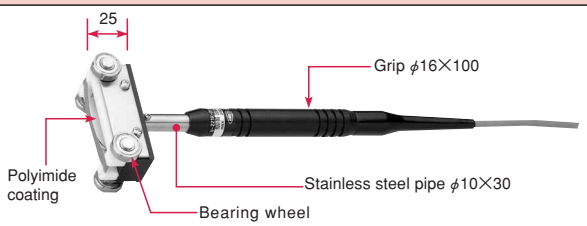
各パーツの仕様を組み合わせる事により、お客様の用途に合わせてカスタマイズする事が出来ます。

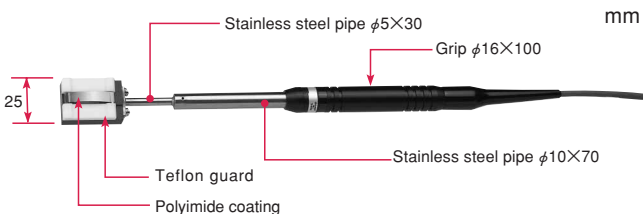
Typical Probes of U series

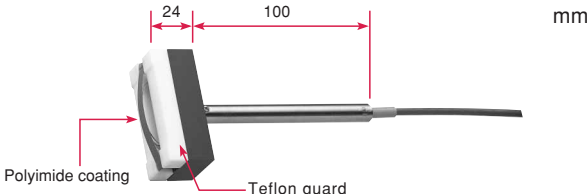
Type K Model	U-111K-00-D0-1-TC1-ANP		
Type E Model	U-111E-00-D0-1-TC1-ANP		
			
Temp. Range	Accuracy	Response time	Durability
-50~250℃	±1.5℃ (at 100℃ Surface)	2.0 s	A

Type K Model	U-211K-00-D0-1-TC1-ANP		
Type E Model	U-211E-00-D0-1-TC1-ANP		
			
Temp. Range	Accuracy	Response time	Durability
-50~250℃	±1.5℃ (at 100℃ Surface)	3.5 s	A

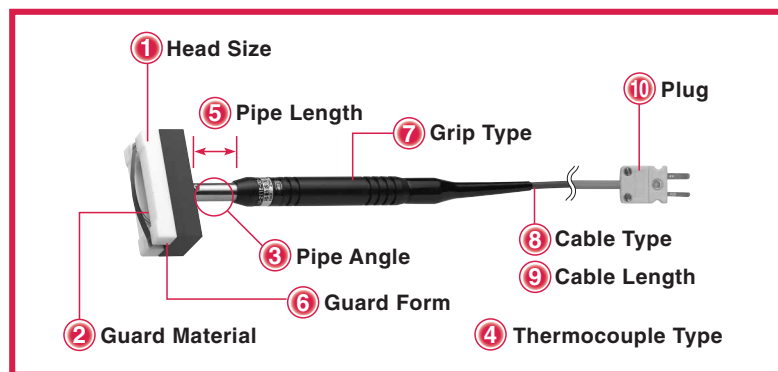
Type K Model	U-114K-00-D0-1-TC1-ANP		
Type E Model	U-114E-00-D0-1-TC1-ANP		
			
Temp. Range	Accuracy	Response time	Durability
-50~250℃	±1.5℃ (at 100℃ Surface)	2.0 s	A

Type K Model		U-221K-00-D0-1-TC1-ANP	
Type E Model		U-221E-00-D0-1-TC1-ANP	
			
Temp. Range	Accuracy	Response time	Durability
-50~200℃	±1.5℃ (at 100℃ Surface)	3.5 s	A

Type K Model	U-118K-01-D0-1-TC1-ANP		
Type E Model	U-118E-01-D0-1-TC1-ANP		
			
Temp. Range	Accuracy	Response time	Durability
-50~250℃	±1.5℃ (at 100℃ Surface)	2.0 s	A

Type K Model	U-211K-01-D0-0-TC1-ANP		
Type E Model	U-211E-01-D0-0-TC1-ANP		
			
No grip probe type			
Temp. Range	Accuracy	Response time	Durability
-50~250°C	±1.5°C (at 100°C Surface)	3.5 s	A

How to order of U series



U-211K-00-D0-1-TC1-ANP

1 2 3 4 5 6 7 8 9 10

① Head Size	1 : 25×32mm (Guard:U-*1*) 37×36mm (Wheel:U-*2*,U-*3*) 2 : 29×60mm (Guard:U-*1*) 40×66mm (Wheel:U-*2*,U-*3*)
② Guard Material (Max.Temp.)	1 : Teflon guard (250℃) 2 : Bearing wheel (200℃) 3 : Teflon wheel (250℃) 1~3 : Contact section is polyimide-coated. 4 : Teflon guard (200℃) 5 : Bearing wheel (200℃) 6 : Teflon wheel (200℃) 4~6 : Contact section is Teflon-coated. 7 : Teflon guard (250℃) 8 : Bearing wheel (200℃) 9 : Teflon wheel (250℃) 7~9 : Contact section has no coating.
③ Pipe Angle	1 : Straight 2 : 45 degrees 3 : 90 degrees 4 : 90 degrees (elbow) 5 : 45 degrees* 6 : 90 degrees* 7 : 90 degrees (elbow)* 8 : Direct 9 : Direct* *Element direction of right angle
④ Thermocouple Type	K : Chromel-Alumel E : Chromel-Constantan
⑤ Pipe Length	00 : 30mm 01 : 100mm 02 : 200mm 03 : 300mm 04 : 400mm 05 : 500mm
⑥ Guard Form	D0~D4 : See right
⑦ Grip Type	0 : No Grip 1 : Standard Grip
⑧ Cable Type (See page 5)	TC :
⑨ Cable Length	1 : 1m 1.5 : 1.5m 2 : 2m 2.5 : 2.5m
⑩ Plug (See page 4)	ANP : P plug ASP : S plug W : Without plug

① Head Size ② Guard Material

You can choose Head Size as below.

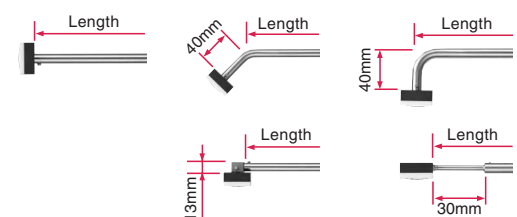
U-11* U-21*	U-12* U-22*	U-13* U-23*
U-14* U-24*	U-15* U-25*	U-16* U-26*
U-17* U-27*	U-18* U-28*	U-19* U-29*

③ Pipe Angle

You can choose Pipe Angle as below.

	Pipe	Element
	1	
	2	5
	3	6
	4	7
	8	9

⑤ Pipe Length



⑥ Guard Form

	U-11* U-14* U-17*	U-21* U-24* U-27*	U-*2*,U-*3* U-*5*,U-*6* U-*8*,U-*9*
D0	φ 300~flat	φ 400~flat	flat only*
D1	—	φ 300~420	—
D2	φ 160~320	φ 160~320	—
D3	φ 100~200	φ 100~200	—
D4	φ 60~120	φ 60~120	—

*U-1** can be used for diameters of up to φ300mm in case of the D0 model.

*U-2** can be used for diameters of up to φ400mm in case of the D0 model.

⑦ Grip Type

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

Specifications

Accuracy	±1.5℃ (at 100℃ surface)
Response time	U-1** : 2.0s U-2** : 3.5s
Durability rank	A
Speed limit	U-1** : 400m / min U-2** : 600m / min

Model SH series

Small Head Probes

Model SH series probes are ideal for measuring the temperatures of moving or rotating surfaces. The SH series is better suited to small measurement targets than the U series.

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

SH模式系列

SH模式系列产品是适用于移动或旋转表面温度测试的温度感应器。

与U模式系列产品相比更适合较小物体的测试。

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。

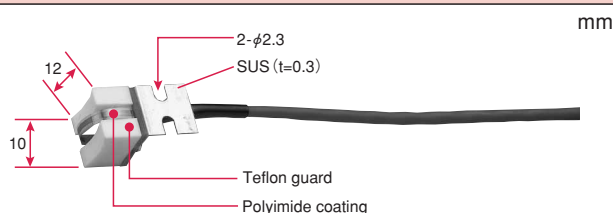
モデルSHシリーズは、移動または回転する表面の温度測定に適した温度センサです。モデルUシリーズよりも、より小さい物体の計測に適しています。

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。

Typical Probes of SH series

Type K Model **SH-14K-TS1-ANP**

Type E Model **SH-14E-TS1-ANP**



Type K Model **SH-46K-TC1-ANP**

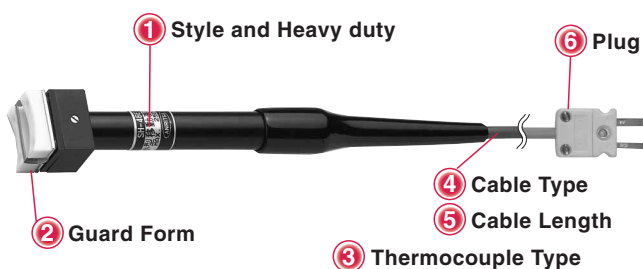
Type E Model **SH-46E-TC1-ANP**



Temp. Range	Accuracy	Response time	Durability
-50~250°C	±1.5°C (at 100°C Surface)	5.0 s	B

Temp. Range	Accuracy	Response time	Durability
-50~250°C	±1.5°C (at 100°C Surface)	5.0 s	A

How to order of SH series



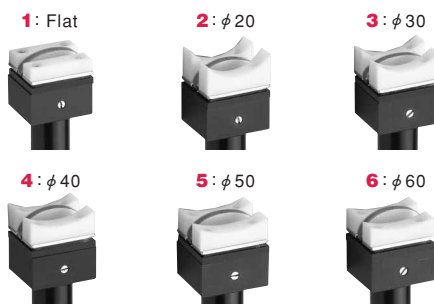
① Style and Heavy duty

You can choose Style and Heavy duty as below.

Setting Type	Standard	1: 12mm	2: 10mm	2-φ2.3mm	SUS (t=0.3)
Grip Type	Standard	3: 18mm	4: 20mm		

② Guard Form

You can choose Guard Form φ as below.



SH-46K-TC1-ANP



① Style and Heavy duty	1: Setting type 2: Setting type (Heavy duty) 3: Grip type 4: Grip type (Heavy duty)
② Guard Form	1: Flat (only SH-1*, SH-3*) 2: φ20mm 3: φ30mm 4: φ40mm 5: φ50mm 6: φ60mm
③ Thermocouple Type	K: Chromel-Alumel E: Chromel-Constantan
④ Cable Type (See page 5)	TS: For SH-1*, SH-2* (Setting type) TC: For SH-3*, SH-4* (Grip type)
⑤ Cable Length	1: 1m 1.5: 1.5m 2: 2m 2.5: 2.5m
⑥ Plug (See page 4)	ANP: P plug ASP: S plug W: Without plug

Specifications

Accuracy	±1.5°C (at 100°C surface)
Response time	5.0 s
Durability rank	SH-1*, SH-3*: B SH-2*, SH-4*: A
Max. Temp.	250°C

Model MW series

Moving Wire Probes

Model MW series probes are ideal for measuring temperatures at the surfaces of moving wires.

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

MW模式系列

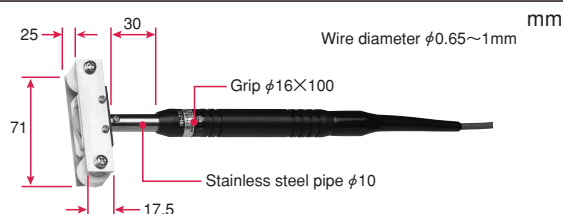
MW模式系列产品是适用于行驶中的金属丝表面温度测试的温度感应器。通过对各个规格的组件进行重新组合的方式，可以按照客户的使用需求进行选配。

モデルMWシリーズは、走行中のワイヤー表面の温度測定に適した温度センサです。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。

Typical Probes of MW series

Type K Model **MW-11K-TC1-ANP**

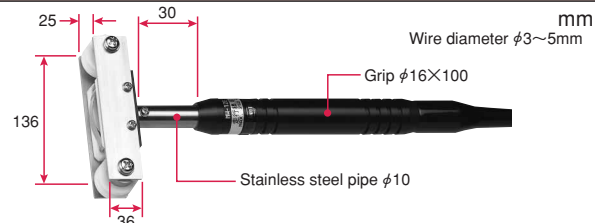
Type E Model **MW-11E-TC1-ANP**



Temp. Range	Accuracy	Response time	Durability
-50~250°C	±1.5°C (at 100°C Surface)	5.0 s	S

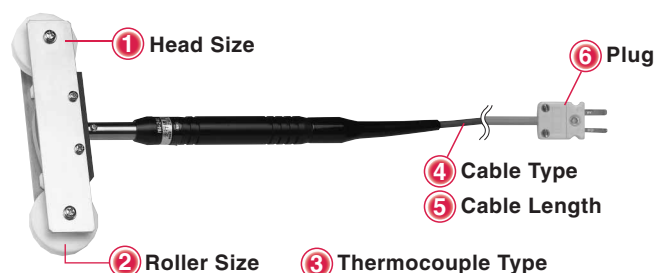
Type K Model **MW-24K-TC1-ANP**

Type E Model **MW-24E-TC1-ANP**



Temp. Range	Accuracy	Response time	Durability
-50~250°C	±1.5°C (at 100°C Surface)	5.0 s	S

How to order of MW series



MW-24K-TC1-ANP

① ② ③ ④ ⑤ ⑥

① Head Size (Wire Diameter)	1 : For $\phi 0.65 \sim 3\text{mm}$ (MW-1*, MW-2*, MW-3*) 2 : For $\phi 3 \sim 15\text{mm}$ (MW-4*, MW-5*, MW-6*)
② Roller Size (Wire Diameter)	1 : $\phi 0.65 \sim 1\text{mm}$ (for MW-1*) 2 : $\phi 1 \sim 2\text{mm}$ (for MW-1*) 3 : $\phi 2 \sim 3\text{mm}$ (for MW-1*) 4 : $\phi 3 \sim 5\text{mm}$ (for MW-2*) 5 : $\phi 5 \sim 10\text{mm}$ (for MW-2*) 6 : $\phi 10 \sim 15\text{mm}$ (for MW-2*)
③ Thermocouple Type	K : Chromel-Alumel E : Chromel-Constantan
④ Cable Type (See page 5)	TC :
⑤ Cable Length	1 : 1m 1.5 : 1.5m 2 : 2m 2.5 : 2.5m
⑥ Plug (See page 4)	ANP: P plug ASP: S plug W : Without plug

① Head Size

You can choose Head Size as below.



② Roller Size

You can choose Roller Size as below.

	Wire Diameter	Head Size
1 :	$\phi 0.65 \sim 1\text{mm}$	Only MW-1* Diameter (ϕ) 71x25mm
2 :	$\phi 1 \sim 2\text{mm}$	
3 :	$\phi 2 \sim 3\text{mm}$	
4 :	$\phi 3 \sim 5\text{mm}$	Only MW-2* Diameter (ϕ) 136x25mm
5 :	$\phi 5 \sim 10\text{mm}$	
6 :	$\phi 10 \sim 15\text{mm}$	

Specifications

Accuracy	±1.5°C (at 100°C surface)
Response time	5.0 s
Durability rank	S
Max. Temp.	250°C

Model **BS** series

General Internal Probes

BS模式系列

BS模式系列产品是适用于液体或半固态物体温度测试的温度感应器。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。

Model BS series probes are internal temperature sensors designed to measure the temperatures of liquid or semi-solid materials.

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

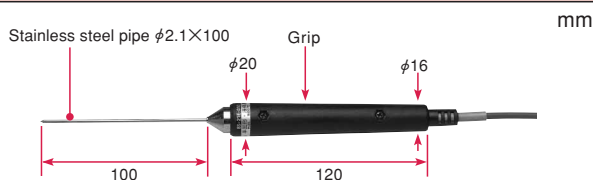
モデルBSシリーズは、液体または半固形物の温度測定に適した内部用温度センサです。

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。

Typical Probes of BS series

Type K Model BS-21K-010-TC1-ANP

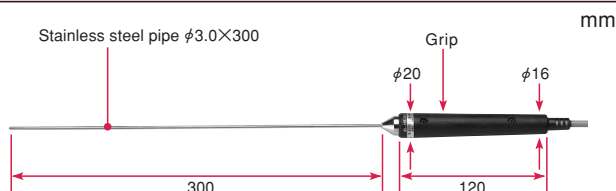
Type E Model BS-21E-010-TC1-ANP



Temp. Range	Accuracy	Response time	Durability
-200~500°C	±1.3°C (at 100°C)	2.5 s	B

Type K Model BS-31K-030-TC1-ANP

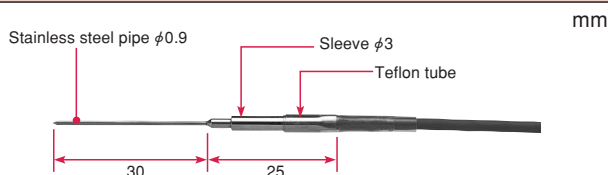
Type E Model BS-31E-030-TC1-ANP



Temp. Range	Accuracy	Response time	Durability
-50~500°C	±1.3°C (at 100°C)	3.0 s	B

Type K Model BS-91K-003-TS1-ANP

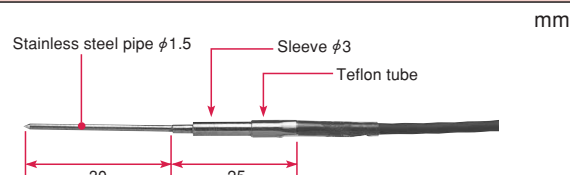
Type E Model BS-91E-003-TS1-ANP



Temp. Range	Accuracy	Response time	Durability
-200~300°C	±1.2°C (at 100°C)	0.5 s	C

Type K Model BS-11K-003-TS1-ANP

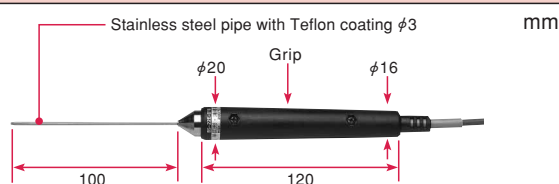
Type E Model BS-11E-003-TS1-ANP



Temp. Range	Accuracy	Response time	Durability
-200~300°C	±1.3°C (at 100°C)	1.5 s	C

Type K Model BS-22K-010-TC1-ANP

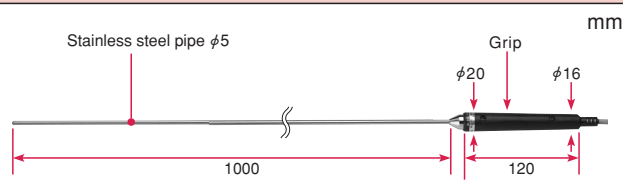
Type E Model BS-22E-010-TC1-ANP



Temp. Range	Accuracy	Response time	Durability
-200~200°C	±1.4°C (at 100°C)	20 s	B

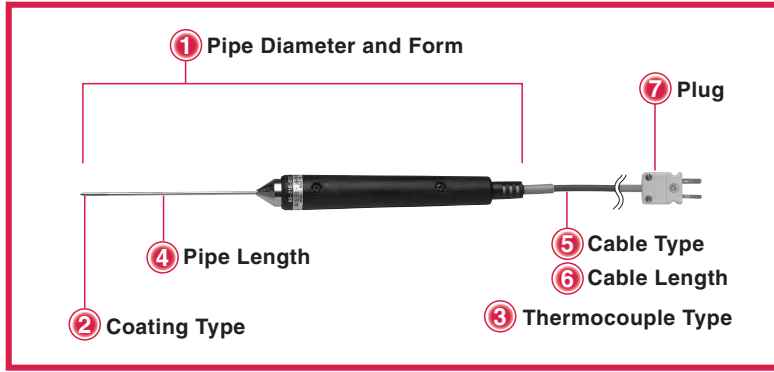
Type K Model BS-51K-100-TC1-ANP

Type E Model BS-51E-100-TC1-ANP



Temp. Range	Accuracy	Response time	Durability
-200~500°C	±1.4°C (at 100°C)	5 s	B

How to order of BS series



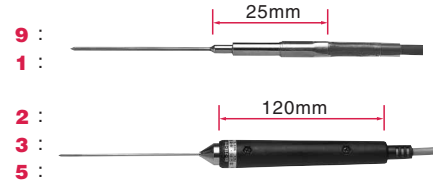
BS-21K-010-TC1-ANP



① Pipe Diameter and Form (Max.Temp.)	9 : ϕ 0.9mm: Sleeve type (300°C) 1 : ϕ 1.5mm: Sleeve type (300°C) 2 : ϕ 2.1mm: Grip type (500°C) 3 : ϕ 3.0mm: Grip type (500°C) 5 : ϕ 5.0mm: Grip type (500°C)	
② Coating Type	1 : Non-coating 2 : Teflon coating (BS-5* cannot be manufactured.)	
③ Thermocouple Type	K : Chromel-Alumel E : Chromel-Constantan	
④ Pipe Length	003 : 30mm 005 : 50mm 008 : 80mm 010 : 100mm 015 : 150mm 020 : 200mm 030 : 300mm 040 : 400mm 050 : 500mm 100 : 1000mm	The Pipe length is fixed for certain pipe diameters. For more information, see the table to the right.
⑤ Cable Type (See page 5)	TS : For BS-9*, BS-1* (Sleeve type) TC : For BS-2*, BS-3*, BS-5* (Grip type)	
⑥ Cable Length	1 : 1m 1.5 : 1.5m 2 : 2m 2.5 : 2.5m	
⑦ Plug (See page 4)	ANP : P plug ASP : S plug W : Without plug	

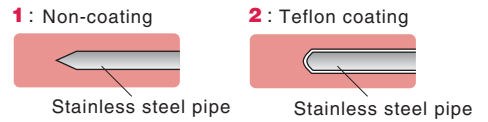
① Pipe Diameter and Form

You can choose Pipe Diameter and Form as below.



② Coating Type

You can choose Coating Type as below.



The operating temperature limit of Teflon-coated probes is 200°C, regardless of pipe diameter.

④ Pipe Length

	Pipe Diameter (mm)				
	BS-9* (ϕ 0.9)	BS-1* (ϕ 1.5)	BS-2* (ϕ 2.1)	BS-3* (ϕ 3.0)	BS-5* (ϕ 5.0)
003 :	●	●			
005 :	●	●	●		
008 :	●	●			
010 :	●	●	●	●	
015 :		●	●	●	
020 :			●	●	
030 :				●	
050 :				●	●
100 :					●

Specifications

Pipe Diameter	Response time	Accuracy	Durability Rank
BS-9*	0.5s	$\pm 1.2^{\circ}\text{C}$	C
BS-1*	1.5s	$\pm 1.3^{\circ}\text{C}$	C
BS-2*	2.5s	$\pm 1.3^{\circ}\text{C}$	B
BS-3*	3.0s	$\pm 1.3^{\circ}\text{C}$	B
BS-5*	5.0s	$\pm 1.4^{\circ}\text{C}$	B
Teflon coating	20s	$\pm 1.4^{\circ}\text{C}$	—*

※Varies with Pipe Diameter.

Model **BT** series

Needle Type Probes

BT模式系列

BT模式系列产品的顶端呈针形，是可以插入半固态物体中的温度感应器。其中一部分型号产品的针形顶端可更换，可以单独购买针形顶端配件。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。

Model BT series probes feature needle tips that can be inserted into semi-solid materials.

Needle tips for models with replaceable tips can be purchased separately.

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

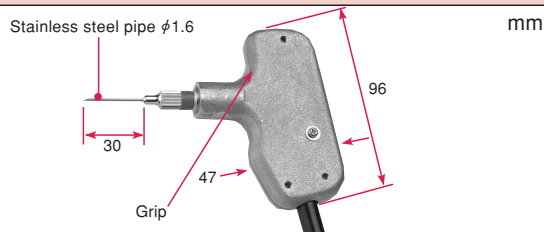
モデルBTシリーズは、先端の針部を半固形物に突き刺す事ができる温度センサです。

針部の交換が可能なモデルでは、針部のみの購入も可能です。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。

Typical Probes of BT series

Type K Model **BT-31K-TC1-ANP**

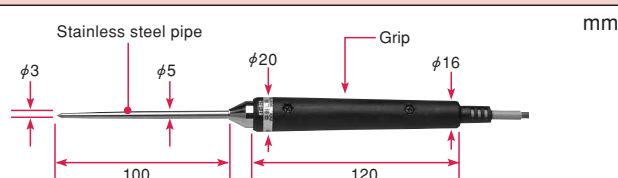
Type E Model **BT-31E-TC1-ANP**



Temp. Range	Accuracy	Response time	Durability
-200~300°C	±1.3°C (at 100°C)	1.5 s	S

Type K Model **BT-92K-TC1-ANP**

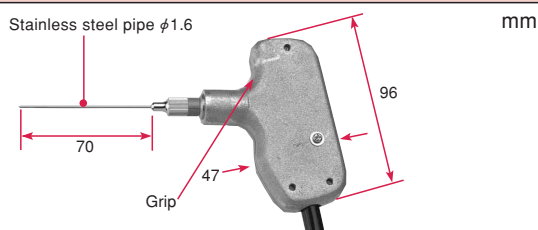
Type E Model **BT-92E-TC1-ANP**



Temp. Range	Accuracy	Response time	Durability
-200~500°C	±1.3°C (at 100°C)	3.0 s	B

Type K Model **BT-72K-TC1-ANP**

Type E Model **BT-72E-TC1-ANP**



Temp. Range	Accuracy	Response time	Durability
-200~300°C	±1.3°C (at 100°C)	1.5 s	S

Type K Model **BT-22K-TC1-ANP**

Type E Model **BT-22E-TC1-ANP**



Temp. Range	Accuracy	Response time	Durability
-200~300°C	±1.3°C (at 100°C)	1.5 s	C

Type K Model **BT-11K-TC1-ANP**

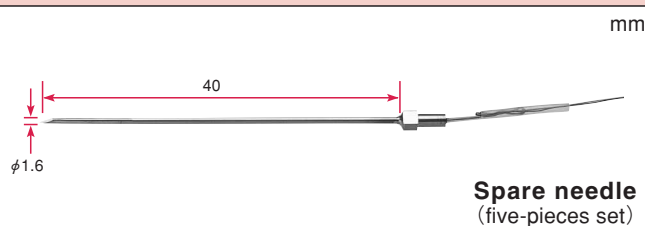
Type E Model **BT-11E-TC1-ANP**



Temp. Range	Accuracy	Response time	Durability
-200~210°C	±1.2°C (at 100°C)	0.5 s	C

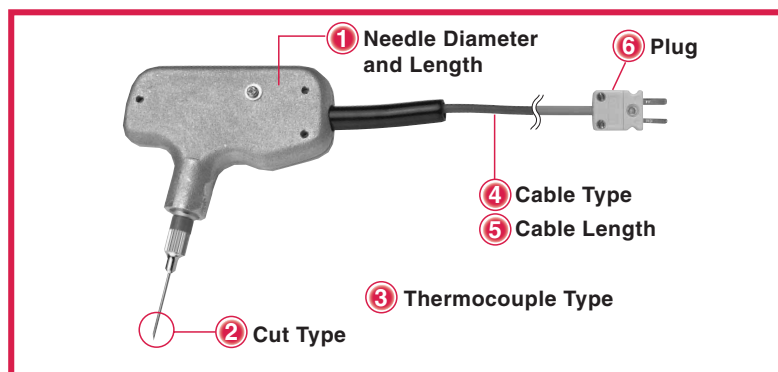
Type K Model **BTN-41K**

Type E Model **BTN-41E**



Temp. Range	Accuracy	Response time	Durability
-200~300°C	±1.3°C (at 100°C)	1.5 s	S

How to order of BT series



BT-31K-TC1-ANP



① Needle Diameter and Length (Max.Temp.)	1 : $\phi 0.9\text{mm}$: 15mm (210°C) 2 : $\phi 1.5\text{mm}$: 30mm (300°C) 3 : $\phi 1.6\text{mm}$: 30mm (300°C) 4 : $\phi 1.6\text{mm}$: 40mm (300°C) 5 : $\phi 1.6\text{mm}$: 50mm (300°C) 6 : $\phi 1.6\text{mm}$: 60mm (300°C) 7 : $\phi 1.6\text{mm}$: 70mm (300°C) 8 : $\phi 5.0\text{mm}$: 75mm (500°C) 9 : $\phi 5.0\text{mm}$: 100mm (500°C) (Top is $\phi 3\text{mm}$)
② Cut Type	1 : Cut 2 : Sharp
③ Thermocouple Type	K : Chromel-Alumel E : Chromel-Constantan
④ Cable Type (See page 5)	TC :
⑤ Cable Length	1 : 1m 1.5 : 1.5m 2 : 2m 2.5 : 2.5m
⑥ Plug (See page 4)	ANP : P plug ASP : S plug W : Without plug

① Needle Diameter and Form

You can choose Grip Form as below.

	Form
BT-1* BT-2*	
BT-3* BT-4* BT-5* BT-6* BT-7* BT-8*	<p>With replaceable tips</p>
BT-9*	

② Cut Type

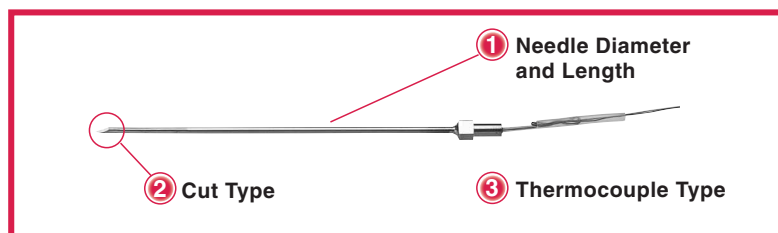
You can choose Cut Type as below.



Specifications

Needle Diameter	Response time	Accuracy (at 100°C)	Durability rank
BT-1*	0.5s	$\pm 1.2^\circ\text{C}$	C
BT-2*	1.5s	$\pm 1.3^\circ\text{C}$	C
BT-3*~BT-7*	1.5s	$\pm 1.3^\circ\text{C}$	S
BT-8*	3.0s	$\pm 1.3^\circ\text{C}$	S
BT-9*	3.0s	$\pm 1.3^\circ\text{C}$	B

How to order of Spare needle



Spare needle is a five-pieces set

BTN-41K



① Needle Diameter and Length (Max.Temp.)	3 : $\phi 1.6\text{mm}$: 30mm (300°C) 4 : $\phi 1.6\text{mm}$: 40mm (300°C) 5 : $\phi 1.6\text{mm}$: 50mm (300°C) 6 : $\phi 1.6\text{mm}$: 60mm (300°C) 7 : $\phi 1.6\text{mm}$: 70mm (300°C) 8 : $\phi 5.0\text{mm}$: 75mm (500°C)
② Cut Type	1 : Cut 2 : Sharp
③ Thermocouple Type	K : Chromel-Alumel E : Chromel-Constantan

Model **SF** series

Fine Flexible Probes

Model SF series probes are flexible internal temperature sensors featuring extra-fine thermocouple wires covered with a Teflon-coated sheath.

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

SF模式系列

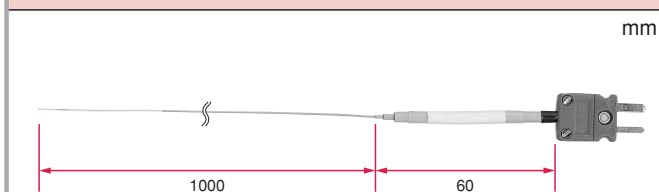
SF模式系列产品是将极细热电偶线用铁氟龙覆盖，柔软性很强的内部温度感应器。通过对各个规格的组件进行重新组合的方式，可以按照客户的使用需求进行选配。

モデルSFシリーズは、極細熱電対線をテフロンで被覆した、柔軟性のある内部用温度センサです。

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。

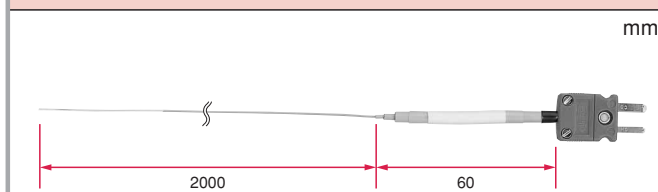
Typical Probes of SF series

Type K Model **SF-K-100-ANP**
Type E Model **SF-E-100-ANP**



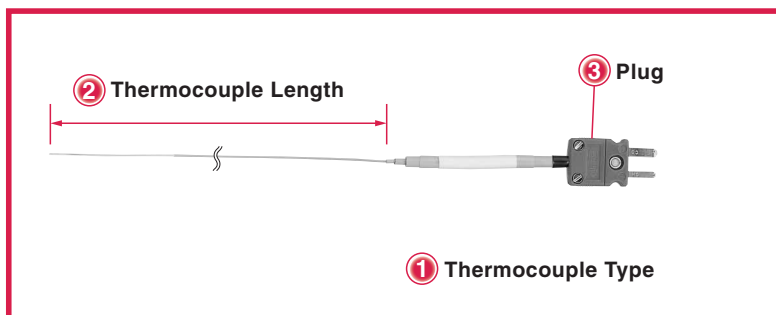
Temp. Range	Accuracy	Response time	Durability
-50~200°C	±1.5°C (at 100°C)	2.0 s	S

Type K Model **SF-K-200-ANP**
Type E Model **SF-E-200-ANP**



Temp. Range	Accuracy	Response time	Durability
-50~200°C	±1.5°C (at 100°C)	2.0 s	S

How to order of SF series



② Thermocouple Length



※ This probe does not incorporate compensating lead wires.

SF-K-100-ANP

① ② ③

① Thermocouple Type	K : Chromel-Alumel E : Chromel-Constantan
② Thermocouple Length	050 : 500mm 100 : 1000mm 150 : 1500mm 200 : 2000mm
③ Plug (See page 4)	ANP : P plug ASP : S plug W : Without plug

Specifications

Accuracy	±1.5°C (at 100°C)
Response time	2.0s
Durability rank	S
Max. Temp.	200°C

Model SHEATH series

Bendable Wiry Probes

Model SHEATH series probes are internal temperature sensors designed to measure the temperature of liquids, air, and gases.

The sheathed section can be bent to a radius five times the outer diameter of the sheath. Specific components may be combined to customize products for the needs of a customer's specific application.

鞘状模式系列

鞘状模式系列产品是适用于液体或空气温度测试的内部温度感应器。

鞘状部分的鞘状外形可弯曲至其半径的5倍。

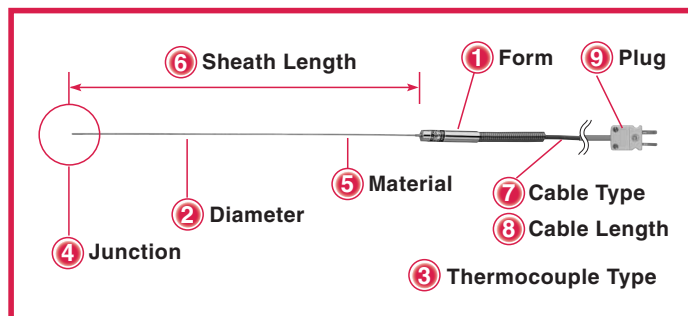
通过对各个规格的组件进行重新组合的方式，可以按照客户的使用需求进行选配。

シース形センサは、液体や空気温度測定に適した内部用温度センサです。

シース部分は、シース外形の5倍の半径まで曲げる事が可能です。

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。

How to order of SHEATH series

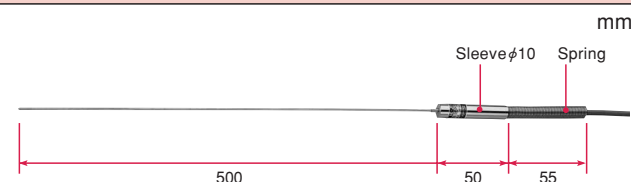


B3.2-K-J1-M1-L500-TC1-ANP

① Form	A : Grip type B : Sleeve type C : Terminal box type
② Diameter	0.25 : ϕ 0.25mm 1.0 : ϕ 1.0mm 3.2 : ϕ 3.2mm 6.4 : ϕ 6.4mm 0.5 : ϕ 0.5mm 1.6 : ϕ 1.6mm 4.8 : ϕ 4.8mm 8.0 : ϕ 8.0mm
③ Thermocouple Type	K : Chromel-Alumel E : Chromel-Constantan
④ Junction	J1 : Grounded junction J2 : Ungrounded junction J3 : Exposed junction
⑤ Material	M1 : SUS 316 M2 : SUS 310S (Only type K) M3 : Inconel (Only type K)
⑥ Sheath Length	L100 : 100mm L200 : 200mm
⑦ Cable Type (See page 5)	TC :
⑧ Cable Length	1 : 1m 1.5 : 1.5m 2 : 2m
⑨ Plug (See page 4)	ANP : P plug ASP : S plug W : Without plug

Typical Probes of SHEATH series

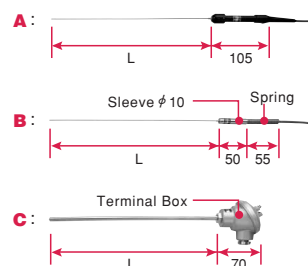
Type K Model **B3.2-K-J1-M1-L500-TC1-ANP**
Type E Model **B3.2-E-J1-M1-L500-TC1-ANP**



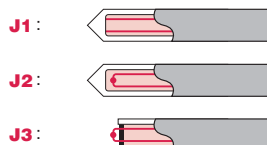
Temp. Range	Accuracy	Response time	Durability
-40~750°C	$\pm 2.5^\circ\text{C}$ (at 100°C)	5.0 s	S

① Form

You can choose Form as below.



④ Junction



[Supplementary information]

The sheath tube can be coated with Teflon.

A Teflon coating will improve resistance against chemicals and enable the use of the probe for measuring the temperatures of acids, alkalis, food, etc.

Applicable sheath diameter : ϕ 1.0, ϕ 1.6, ϕ 3.2

Maximum length : 1m

Operating temperature limit : 200°C

Minimum bending radius : Approx. 10mm

Specifications

Outside diameter (mm)		0.25	0.5	1.0	1.6	3.2	4.8	6.4	8.0
Type : K (Max.temp.)	SUS 316 (M1)	—	—	650°C	650°C	750°C	800°C	800°C	900°C
	SUS 310S (M2)	—	—	650°C	650°C	750°C	800°C	800°C	900°C
	Inconel (M3)	500°C	500°C	650°C	650°C	750°C	900°C	1000°C	1050°C
Type : E (Max.temp.)		—	—	650°C	650°C	750°C	800°C	800°C	800°C
Response time		0.4s	0.9s	2s	3s	5s	10s	15s	20s
Standard resistance (Ω /m)	Type K	570	124	32	13	4	2.2	1.0	0.7
	Type E	—	—	38	15	5	2.6	1.2	0.9
Max. Length (m)	J1, J3	5	10	50	50	50	50	30	20
	J2	2	2	2	5	15	30	30	20
Accuracy	Type K	-40~333°C : $\pm 2.5^\circ\text{C}$, 333~1200°C : \pm (measuring \times 0.75%) °C							
	Type E	-40~333°C : $\pm 2.5^\circ\text{C}$, 333~ 900°C : \pm (measuring \times 0.75%) °C							

※ Avoid immersing these probes in molten aluminum. Doing so may result in corrosion of the sheathed sensor.

Model **ST** series

Flat Leaf Probes

Model ST series probes are multi-purpose temperature sensors featuring a flexible tape shape.

They can be glued to the surfaces of measurement targets for use in a range of applications. Specific components may be combined to customize products for the needs of a customer's specific application.

ST模式系列

ST模式系列产品是具有柔软性的胶带状多用温度感应器。

可以粘贴到测试对象的表面，还可以用于其他多种测试方法。

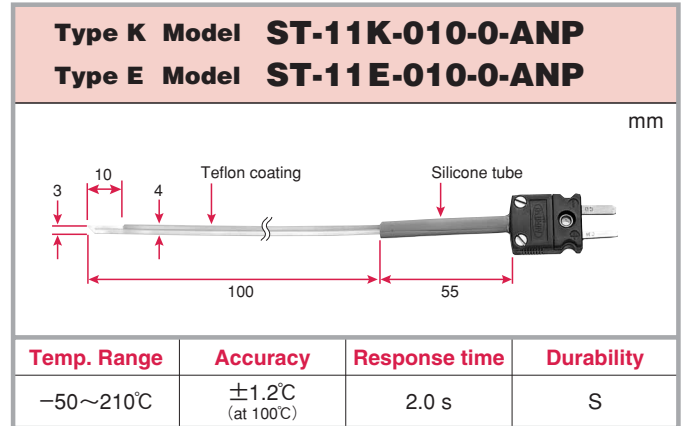
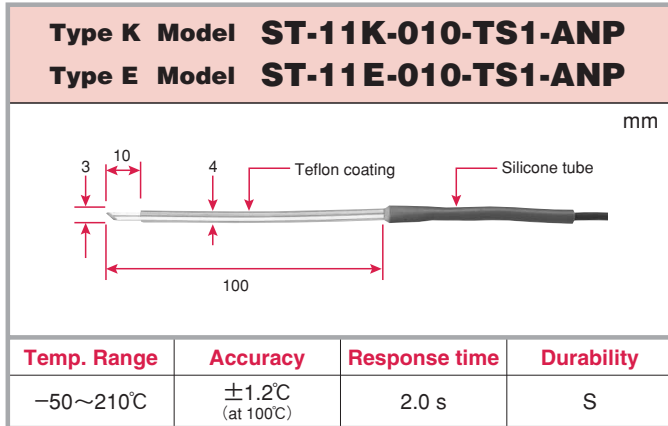
通过对各个规格的组件进行重新组合的方式，可以按照客户的使用需求进行选配。

モデルSTシリーズは、柔軟性のあるテープ形状をした多目的温度センサです。

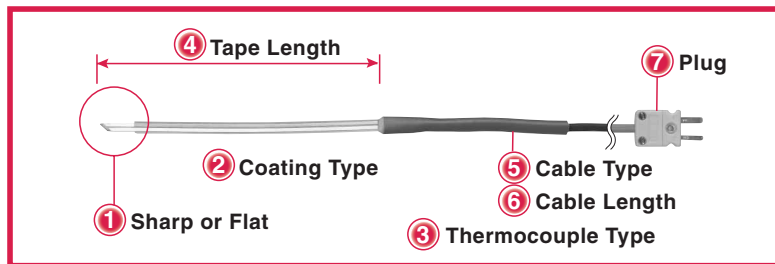
測定面に貼り付けるなど、様々な用途にご利用いただけます。

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。

Typical Probes of ST series



How to order of ST series



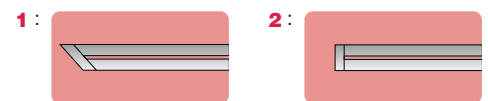
ST-11K-008-TS1-ANP

① ② ③ ④ ⑤ ⑥ ⑦

① Sharp or Flat	1 : Sharp 2 : Flat
② Coating Type (Max. Temp.)	1 : Open (Teflon coating) 2 : All coating (Teflon coating) 3 : Open (Polyimide) 4 : All coating (Polyimide) *350°C if the tape length exceeds 150mm.
③ Thermocouple Type	K : Chromel-Alumel E : Chromel-Constantan
④ Tape Length	003 : 30mm 005 : 50mm 008 : 80mm 010 : 100mm 200 : 2000mm
⑤ Cable Type (See page 5)	TS : For ST-*1, ST-*2 GW : For ST-*3, ST-*4 0 : Without Cable
⑥ Cable Length	1 : 1m 1.5 : 1.5m 2 : 2m 2.5 : 2.5m *No cable if the cable type is "0."
⑦ Plug (See page 4)	ANP : P plug ASP : S plug W : Without plug

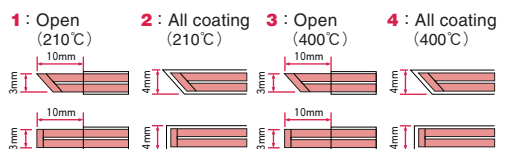
① Sharp or Flat

You can choose Junction Form as below.



② Coating Type

You can choose Coating Type as below.



Open part.....t=0.05
Coating part...t=0.2

④ Tape Length

You can choose Tape Length as below.

003 : 30mm	020 : 200mm	045 : 450mm	090 : 900mm
005 : 50mm	025 : 250mm	050 : 500mm	100 : 1000mm
008 : 80mm	030 : 300mm	060 : 600mm	150 : 1500mm
010 : 100mm	035 : 350mm	070 : 700mm	200 : 2000mm
015 : 150mm	040 : 400mm	080 : 800mm	

Specifications

Accuracy	Open ±1.2°C (at 100°C) All Coating ±1.4°C (at 100°C)
Response time	Open 2.0s All Coating 8.0s
Durability rank	S

Attention

Where the probes are not glued or inserted, the operating temperature limits are as follows:

	ST-*1	ST-*2	ST-*3	ST-*4
Tape ≤ 150mm	200°C	180°C	200°C	200°C
Tape > 150mm	180°C	180°C	180°C	180°C

Model SC series

Screw Setting Probes

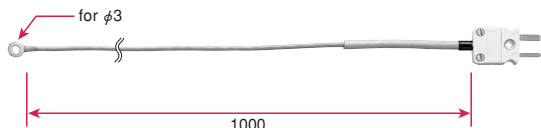
Model SC series probes are designed to measure stationary surfaces that can be attached to measurement targets with screws. Specific components may be combined to customize products for the needs of a customer's specific application.

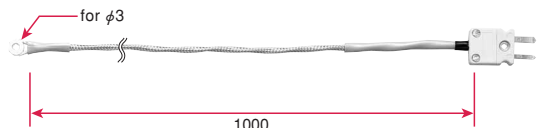
SC模式系列

SC模式系列产品是可以螺丝钉固定在测试对象物上的静止表面用温度感应器。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。

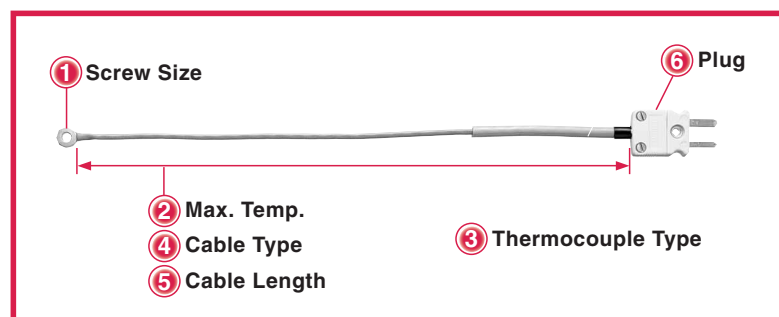
モデルSCシリーズは、測定物にネジで固定できる静止表面用温度センサです。各パーツの仕様を組み合わせる事により、お客様の用途に合わせてカスタマイズする事が出来ます。

Typical Probes of SC series

Type K Model		SC-31K-TS1-ANP	
Type E Model		SC-31E-TS1-ANP	
mm			
			
Temp. Range	Accuracy	Response time	Durability
-50~150℃	±3.0℃ (at 100℃ Surface)	5.0 s	S

Type K Model		SC-32K-SG1-ANP	
Type E Model		SC-32E-SG1-ANP	
mm			
			
Temp. Range	Accuracy	Response time	Durability
-50~400°C	±3.0°C (at 100°C Surface)	5.0 s	S




How to order of SC series



SC-31K-TS1-ANP

① ② ③ ④ ⑤ ⑥

① Screw Size

3 :	
4 :	
5 :	

① Screw Size	3 : For ϕ 3mm 4 : For ϕ 4mm 5 : For ϕ 5mm
② Max. Temp.	1 : 150°C 2 : 400°C
③ Thermocouple Type	K : Chromel-Alumel E : Chromel-Constantan
④ Cable Type (See page 5)	TS : For SC-*1 SG : For SC-*2
⑤ Cable Length	1 : 1m 1.5 : 1.5m 2 : 2m 2.5 : 2.5m
⑥ Plug (See page 4)	ANP : P plug ASP : S plug W : Without plug

Specifications

Accuracy	±3.0°C (at 100°C surface)
Response time	5.0s
Durability rank	S
Max. Temp.	SC-*1 : 150°C SC-*2 : 400°C

Model S series

High Superior Surface Probes

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，在精度、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

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 accuracy, 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.

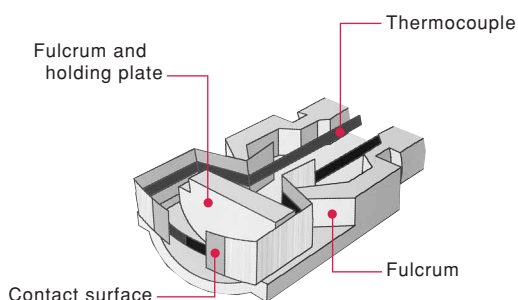
Patented in Japan, the United States, England, France, and Germany.

モデルSシリーズは安立計器独自の技術により、精度、応答速度、耐久性のすべて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

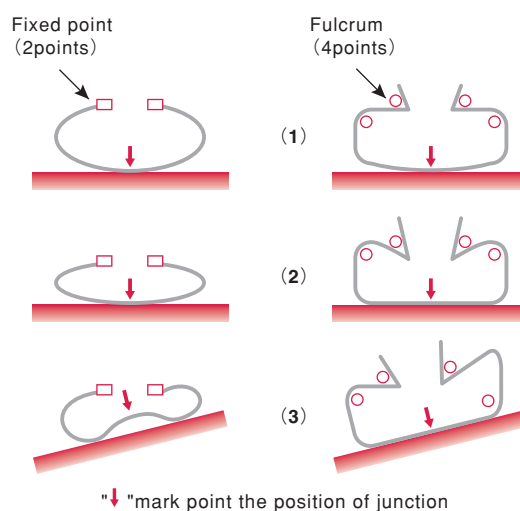
The greatest feature of Model S series is the four-fulcrum structure.



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



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.

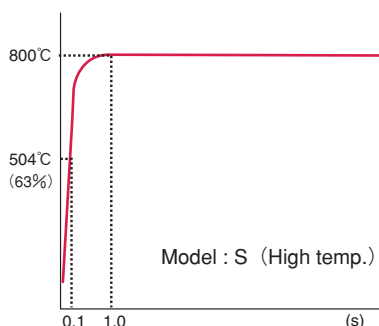
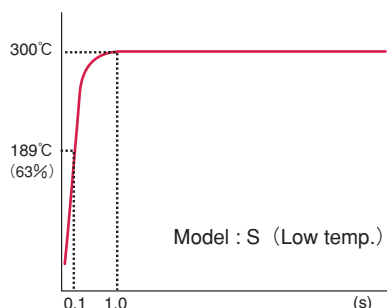
●Model S series for the stationary surface

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

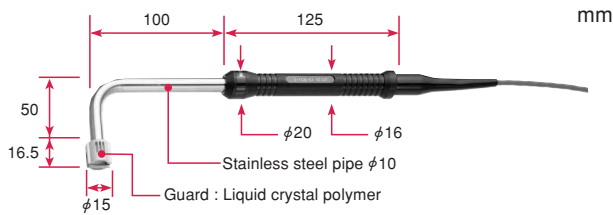
On the steel plate with smooth surface at 300°C and speed of 200m/min	more than 2000 hours
On the steel plate with smooth surface at 600°C and speed of 200m/min	more than 1000 hours

Response curve



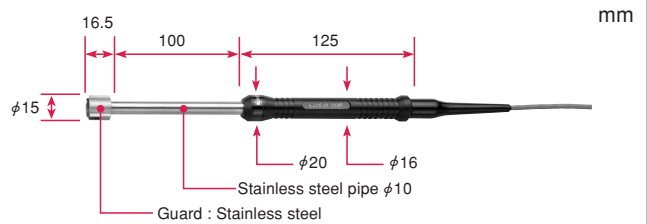
Typical Probes of S series

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



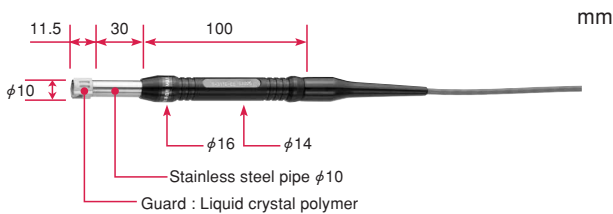
Temp. Range	Accuracy	Response time	Durability
-50~300°C	±1.2°C (at 100°C Surface)	1.0 s	A

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



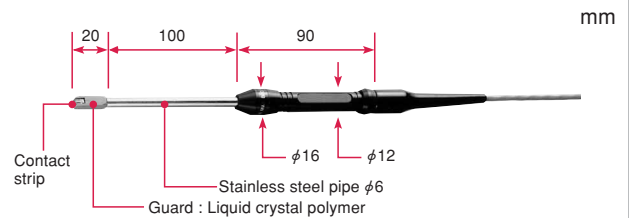
Temp. Range	Accuracy	Response time	Durability
-50~800°C	±1.2°C (at 100°C Surface)	1.0 s	A

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



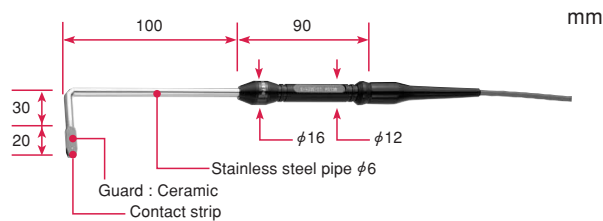
Temp. Range	Accuracy	Response time	Durability
-50~300°C	±1.2°C (at 100°C Surface)	1.0 s	A

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



Temp. Range	Accuracy	Response time	Durability
-50~300°C	±1.2°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



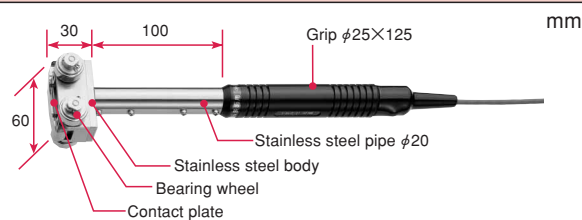
Temp. Range	Accuracy	Response time	Durability
-50~800°C	±1.2°C (at 100°C Surface)	1.0 s	A

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



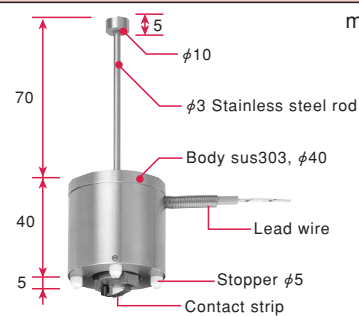
Temp. Range	Accuracy	Response time	Durability
-50~600°C	±1.2°C (at 100°C Surface)	3.0 s	A

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



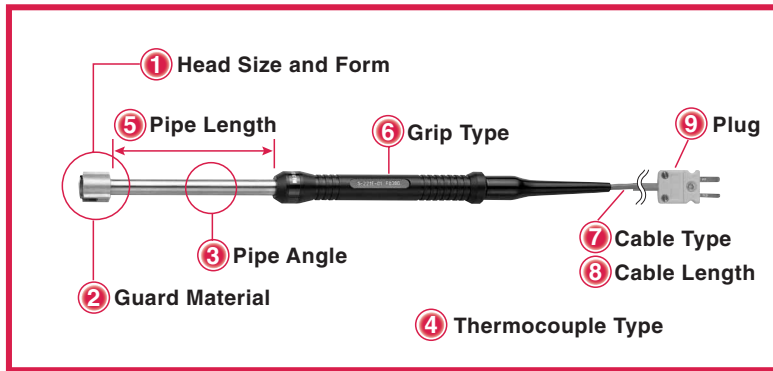
Temp. Range	Accuracy	Response time	Durability
-50~400°C	±1.2°C (at 100°C Surface)	3.0 s	A

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



Temp. Range
-50~600°C
Accuracy
±1.2°C (at 100°C Surface)
Response time
1.0 s
Durability
S

How to order of S series



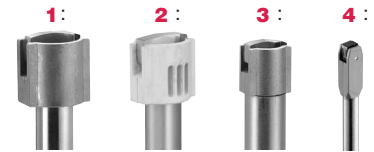
S-121K-01-1-TPC1-ANP

1 2 3 4 5 6 7 8 9

① Head Size and Form	1 : $\phi 15\text{mm}$ (allowable tilt $\pm 4^\circ$) 2 : $\phi 15\text{mm}$ (allowable tilt $\pm 8^\circ$) 3 : $\phi 10\text{mm}$ 4 : $\square 6 \times 7\text{mm}$ 5 : Guard type for flat moving surface ($60 \times 40\text{mm}$) 6 : Wheel type for flat moving surface ($60 \times 50\text{mm}$) 7 : Self Supporting type ($\phi 40\text{mm}$)	
② Guard Material (Max. Temp.)	1 : Liquid crystal polymer (300°C) *1 2 : Stainless (800°C) *1*2 *1: Only S-1**, S-2**, S-3**, S-4** *2: It is ceramics for S-4** 4 : With wheels (400°C) *3 5 : Special mica guard (600°C) *4 6 : Ceramics guard (800°C) *4 *3: Only S-64* *4: Only S-5** 7 : Ceramics (300°C) *5 8 : Ceramics (600°C) *5 *5: Only S-7**	
③ Pipe Angle	0 : Nothing (Only S-7**) 1 : Straight 2 : 45 degrees 3 : 90 degrees	
④ Thermocouple Type	K : Chromel-Alumel E : Chromel-Constantan	
⑤ Pipe Length	S-1**, S-2**, S-3**	00 : 30mm 01 : 100mm 10 : 1000mm
	S-4**	00 : 30mm 01 : 100mm 05 : 500mm
	S-5**, S-64*	01 : 100mm 02 : 200mm 10 : 1000mm 15 : 1500mm 20 : 2000mm
	S-7**	Nothing
⑥ Grip Type	S-1**, S-2**, S-3**, S-4**, S-5**, S-64*	0 : No Grip 1 : Standard Grip
	S-7**	Nothing
⑦ Cable type (See page 5)	S-1**, S-2**, S-3**, S-4**, S-5**, S-64*	TPC (Only 1m), TC
	S-4** (No Grip)	TS
	S-7**	GW
⑧ Cable Length	1 : 1m 1.5 : 1.5m 2 : 2m 2.5 : 2.5m	
⑨ Plug (See page 4)	ANP : P plug ASP : S plug W : Without plug	

① Head Size and Form

For Stationary Surface



For Moving Surface



Self Supporting type

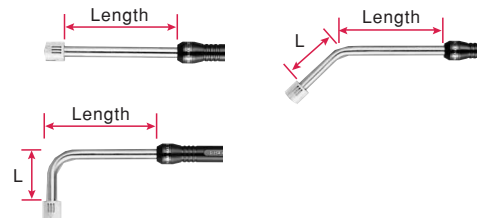


③ Pipe Angle

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	For handheld measurement

Specifications

Accuracy	$\pm 1.2^\circ\text{C}$ (at 100°C surface)	
Response time	S-1**, S-2**, S-3**, S-4**, S-7**	1.0s
	S-5**, S-64*	3.0s
Durability Rank	S-1**, S-2**, S-3**, S-4**, S-5**, S-64*	A
	S-7**	S