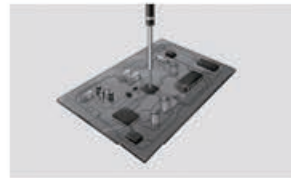


Model CS series

Micro Surface Probes



Surface temperature measurement of small electronic components

微小零部件的表面温度检测

Model CS series probes are small surface temperature sensors designed to measure the temperature of stationary surface.

CS系列产品适用于测量微小零部件等的表面温度。感温片直径最小3mm，适用于测量热容量较小物体的表面温度。无握柄款尺寸小，方便组装于半导体设备等生产设备。

Typical probes of CS series 典型产品

Type K Model CS-01K-010-1-TC1-ANP Type E Model CS-01E-010-1-TC1-ANP



Temp. range	Tolerance	Response time	Durability
-50~400°C	±3.0°C (at 100°C surface)	3 s	A

Type K Model CS-73K-010-1-TC1-ANP Type E Model CS-73E-010-1-TC1-ANP



Temp. range	Tolerance	Response time	Durability
-50~600°C	±2.5°C (at 100°C surface)	2 s	A

Type K Model CS-11K-010-1-TC1-ANP Type E Model CS-11E-010-1-TC1-ANP



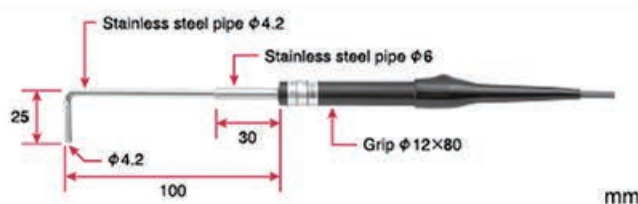
Temp. range	Tolerance	Response time	Durability
-50~400°C	±2.5°C (at 100°C surface)	2 s	A

Type K Model CS-21K-010-1-TC1-ANP Type E Model CS-21E-010-1-TC1-ANP



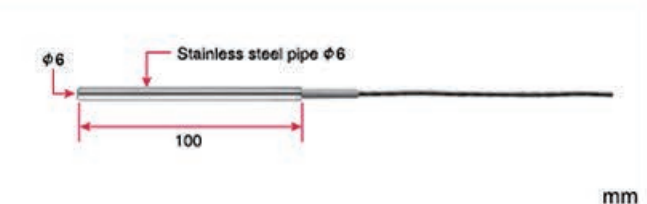
Temp. range	Tolerance	Response time	Durability
-50~400°C	±2.5°C (at 100°C surface)	2 s	A

Type K Model CS-13K-010-1-TC1-ANP Type E Model CS-13E-010-1-TC1-ANP



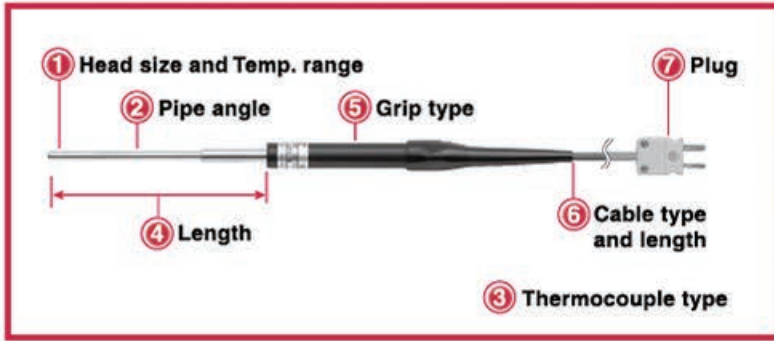
Temp. range	Tolerance	Response time	Durability
-50~400°C	±2.5°C (at 100°C surface)	2 s	A

Type K Model CS-21K-010-0-TS1-W Type E Model CS-21E-010-0-TS1-W



Temp. range	Tolerance	Response time	Durability
-50~400°C	±2.5°C (at 100°C surface)	2 s	A

How to order of CS series 选型



CS-11K-010-1-TC1-ANP



① Head size and Temp. range 头部大小和温度范围	0 : $\phi 3\text{mm}$ $-50\sim 400^{\circ}\text{C}$ 1 : $\phi 4.2\text{mm}$ $-50\sim 400^{\circ}\text{C}$ 2 : $\phi 6\text{mm}$ $-50\sim 400^{\circ}\text{C}$ 3 : $\square 2\times 10\text{mm}$ $-50\sim 400^{\circ}\text{C}$ 7 : $\phi 6\text{mm}$ $-50\sim 600^{\circ}\text{C}$
② Pipe angle 钢管形状	1 : Straight 3 : 90 degrees 6 : 90 degrees* *Element direction of right angle
③ Thermocouple type 热电偶种类	K : Chromel-Alumel E : Chromel-Constantan
④ Length 钢管长度	005 : 50mm 010 : 100mm 015 : 150mm
⑤ Grip type 握柄	1 : Standard grip 0 : No grip
⑥ Cable type and length 导线种类和长度 (See page 9)	TC1 : For Standard grip type TS1 : For No grip type Standard specifications : 1m The cable length can be specified each 0.5m.
⑦ Plug 插头 (See page 8)	ANP (For AM-9***, HR-1*5*, AP-450, AR-650*) ASP (For HR-1*0*, AP-400) W (Without plug)

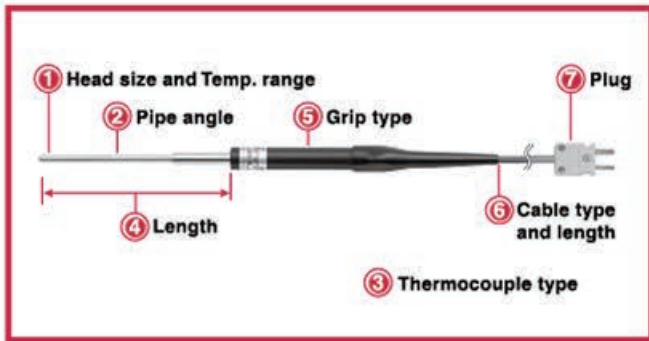
① Head size and Temp. range 头部大小和温度范围

CS-0* $\phi 3\text{mm}$ Temp. range : $-50\sim 400^{\circ}\text{C}$	CS-1* $\phi 4.2\text{mm}$ Temp. range : $-50\sim 400^{\circ}\text{C}$	CS-2* $\phi 6\text{mm}$ Temp. range : $-50\sim 400^{\circ}\text{C}$
CS-3* $\square 2\times 10\text{mm}$ Temp. range : $-50\sim 400^{\circ}\text{C}$	CS-7* $\phi 6\text{mm}$ Temp. range : $-50\sim 600^{\circ}\text{C}$	

② Pipe angle 钢管形状

CS-01	
CS-11	
CS-21 CS-71	
CS-31	
CS-03	
CS-13	
CS-23 CS-73	
CS-33	
CS-36	

※ No grip, $\phi 6$ pipe length will be 50mm.



CS-11K-010-1-TC1-ANP



③ Thermocouple type 热电偶种类

※ Select the same type of thermocouple as thermometer.

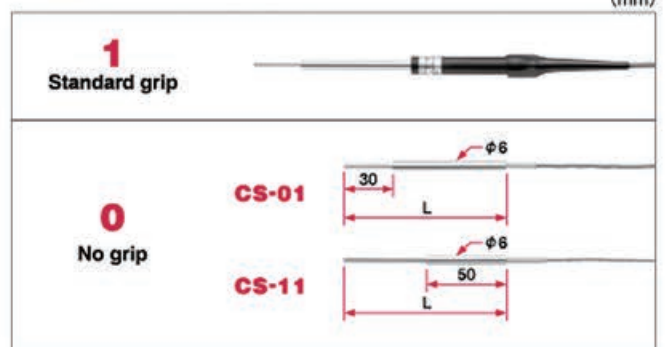
K Type K	E Type E
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④ Length 钢管长度

		005	010	015
CS-01, 11, 21, 71 	CS-01	50mm [※]	100mm	150mm
	CS-11	50mm [※]	100mm	150mm
	CS-21	50mm	100mm	150mm
	CS-31	—	100mm [※]	150mm
	CS-71	50mm [※]	100mm	150mm
CS-03, 13, 23, 73 	CS-03	50mm [※]	100mm	150mm
	CS-13	50mm [※]	100mm	150mm
	CS-23	50mm	100mm	150mm
	CS-33	50mm [※]	100mm	150mm
	CS-73	50mm [※]	100mm	150mm
	CS-36	50mm [※]	100mm	150mm

※ Without a grip is not available.

⑤ Grip type 握柄



⑥ Cable type and length 导线种类和长度

Standard	Outer diameter	Heat resistant
TC1[※] For grip type	φ4mm	240°C
TS1[※] For no grip type	φ2.3mm	240°C

※ Standard specifications : 1m
The cable length can be specified each 0.5m.

⑦ Plug 插头

ANP For AM-9*** HR-1*5* AP-450 AR-650*	
ASP For HR-1*0* AP-400	
W Without plug	

Specifications of CS series 规格

Model number ^{※1}	CS-0*	CS-1* CS-2* CS-3*	CS-7*
Thermocouple type	Type K or E		
Temp. range ^{※2}	-50~400°C		-50~600°C
Tolerance ^{※3}	-50°C ≤ t ≤ -40°C	±3.5°C	±2.5°C
	-40°C < t ≤ 100°C	±3.0°C	±2.5°C
	100°C < t ≤ 200°C	±5.0°C	±3.1°C
	200°C < t ≤ 300°C	±7.5°C	±5.0°C
	300°C < t ≤ 400°C	±10.0°C	±6.3°C
	400°C < t ≤ 500°C	—	—
	500°C < t ≤ 600°C	—	±13.0°C
Response time ^{※4}	3s	2s	2s
Durability ^{※5}	A (More than 50,000 contacts)		
Pipe material	Stainless (SUS304)		
Grip material	Phenol resin		

※1 The asterisk (*) is replaced by the number of the model name you selected. The model number after thermocouple type is omitted.

※2 The operating temperature limit is determined by the allowable temperature limit of the sensor head contacts the measurement target.

Note that the operating temperature limit is not the same as the allowable temperature limits of the grip, cable, and plug.

※3 Tolerance is available at -50°C or above within the operating temperature on a stationary flat and smooth metal surface.

※4 The response time is the time required to detect 99% of the true value on a flat and smooth metal surface.

※5 Number of contacts enabling measurement within the tolerance range on a flat and smooth metal surface at a temperature of 300°C.