

# Model A/AX series

## General Stationary Surface Probes



Surface temperature measurement of mold  
模具的温度管理

Model A series probes are general-purpose temperature sensors designed to measure the temperatures of stationary surfaces. The head of the AX tilts  $\pm 4^\circ$ , allowing for stable measurement when in contact.

A·AX系列产品适用于静止不动的表面温度测量。头部大小和材质等可根据测量条件进行选择。传感器响应速度最快为1.5秒，并且可使用7.5万次以上，耐久性能高。

AX系列为接触辅助型产品，头部可 $\pm 4^\circ$ 摆动，密切追随·接触被测物，减少姿势误差，更准确的测量温度。

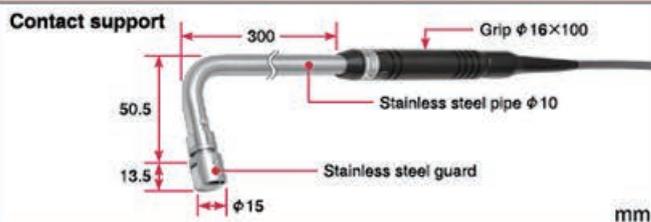
## Typical probes of A/AX series 典型产品

Type K Model **A-231K-00-1-TC1-ANP**  
Type E Model **A-231E-00-1-TC1-ANP**



Temp. range	Tolerance	Response time	Durability
-50~500°C	$\pm 2.5^\circ\text{C}$ (at 100°C surface)	1.5 s	A

Type K Model **AX-233K-03-1-TC1-ANP**  
Type E Model **AX-233E-03-1-TC1-ANP**



Temp. range	Tolerance	Response time	Durability
-50~500°C	$\pm 2.5^\circ\text{C}$ (at 100°C surface)	1.5 s	A

Type K Model **A-243K-01-1-TC1-ANP**  
Type E Model **A-243E-01-1-TC1-ANP**



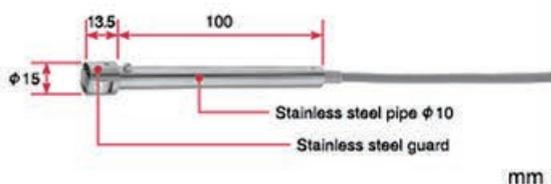
Temp. range	Tolerance	Response time	Durability
-50~800°C	$\pm 2.5^\circ\text{C}$ (at 100°C surface)	1.5 s	A

Type K Model **AX-241K-01-1-TC1-ANP**  
Type E Model **AX-241E-01-1-TC1-ANP**



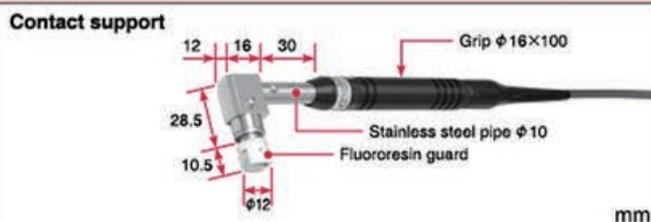
Temp. range	Tolerance	Response time	Durability
-50~800°C	$\pm 2.5^\circ\text{C}$ (at 100°C surface)	1.5 s	A

Type K Model **A-231K-01-0-TC1-W**  
Type E Model **A-231E-01-0-TC1-W**



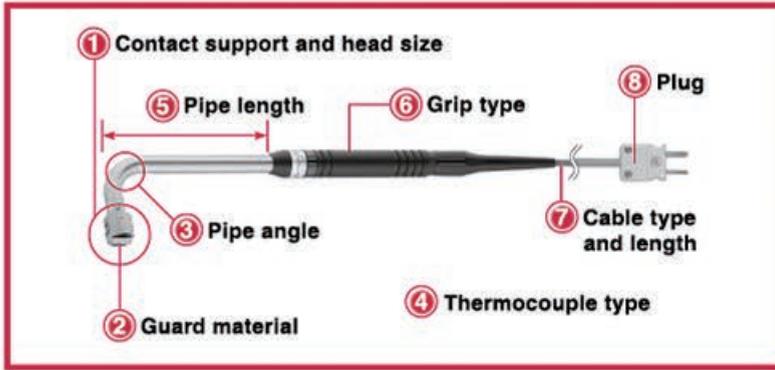
Temp. range	Tolerance	Response time	Durability
-50~500°C	$\pm 2.5^\circ\text{C}$ (at 100°C surface)	1.5 s	A

Type K Model **AX-314K-00-1-TC1-ANP**  
Type E Model **AX-314E-00-1-TC1-ANP**



Temp. range	Tolerance	Response time	Durability
-50~300°C	$\pm 2.5^\circ\text{C}$ (at 100°C surface)	1.5 s	A

# How to order of A/AX series 选型



No contact support **A-233K-01-1-TC1-ANP**  
 Contact support **AX-233K-01-1-TC1-ANP**

① ② ③ ④ ⑤ ⑥ ⑦ ⑧

① Contact support and head size 接触辅助和头部大小	<b>No contact support</b> <b>A-1</b> : $\phi 27\text{mm}$ <b>A-2</b> : $\phi 15\text{mm}$ <b>A-3</b> : $\phi 12\text{mm}$ <b>Contact support</b> <b>AX-2</b> : $\phi 15\text{mm}$ <b>AX-3</b> : $\phi 12\text{mm}$
② Guard material 头部材质与感温片镀膜	<b>1</b> : Fluororesin (MAX:300°C) <b>2</b> : Polyimide (MAX:400°C) <b>3</b> : Stainless (MAX:500°C) <b>4</b> : Stainless for High temp. (MAX:800°C) <sup>*1</sup> <b>5</b> : Fluororesin guard with coating (MAX:200°C) <b>6</b> : Polyimide guard with coating (MAX:300°C) <b>7</b> : Without guard (MAX:500°C) (Only A-17*)
③ Pipe angle 钢管形状与感温片方向	<b>1</b> : Straight <b>2</b> : 45 degrees <sup>*3</sup> <b>3</b> : 90 degrees <sup>*3</sup> <b>4</b> : 90 degrees (elbow) <sup>*3</sup> <b>5</b> : 45 degrees <sup>*2 *3</sup> <b>6</b> : 90 degrees <sup>*2 *3</sup> <b>7</b> : 90 degrees (elbow) <sup>*2 *3</sup>
④ Thermocouple type 热电偶种类	<b>K</b> : Chromel-Alumel <b>E</b> : Chromel-Constantan
⑤ Pipe length 钢管长度	<b>00</b> : 30mm <sup>*1 *3</sup> <b>01</b> : 100mm <b>02</b> : 200mm ..... <b>10</b> : 1000mm
⑥ Grip type 握柄	<b>1</b> : Standard grip <b>0</b> : No grip (Only A) <sup>*1 *3</sup>
⑦ Cable type and length 导线种类和长度 (See page 9)	<b>TC1</b> Standard specifications : 1m The cable length can be specified each 0.5m.
⑧ Plug 插头 (See page 8)	<b>ANP</b> (For AM-9***, HR-1*5*, AP-450, AR-650*) <b>ASP</b> (For HR-1*0*, AP-400) <b>W</b> (Without plug)

\*1 Not manufacturable (A-\*\*\*-00-0)  
 \*2 Contact plate direction of right angle.  
 \*3 Not manufacturable (A-\*\*\*2-00-0, A-\*\*\*3-00-0, A-\*\*\*4-00-0, A-\*\*\*5-00-0, A-\*\*\*6-00-0, A-\*\*\*7-00-0)

## ① Contact support and head size 接触辅助和头部大小

No contact support 无接触辅助



Contact support 接触辅助型



For ensuring stable measurements

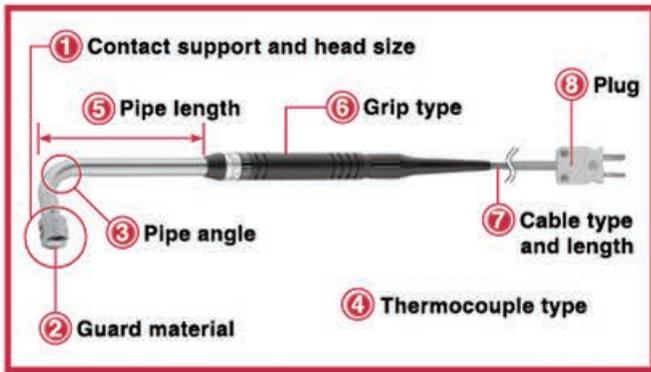
For general purpose use

For measuring objects that have a small capacity

## ② Guard material 头部材质与感温片镀膜

(mm)

<b>A-1*</b> Temp. range : <b>AX-1*</b> -50~300°C Fluororesin guard	<b>A-2*</b> Temp. range : <b>AX-2*</b> -50~400°C Polyimide guard
<b>A-3*</b> Temp. range : <b>AX-3*</b> -50~500°C Stainless steel guard	<b>A-4*</b> Temp. range : <b>AX-4*</b> -50~800°C Stainless steel guard for High temp.
<b>A-5*</b> Temp. range : <b>AX-5*</b> -50~200°C Fluororesin guard with coating	<b>A-6*</b> Temp. range : <b>AX-6*</b> -50~300°C Polyimide guard with coating
<b>A-17*</b> Temp. range : -50~500°C Without guard (only A-17*)	



No contact support **A-233K-01-1-TC1-ANP**  
 Contact support **AX-233K-01-1-TC1-ANP**

① ② ③ ④ ⑤ ⑥ ⑦ ⑧

③ Pipe angle  
 钢管形状与感温片方向

	 Pipe Contact plate	 Pipe Contact plate
Straight 	<b>A-***1</b> <b>AX-***1</b>	
45 degrees 	<b>A-***2</b> <b>AX-***2</b>	<b>A-***5</b> <b>AX-***5</b>
90 degrees 	<b>A-***3</b> <b>AX-***3</b>	<b>A-***6</b> <b>AX-***6</b>
Elbow 	<b>A-***4</b> <b>AX-***4</b>	<b>A-***7</b> <b>AX-***7</b>

④ Thermocouple type  
 热电偶种类

※ Select the same type of thermocouple as thermometer.

<b>K</b> Type K	<b>E</b> Type E
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⑤ Pipe length  
 钢管长度

**00** 30mm    **01** 100mm    **02** 200mm    .....    **10** 1000mm

	A series No contact support	AX series Contact support
Straight		
45 degrees		
90 degrees		
Elbow		

⑥ Grip type  
 握柄

<b>1</b> Standard grip 	 ※ Only A
<b>0</b> No grip	

⑦ Cable type and length  
 导线种类和长度

Standard	Outer diameter	Heat resistant
<b>TC1</b> *	φ4mm	240°C

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

⑧ Plug  
 插头

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

## Specifications of A / AX series 规格

Model number <sup>※1</sup>	A-*1* AX-*1*	A-*2* AX-*2*	A-*3* AX-*3*	A-*4* AX-*4*	A-*5* AX-*5*	A-*6* AX-*6*	A-17*
Thermocouple type	Type K or E						
Temp. range <sup>※2</sup>	-50~300°C	-50~400°C	-50~500°C	-50~800°C	-50~200°C	-50~300°C	-50~500°C
Tolerance <sup>※3</sup>	-50°C	±2.5°C	±2.5°C	±2.5°C	±2.5°C	±2.5°C	±2.5°C
	0°C	±2.5°C	±2.5°C	±2.5°C	±2.5°C	±2.5°C	±2.5°C
	100°C	±2.5°C	±2.5°C	±2.5°C	±2.5°C	±2.5°C	±2.5°C
	200°C	±2.5°C	±2.5°C	±2.5°C	±2.5°C	±4.0°C	±2.5°C
	300°C	±2.5°C	±2.5°C	±2.5°C	±2.5°C	—	±6.0°C
	400°C	—	±3.0°C	±3.0°C	±3.0°C	—	±3.0°C
	500°C	—	—	±3.8°C	±3.8°C	—	±3.8°C
	600°C	—	—	—	±9.0°C	—	—
	700°C	—	—	—	±10.5°C	—	—
	800°C	—	—	—	±16.0°C	—	—
Tolerance calculation method t: Temperature (°C)	<b>A/AX-*1*, A/AX-*2*, A/AX-*3*, A/AX-*4*</b> At within temperature range 1) -50°C ≤ t < -40°C : ±2.5°C 2) -40°C ≤ t ≤ 500°C : ±2.5°C or ±(0.0075× t )°C, whichever is greater 3) 500°C < t ≤ 700°C : ±(0.015× t )°C 4) 700°C < t ≤ 800°C : ±(0.02× t )°C <b>A/AX-*5*, A/AX-*6*</b> At within temperature range 1) -50°C ≤ t < -40°C : ±2.5°C 2) -40°C ≤ t ≤ 300°C : ±2.5°C or ±(0.02× t )°C, whichever is greater						
Response time <sup>※4</sup>	1.5s	1.5s	1.5s	1.5s	3.5s	3.5s	1.5s
Movable range of the head (only AX)	±4°						
Pipe material	Stainless (SUS316)						
Durability <sup>※5</sup>	A (More than 75,000 contacts)						
Grip material	Polyacetal						

※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.  
For tolerance at temperature not listed in the above table, please refer to calculation method of tolerance.

※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  
(or at the operating temperature limit if the operating temperature limit is below 300°C)

德斯特儀器有限公司

新北市中和區中山路二段351號3樓之6

T:(02)2228-9556

F:(02)2228-9559

mail:info@testoag.com.tw