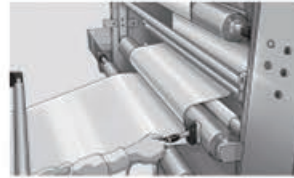


Model U/UX series

General Moving / Rotating Surface Probes



Temperature measurement of rotating rollers
测量塑封滚轮等表面温度

Model U series probes offer minimal coefficient of friction between the probe and measuring surface, making them ideal for measuring the temperatures of moving or rotating surfaces. The head of the UX is tilted $\pm 4^\circ$, enabling stable measurement at the time of contact.

U/UX系列产品适用于测量移动·回转表面的表面温度传感器。接触辅助型UX系列可减少与被测物接触时的姿势误差，更易于密切接触被测物准确测量。

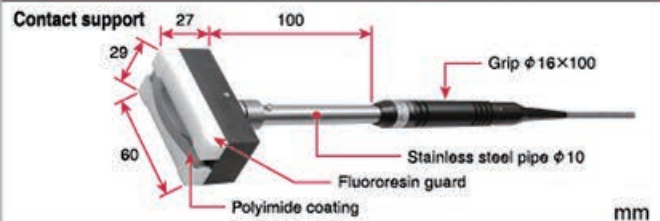
Typical probes of U/UX series 典型产品

Type K Model **U-111K-00-D0-1-TC1-ANP**
Type E Model **U-111E-00-D0-1-TC1-ANP**



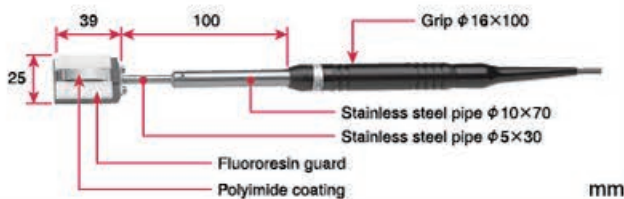
Temp. range	Tolerance	Response time	Durability
-50~250°C	±2.5°C (at 100°C surface)	2 s	A

Type K Model **UX-211K-01-D0-1-TC1-ANP**
Type E Model **UX-211E-01-D0-1-TC1-ANP**



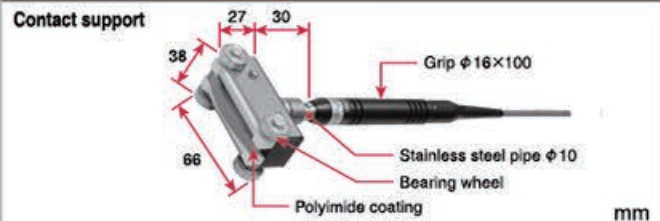
Temp. range	Tolerance	Response time	Durability
-50~250°C	±2.5°C (at 100°C surface)	3.5 s	A

Type K Model **U-118K-01-D0-1-TC1-ANP**
Type E Model **U-118E-01-D0-1-TC1-ANP**



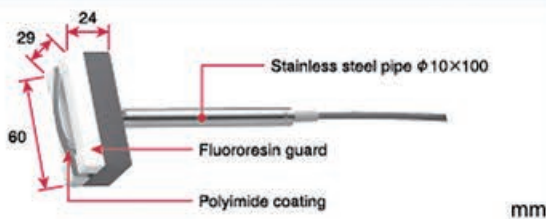
Temp. range	Tolerance	Response time	Durability
-50~250°C	±2.5°C (at 100°C surface)	2 s	A

Type K Model **UX-221K-00-D0-1-TC1-ANP**
Type E Model **UX-221E-00-D0-1-TC1-ANP**



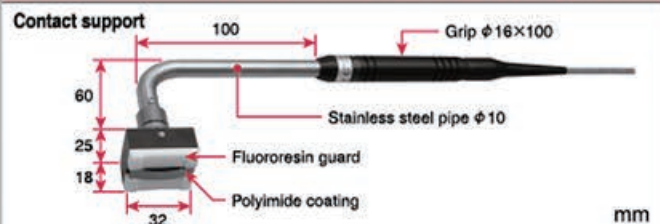
Temp. range	Tolerance	Response time	Durability
-50~200°C	±2.5°C (at 100°C surface)	3.5 s	A

Type K Model **U-211K-01-D0-0-TC1-W**
Type E Model **U-211E-01-D0-0-TC1-W**



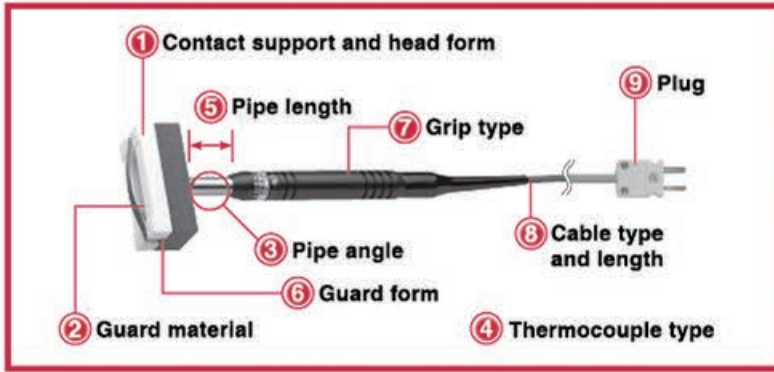
Temp. range	Tolerance	Response time	Durability
-50~250°C	±2.5°C (at 100°C surface)	3.5 s	A

Type K Model **UX-113K-01-D0-1-TC1-ANP**
Type E Model **UX-113E-01-D0-1-TC1-ANP**



Temp. range	Tolerance	Response time	Durability
-50~250°C	±2.5°C (at 100°C surface)	2 s	A

How to order of U/UX series 选型



No contact support **U-211K-00-D0-1-TC1-ANP**
 Contact support **UX-211K-00-D0-1-TC1-ANP**

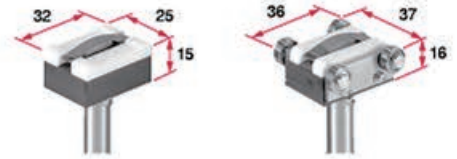
① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨

① Contact support and head form 接触辅助与头部大小	<p>No contact support</p> <p>U-1 : □25×32mm (Guard) / □37×36mm (Wheel) U-2 : □29×60mm (Guard) / □38×66mm (Wheel)</p> <p>Contact support</p> <p>UX-1 : □25×32mm (Guard) / □37×36mm (Wheel) UX-2 : □29×60mm (Guard) / □38×66mm (Wheel)</p>
② Guard material 头部形状 (MAX. temp)	<p>1 : Fluororesin gurad (250°C) 1~3: Contact section : Polyimide-coated 2 : Bearing wheel (200°C) 3 : Fluororesin wheel (250°C) 4 : Fluororesin gurad (200°C) 4~6: Contact section : Fluororesin-coated 5 : Bearing wheel (200°C) 6 : Fluororesin wheel (200°C) 7 : Fluororesin gurad (250°C) 7~9: Contact section : No coating 8 : Bearing wheel (200°C) 9 : Fluororesin wheel (250°C)</p>
③ Pipe angle 钢管形状(感温片方向)	<p>1 : Straight 6 : 90 degrees (right angle) 2 : 45 degrees 7 : 90 degrees (elbow, right angle) 3 : 90 degrees 8 : Direct 4 : 90 degrees (elbow) 9 : Direct (right angle) 5 : 45 degrees (right angle)</p>
④ Thermocouple type 热电偶种类	<p>K : Chromel-Alumel E : Chromel-Constantan</p>
⑤ Pipe length 钢管长度	<p>00 : 30mm (No grip type will not be available) 01 : 100mm 02 : 200mm 05 : 500mm</p>
⑥ Guard form 对应弧度	<p>D0 : Flat surface For flat~φ300mm For flat~φ400mm D1 : φ420mm~φ300mm D3 : φ200mm~φ100mm D2 : φ320mm~φ160mm D4 : φ120mm~φ60mm Please refer to P43 "Selectable guard form"</p>
⑦ Grip type 握柄	<p>1 : Standard grip 0 : No grip (Only U)</p>
⑧ Cable type and length 导线种类和长度 (See page 9)	<p>TC1 Standard specifications : 1m The cable length can be specified each 0.5m.</p>
⑨ Plug 插头 (See page 8)	<p>ANP (For AM-9***, HR-1*5*, AP-450, AR-650*) ASP (For HR-1*0*, AP-400) W (Without plug)</p>

① Contact support and head form 接触辅助与头部大小

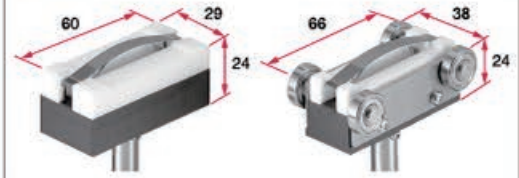
No contact support 无接触辅助 (mm)

U-1**



※ Capable of measuring up to 24 km/h.

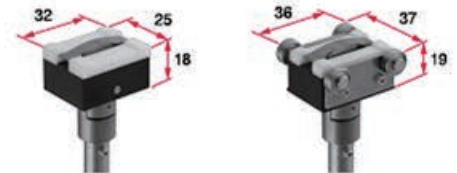
U-2**



※ Capable of measuring up to 36 km/h.

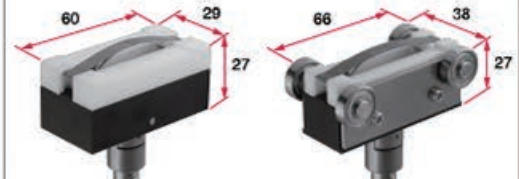
Contact support 接触辅助型 (mm)

UX-1**

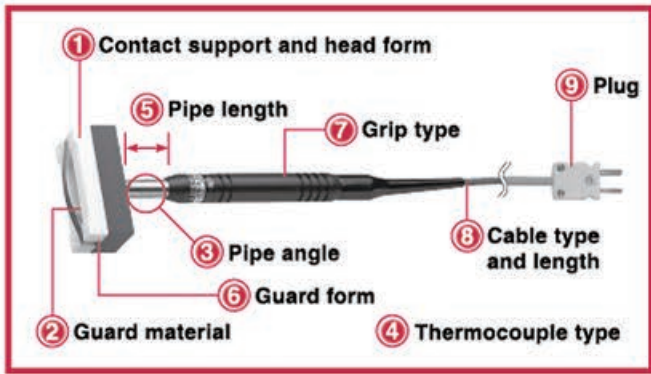


※ Capable of measuring up to 24 km/h.

UX-2**



※ Capable of measuring up to 36 km/h.



No contact support **U-211K-00-D0-1-TC1-ANP**
 Contact support **UX-211K-00-D0-1-TC1-ANP**

① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨

② Guard material
 头部形状

Fluororesin guard

A type that slides the guard on the object to be measured



	Coating	Temp. range
U-1*, UX-1*	Polyimide coated	-50~250°C
U-4*, UX-4*	Fluororesin coated	-50~200°C
U-7*, UX-7*	No coating	-50~250°C

Bearing wheel

A type that rolls the roller on the object to be measured



	Coating	Temp. range
U-2*, UX-2*	Polyimide coated	-50~200°C
U-5*, UX-5*	Fluororesin coated	-50~200°C
U-8*, UX-8*	No coating	-50~200°C

Fluororesin wheel

A type that rolls a roller on the object to be measured. Less likely to be damaged than bearings.



	Coating	Temp. range
U-3*, UX-3*	Polyimide coated	-50~250°C
U-6*, UX-6*	Fluororesin coated	-50~200°C
U-9*, UX-9*	No coating	-50~250°C

Although the fluororesin coating has a maximum temperature of 200°C, measurement with little friction is possible. Without coating, scratches may occur.

③ Pipe angle
 钢管形状(感温片方向)

U series No contact support	Contact plate Pipe Perpendicular to the pipe	Contact plate Pipe Parallel to the pipe
Straight	U-1	
45 degrees	U-2	U-5
90 degrees	U-3	U-6
Elbow	U-4	U-7
Direct	U-8	U-9

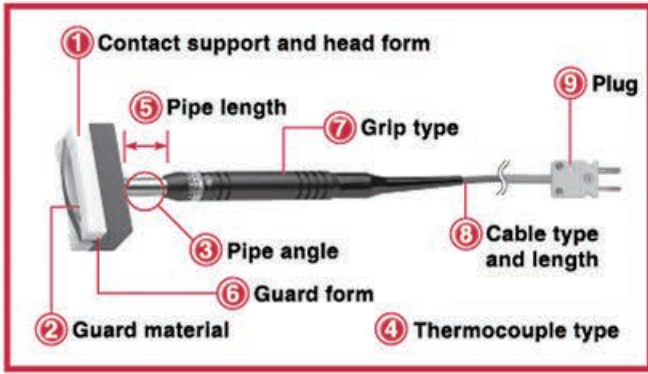
UX series Contact support	Contact plate Pipe Perpendicular to the pipe	Contact plate Pipe Parallel to the pipe
Straight	UX-1	
45 degrees	UX-2	UX-5
90 degrees	UX-3	UX-6

※ U-8* and U-9* (Direct) are only available with fluororesin guard head form (U-1*, U-4* or U-7*).

④ Thermocouple type
 热电偶种类

※ Select the same type of thermocouple as thermometer.

K Type K	E Type E
--------------------	--------------------



No contact support **U-211K-00-D0-1-TC1-ANP**
 Contact support **UX-211K-00-D0-1-TC1-ANP**

① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨

⑤ Pipe length
 钢管长度

00 30mm **01** 100mm **02** 200mm **03** 300mm **04** 400mm **05** 500mm

	U series No contact support	UX series Contact support
Straight		
45 degrees		
90 degrees		
Elbow		
Direct		

Pipe diameter : $\phi 10\text{mm}$

※ Elbow and direct can not be selected for UX series

⑥ Guard form
 对应弧度

Only for the guard type, you can select a guard with a notch that matches the diameter of the object to be measured.
 All roller types are for flat surfaces (D0) only.

Flat surface D0	
$\phi 420\text{mm} \sim 300\text{mm}$ D1	
$\phi 320\text{mm} \sim 160\text{mm}$ D2	
$\phi 200\text{mm} \sim 100\text{mm}$ D3	
$\phi 120\text{mm} \sim 60\text{mm}$ D4	

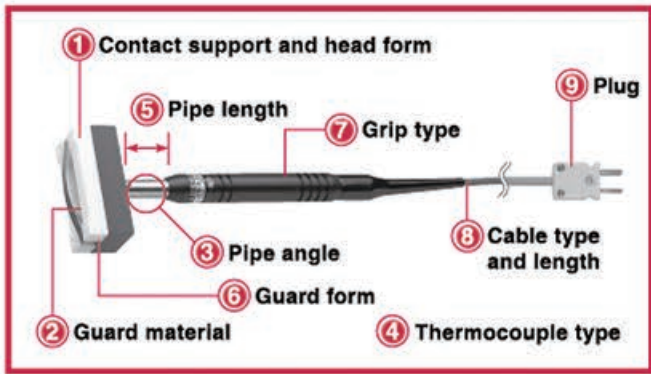
Selectable guard form

(mm)

	U / UX-11* U / UX-14* U / UX-17*	U / UX-21* U / UX-24* U / UX-27*	U / UX-2*, U / UX-3* U / UX-5*, U / UX-6* U / UX-8*, U / UX-9*
D0	$\phi 300 \sim \text{flat}$	$\phi 400 \sim \text{flat}$	flat only*
D1	—	$\phi 300 \sim 420$	—
D2	$\phi 160 \sim 320$	$\phi 160 \sim 320$	—
D3	$\phi 100 \sim 200$	$\phi 100 \sim 200$	—
D4	$\phi 60 \sim 120$	$\phi 60 \sim 120$	—

※ U / UX-1** can be used for diameters of up to $\phi 300\text{mm}$ in case of the D0 model.

U / UX-2** can be used for diameters of up to $\phi 400\text{mm}$ in case of the D0 model.



No contact support **U-211K-00-D0-1-TC1-ANP**
 Contact support **UX-211K-00-D0-1-TC1-ANP**

① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨

⑦ Grip type
握柄



⑧ Cable type and length
导线种类与长度

Standard	Outer diameter	Sheath material	Heat resistant
TC1 ※	φ4mm	Silicone rubber	240℃

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

⑨ Plug
插头

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

Specifications of U/UX series 规格

Model number ^{※1}	Fluororesin guard	U-11*, UX-11* U-17*, UX-17*	U-14*, UX-14*	U-21*, UX-21* U-27*, UX-27*	U-24*, UX-24*
	Bearing wheel	—	U-12*, UX-12* U-15*, UX-15* U-18*, UX-18*	—	U-22*, UX-22* U-25*, UX-25* U-28*, UX-28*
	Fluororesin wheel	U-13*, UX-13* U-19*, UX-19*	U-16*, UX-16*	U-23*, UX-23* U-29*, UX-29*	U-26*, UX-26*
Thermocouple type		Type K or E			
Temp. range ^{※2}		-50~250°C	-50~200°C	-50~250°C	-50~200°C
Tolerance	0°C ≤ t ≤ 200°C	±2.5°C	±2.5°C	±2.5°C	±2.5°C
	200°C < t ≤ 250°C	±3.0°C	—	±3.0°C	—
Response time ^{※3}		2s		3.5s	
Durability ^{※4}		A (more than 1500 hours)			
Range of movement (Only UX)		Longitudinal direction : ±8°, Transverse direction : ±4°			
Pipe material		Stainless steel (SUS316)			
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 probe 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 The response time is the time required to detect 99% of the true value on a flat and smooth metal surface.

※4 Durability is the time that a flat and smooth metal surface moving at 200°C and 200 m/min can be measured within tolerance.