

T-Line Series

Temperature Sensors

A variety of types and configurations with different type terminal connections is provided for use in industrial applications.

■ TA Series	General-purpose platinum resistance temperature detector with lead wires
■ TB Series	General-purpose platinum resistance temperature detector with terminal box
■ TC Series	General-purpose thermocouple with lead wires
■ TD Series	Sheath type temperature sensor with lead wires
■ TE Series	Sheath type temperature sensor with terminal box
■ TF Series	Dedicated type temperature sensor with lead wires

• TA Series

The TA models are general-purpose platinum temperature detectors that use ceramic spring type elements, and are suitable for the measurement of narrow temperature ranges. The use of a bent protection tube is not permitted. Applicable range: 0 to 200°C (JIS Pt100Ω).



Selection Guide

Example: TA1F10A1AX

Segment	Model No. selection	Description
I	Type and mounting	Protection tube material
	TA1	SUS304
	TA3	SUS304
	TA4	SUS304
	TA5	SUS304
	TA6	SUS304
II	Temperature characteristics	Mounting fittings
	F	Pt100Ω JIS '97 (IEC/DIN equivalent)
III	Protection tube length (L1)	P
	10	JPt100Ω JIS '89 (former JIS Pt100Ω) *1
	15	100mm *1
IV	Protecting tube diameter (D)	15
	20	150mm *1
	20	200mm *1
V	Lead wire length (L)	A
	1	3.2mm
	2	4.8mm
VI	Lead wire coat material (application range)	C
	A	6.4mm *1
	G	1,000mm *2
	S	2,000mm *2
VII	Lead wire protect-ing spring	3
	X	3,000mm *2
	S	Vinyl coated (-20 to +80°C)
	G	Glass wool coated (0 to 180°C)
	S	Glass wool shield (0 to 180°C)
	F	Glass wool shield with flexible tube (0 to 180°C) *2

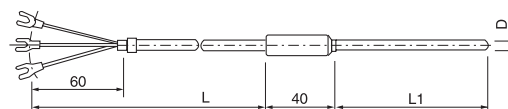
Notes: *1. TA3 and TA5 are incompatible with 10C/15C/20C.

*2. 1F, 2F and 3F are not compatible with S.

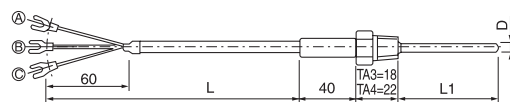
Dimensions

(Unit: mm)

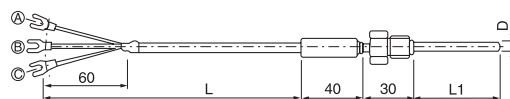
• TA1P



• TA3P, TA4P



• TA5P, TA6P



• TB Series

The TB models are general-purpose platinum resistance temperature detectors with dust-proof terminal boxes and ceramic spring type elements. These are suitable for the measurement of narrow temperature sensing ranges and long-distance wiring. The use of a bent protection tube is not permitted. Applicable range: 0 to 200°C (JIS Pt100Ω).



Selection Guide

Example: TB1F10B

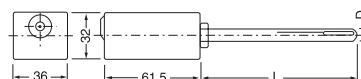
Segment	Model No. selection	Description
I	Type and mounting	Protection tube material
	TB1	SUS304
	TB3	SUS304
	TB4	SUS304
	TB5	SUS304
	TB6	SUS304
II	Temperature characteristics	Mounting fittings
	F	Platinum RTD Pt100Ω JIS '97 (IEC/DIN equivalent)
III	Protection tube length (L)	P
	10	Platinum RTD JPt100Ω JIS '89 (former JIS Pt100Ω)
	15	100mm *
	20	150mm *
	35	200mm *
IV	Protection tube diameter (D)	B
	C	4.8mm
		6.4mm *

* TB3 and TB5 are not compatible with 10C/15C/20C/35C.

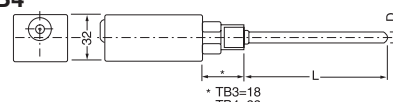
Dimensions

(Unit: mm)

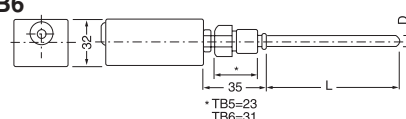
• TB1



• TB3, TB4



• TB5, TB6



• TC Series

The TC models can measure a narrow temperature range and have a one-piece thermocouple element from the temperature sensing tip to the lead wire end.

Applicable range: 0 to 250°C



Selection Guide

I II III IV V VI VII

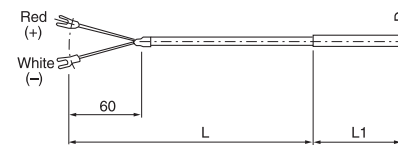
Example: TC1K10B1GX

Segment	Model No. selection	Description	
I	Type and mounting	Protection tube material	Mounting fittings
		TC1	SUS304 None
		TC2	SUS304 Slide flange
II	Element type & application	K	Thermocouple K 0 to 250°C
		J	Thermocouple J 0 to 250°C
		E	Thermocouple E 0 to 250°C
		T	Thermocouple T 0 to 250°C
III	Protection tube length (L1)	10	100mm
		15	150mm
		20	200mm
IV	Protection tube diameter (D)	B	4.8mm
		C	6.4mm
V	Lead wire length (L)	1	1,000mm
		2	2,000mm
		3	3,000mm
VI	Lead wire coat material (application range)	G	Glass wool coated (0 to 180°C)
		S	Glass wool shield (0 to 180°C)
VII	Added function	X	None

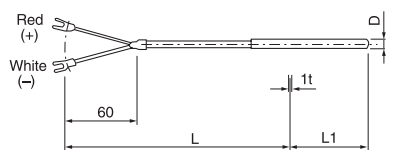
Dimensions

(Unit: mm)

• TC1



• TC2



• TD Series

These sheath-type sensors are suitable for measuring wide temperature ranges with quick response and high shock resistance. The sensing element may be bent.



Selection Guide

I II III IV V VI VII

Example: TD1K10AA1AX

Segment	Model No. selection		Description			
I	Type and mounting		Protection tube material		Mounting fittings	
		TD1	SUS304		None	
		TD2	SUS304		Slide flange	
		TD3	SUS304		1/8 PT fixed (welded) screw	
		TD4	SUS304		1/4 PT fixed (welded) screw	
		TD5	SUS304		1/8 PF loose (movable) screw	
	TD6	SUS304		1/4 PF loose (movable) screw		
II	Element type sheath diameter & application range *1			Temperature range (°C)		
				3.2 dia.	4.8 dia.	6.4 dia.
		K	Thermocouple K	-200 to +750	-200 to +800	-200 to +800
		J	Thermocouple J	0 to 650	0 to 750	0 to 750
		E	Thermocouple E	-200 to +750	-200 to +800	-200 to +800
		T	Thermocouple T	-200 to +350	-200 to +350	-200 to +350
		F	Platinum RTD Pt1000 JIS 97 (IEC/DIN equivalent)	-200 to +350	-200 to +350	-200 to +350
	P	Platinum RTD Pt1000 JIS 99 (former JIS Pt1000)	-200 to +350	-200 to +350	-200 to +350	
III	Shield length (L1)	10	100mm *1			
		15	150mm *1			
		20	200mm *1			
		35	350mm *1			
IV	Sheath diameter for thermocouple (D)	A	3.2			
		B	4.8			
		C	6.4 *1			
	Sheath diameter for platinum RTD (D)	A	3.2			
		B	4.8			
C		6.4				
V	Lead wire length (L)	1	1,000mm *2			
		2	2,000mm *2			
		3	3,000mm *2			
VI	Lead wire coat material (application range)	A	Vinyl coated (-20 to +80°C)			
		G	Glass wool coated (0 to 180°C)			
		S	Glass wool shield (0 to 180°C)			
		F	Glass wool shield with flexible tube (0 to 180°C) *2			
VII	Lead wire protect-ing spring	X	None			
		S	With spring *2			

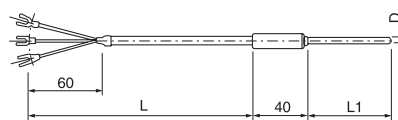
Notes: *1. TD3 and TD5 are not compatible with 10C/15C/20C/35C.

*2. 1F, 2F and 3F are not compatible with S.

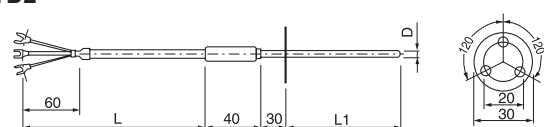
Dimensions

(Unit: mm)

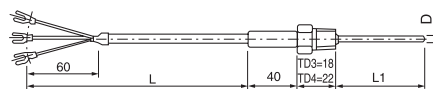
• TD1



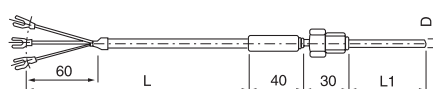
• TD2



• TD3, TD4



• TD5, TD6



Two lead wires are used for a thermocouple.

Three lead wires are used for a platinum RTD.



• TE Series

The TE sheath-type sensors have dust-proof terminal boxes and are suitable for the measurement of a wide temperature sensing range and for long-distance wiring. They have quick temperature response and high shock resistance and may be used when bent.



Selection Guide

I II III IV Example: TE1K10AA

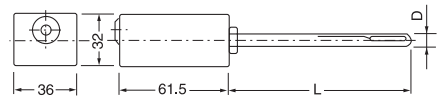
Segment	Model No. selection		Description			
I	Type and mounting		Protection tube material		Mounting fittings	
		TE1	SUS304		None	
		TE2	SUS304		Slide flange	
		TE3	SUS304		1/8 PT fixed (welded) screw	
		TE4	SUS304		1/4 PT fixed (welded) screw	
		TE5	SUS304		1/8 PF loose (movable) screw	
		TE6	SUS304		1/4 PF loose (movable) screw	
II	Element type sheath diameter & application range *			Temperature range (°C)		
				3.2 dia.	4.8 dia.	6.4 dia.
		K	Thermocouple K	-200 to +750	-200 to +800	-200 to +800
		J	Thermocouple J	0 to 650	0 to 750	0 to 750
		E	Thermocouple E	-200 to +750	-200 to +800	-200 to +800
		T	Thermocouple T	-200 to +350	-200 to +350	-200 to +350
		F	Platinum RTD Pt1000 JIS 97 (IEC/DIN equivalent)	-200 to +350	-200 to +350	-200 to +350
		P	Platinum RTD Pt1000 JIS 98 (former JIS Pt1000)	-200 to +350	-200 to +350	-200 to +350
III	Shield length L	10	100mm *			
		15	150mm *			
		20	200mm *			
		35	350mm *			
IV	Sheath diameter for thermocouple (D)	A	3.2			
		B	4.8			
		C	6.4 *			
	Sheath diameter for platinum RTD (D)	A	3.2			
		B	4.8			
		C	6.4 *			

* TE3 and TE5 are not applicable to 10C/15C/20C/35C.

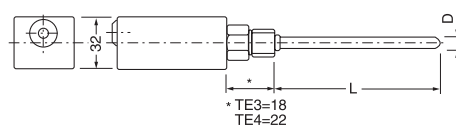
Dimensions

(Unit: mm)

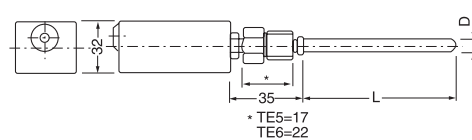
• TE1



• TE3, TE4



• TE5, TE6



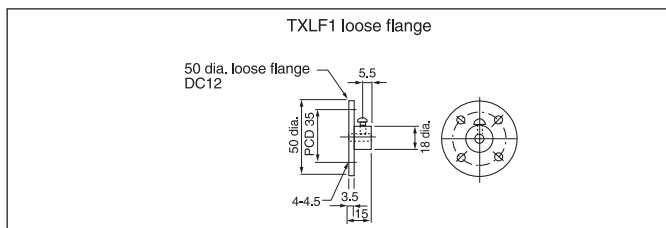
• Accessories for TA, TB, TC, TD and TE models

Selection Guide

Part No.	Protection tube (sheath) external diameter (mm)		
	3.2	4.8	6.4
TXLF1□	A	B	C

Dimensions

(Unit: mm)

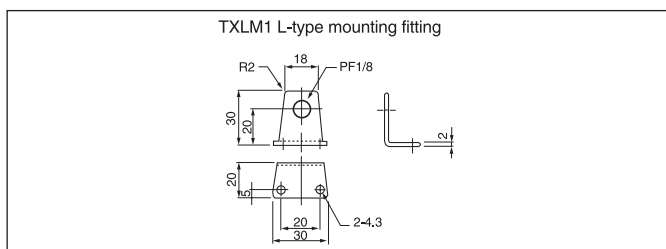


Selection Guide

Part No.	Name
TXLM1	L-type mounting fitting

Dimensions

(Unit: mm)

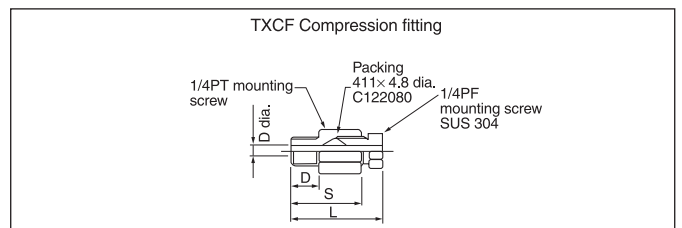


Selection Guide

Part No.	Mounting screw	External diameter (mm)		
		3.2	4.8	6.4
TXCF1□	PT1/8	A	B	—
TXCF2□	PT1/4	A	B	C

Dimensions

(Unit: mm)

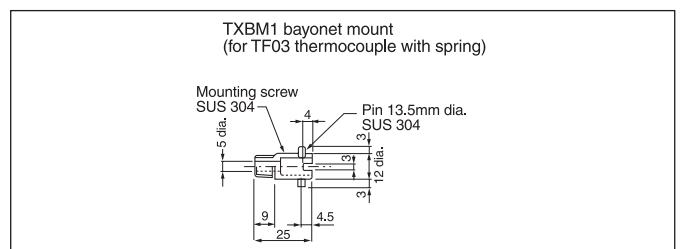


Selection Guide

Part No.	Name
TXBM1	Bayonet mount (for TF03 thermocouple with spring)

Dimensions

(Unit: mm)



• TF Series

The TF models are dedicated sensors used for a variety of controllers and applications.



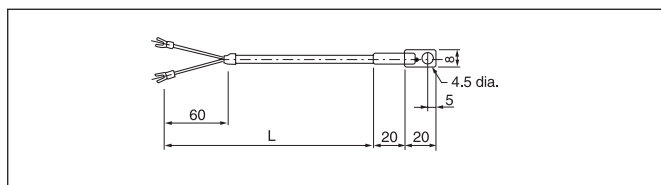
Selection Guide

■ TF01 Thermocouple with sensing heat plate

Thermocouple type	Model No.	Lead wire length L (mm)
K	TF01K1	1.000
	TF01K2	2.000
	TF01K3	3.000
J	TF01J1	1.000
	TF01J2	2.000
	TF01J3	3.000
Range	0 to 250°C	

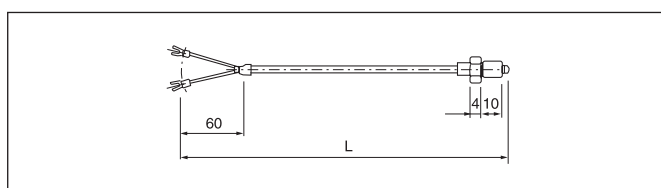
Dimensions

(Unit: mm)



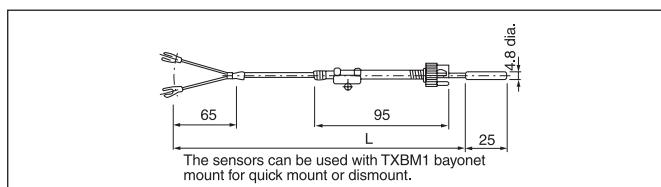
■ TF02 Built-in thermocouple for surface temperature

Thermocouple type	Model No.	Lead wire length L (mm)
K	TF02K1	1.000
	TF02K2	2.000
	TF02K3	3.000
J	TF02J1	1.000
	TF02J2	2.000
	TF02J3	3.000
Range	0 to 250°C	



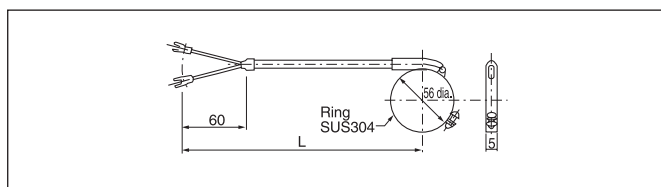
■ TF03 Bayonet type thermocouple for die

Thermocouple type	Model No.	Lead wire length L (mm)
K	TF03K1	1.000
	TF03K2	2.000
	TF03K3	3.000
J	TF03J1	1.000
	TF03J2	2.000
	TF03J3	3.000
Range	0 to 250°C	



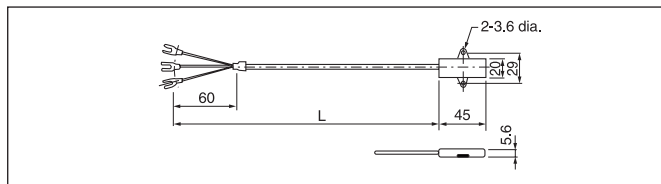
■ TF04 Thermocouple with ring for surface temperature

Thermocouple type	Model No.	Lead wire length L (mm)
K	TF04K1	1.000
	TF04K2	2.000
	TF04K3	3.000
J	TF04J1	1.000
	TF04J2	2.000
	TF04J3	3.000
Range	0 to 250°C	



■ TF51 Platinum RTD for surface mounting

Thermocouple type	Model No.	Lead wire length L (mm)
JIS '97 Pt100Ω (IEC/DIN equivalent)	TF51F1	1.000
	TF51F2	2.000
	TF51F3	3.000
JIS '89 JPt100Ω (former JIS Pt100Ω)	TF51P1	1.000
	TF51P2	2.000
	TF51P3	3.000
Range	-20 to +80°C	



■ TF55 Platinum RTD for room application

Thermocouple type	Model No.	Lead wire length L (mm)
JIS '97 Pt100Ω (IEC/DIN equivalent)	TF55F1	1.000
	TF55F2	2.000
	TF55F3	3.000
JIS '89 JPt100Ω (former JIS Pt100Ω)	TF55P1	1.000
	TF55P2	2.000
	TF55P3	3.000
Range	-20 to +80°C	

