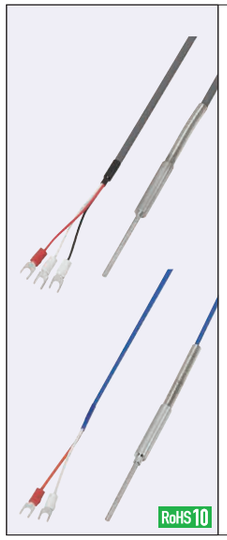
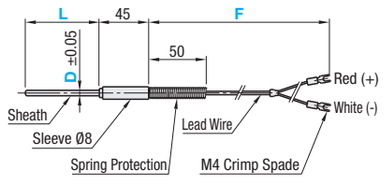
Temperature Sensors
Sheath and Wire Length Configurable

Be sure to refer to "Precautions for Use" in the Temperature Sensor Overview on **P.1653.**



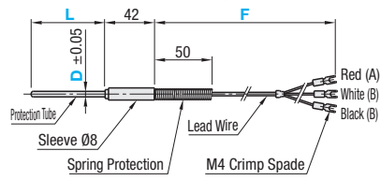
MSFK (K Thermocouple)
MSFJ (J Thermocouple)



Terminal Selection
- N (No Crimp Terminal)
- M (With Round Crimp Terminal)
- Y (With Crimp Spade)

MSFK, MSFJ		MSFK	MSFJ
Type of Thermocouple		K Thermocouple	J Thermocouple
Precision		JIS Class 2	
Temperature Measurement Contact Point		Isolated Neutral Type	
Temperature Measurement Range	Ø1.0, 1.6	0 ~ 650°C	0~450°C
	Ø3.2	0 ~ 750°C	0 ~ 650°C
	Ø4.8	0 ~ 800°C	0 ~ 750°C
M Material	Sheath	SUS316	
	Sleeve	SUS304	
Heat Resistance Temperature of Sleeve		80°C	
Lead Wire (Operating Temp. Range)		Glass Wool Coating (0 ~ 150°C)	

MSFP (Temperature Measuring Resistor (Pt100Ω))



Terminal Selection
- N (No Crimp Terminal)
- M (With Round Crimp Terminal)
- Y (With Crimp Spade)

MSFP	
Type of Device	Pt100Ω
Precision	JIS Class B
Lead Type	3-lead Type
Temperature Measurement Range	0 ~ 300°C
M Material: Protection Tubes	SUS316
M Material: Sleeve	SUS304
Heat Resistance Temperature of Sleeve	80°C
Lead Wire (Operating Temp. Range)	Vinyl Coating (-20 ~ 70°C)

■K Thermocouple, J Thermocouple

Part Number Type	D	L 10mm Increment	Lead Wire Length F 0.1m Increment	Terminal
(K Thermocouple) MSFK / (J Thermocouple) MSFJ	1.0	50~200	0.3~5.0	N M Y
	1.6	50~500		
	3.2	50~1000		
	4.8	50~1500		

■Temperature Measuring Resistor (Pt100Ω)

Part Number Type	D	L 10mm Increment	Lead Wire Length F 0.1m Increment	Terminal
(Temperature Measuring Resistor) MSFP	1.6	50~500	0.3~5.0	N M Y
	3.2			
	4.8			

Ordering Example

Part Number	-	L	-	F	-	Terminal
MSFK1.6	-	170	-	F2.5	-	M

The upper limit of temperature measurement is at the measurement point (the tip of sheath). When measuring, keep the sleeve temperature at or below the heat resistance temperature (80°C). The wire may break due to heat expansion of the sleeve. Especially when a heated object temperature exceeds 100°C, a long type of sheath L length is recommended, which is used to put maximum distance between the sleeve and the heated object, or Temperature Sensors, Heat Resistant Type (**P.1656**) is recommended.

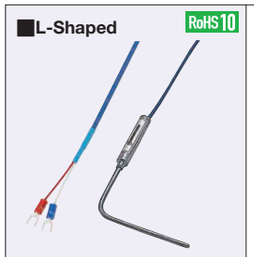
D	L	MSFK · MSFJ Sensor Body Price F0.3~1.0	F1.1~2.0	F2.1~3.0	F3.1~4.0	F4.1~5.0	Additional Terminal Price (Body Price +) N	M	Y
1.0	50~100								
	110~200								
1.6	50~100								
	110~200								
	210~300								
	310~400								
	410~500								
3.2	50~100								
	110~200								
	210~300								
	310~400								
	410~500								
	510~750								
	760~1000								
4.8	50~100								
	110~200								
	210~300								
	310~400								
	410~500								
	510~750								
	760~1000								
	1010~1250								
	1260~1500								

D	L	MSFP Sensor Body Price F0.3~1.0	F1.1~2.0	F2.1~3.0	F3.1~4.0	F4.1~5.0	Additional Terminal Price (Body Price +) N	M	Y
1.6	50~100								
	110~200								
	210~300								
	310~400								
	410~500								
3.2	50~100								
	110~200								
	210~300								
	310~400								
	410~500								
4.8	50~100								
	110~200								
	210~300								
	310~400								
	410~500								

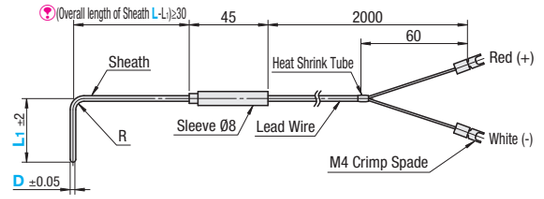
Temperature Sensors
L-Shaped / Lead Wire Protection / Heat Resistant

Be sure to refer to "Precautions for Use" in the Temperature Sensor Overview on **P.1653.**

■L-Shaped



MSNDL (K Thermocouple) ■Features: For narrow spaces

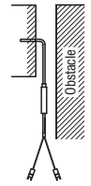


Overall length of sheath L-L_1 is bent formed and will be +5.

MSNDL		
Type of Thermocouple		K Thermocouple
Precision		JIS Class 2
Temperature Measurement Contact Point		Isolated Neutral Type
Temperature Measurement Range	Ø1.6	0 ~ 650°C
	Ø2.3	0 ~ 700°C
	Ø3.2	0 ~ 750°C
M Material	Sheath	SUS316
	Sleeve	SUS304
Heat Resistance Temperature of Sleeve		80°C
Lead Wire (Operating Temp. Range)		Glass Wool Coating (0 ~ 150°C)

Part Number Type	D	Overall Length of Sheath L	L_1 1mm Increment	R	Unit Price L100	L150	L200	L300
MSNDL	1.6	100 150 200 300	20~270	5				
	2.3		40~260	7				
	3.2		50~250	9				

Example



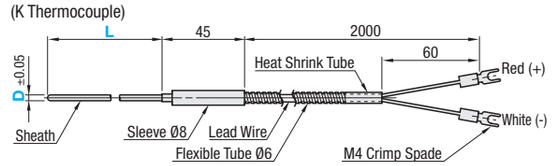
$L-L_1 \geq 30$

Ordering Example

Part Number	-	L	-	L_1
MSNDL2.3	-	150	-	70

■Lead Wire Protection

MSNDFC (K Thermocouple)

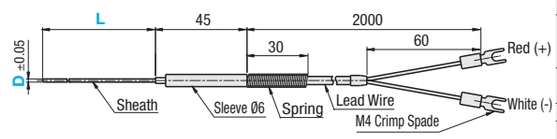


■Features: Flexible tube covers lead wires and protects them from damage.

MSNDFC	
Type of Thermocouple	K Thermocouple
Precision	JIS Class 2
Temperature Measurement Contact Point	Isolated Neutral Type
Temperature Measurement Range	0 ~ 750°C
M Material: Sheath	SUS316
M Material: Sleeve	SUS304
M Material: Flexible Tube	Stainless Steel
Heat Resistance Temperature of Sleeve	80°C
Lead Wire (Operating Temp. Range)	Glass Wool Coating (0 ~ 150°C)

■Heat Resistant

MSNDHG (K Thermocouple)



■Features: Temperature Sensor heat resistance temperature of sleeve is 180°C (generally 80°C).

MSNDHG		
Type of Thermocouple		K Thermocouple
Precision		JIS Class 2
Temperature Measurement Contact Point		Isolated Neutral Type
Temperature Measurement Range	Ø1.0, 1.6	0 ~ 650°C
	Ø2.3	0 ~ 650°C
	Ø3.2	0 ~ 750°C
M Material	Sheath	SUS316
	Sleeve	SUS304
Heat Resistance Temperature of Sleeve		180°C
Lead Wire (Operating Temp. Range)		Teflon Coating (0~200°C)

■Lead Wire Protection

Part Number Type	D	L Selection	Unit Price L100	L300
MSNDFC	3.2	100 300		

■Heat Resistant

Part Number Type	D	L Selection	Unit Price L30	L50	L100	L150
MSNDHG	1.0	30 50 100 150				
	1.6					
	2.3					
	3.2					

Ordering Example

Part Number	-	L
MSNDFC3.2	-	100
MSNDHG3.2	-	100

The upper limit of temperature measurement is at the measurement point (the tip of sheath). When measuring, keep the sleeve temperature at or below the heat resistance temperature (80°C). The wire may break due to heat expansion of the sleeve. Especially when a heated object temperature exceeds 100°C, a long type of sheath L length is recommended, which is used to put maximum distance between the sleeve and the heated object, or Temperature Sensors, Heat Resistant Type is recommended.