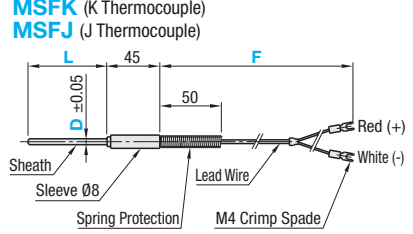


Temperature Sensors

Sheath and Wire Length Configurable

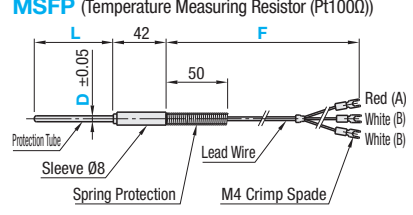
Be sure to refer to "Precautions for Use" in the Temperature Sensor Overview on P1653.



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
	Ø3.2	0 ~ 750°C
	Ø4.8	0 ~ 800°C
Material	Sheath	EN 1.4401 Equiv.
	Sleeve	EN 1.4301 Equiv.
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	Pt100Ω	
Type of Device	Pt100Ω	
Precision	JIS Class B	
Lead Type	3-lead Type	
Temperature Measurement Range	0 ~ 300°C	
Material	Protection Tubes	EN 1.4401 Equiv.
	Sleeve	EN 1.4301 Equiv.
Heat Resistance Temperature of Sleeve	80°C	
Lead Wire (Operating Temp. Range)	Vinyl Coating (-20 ~ 70°C)	

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

Temperature Measuring Resistor (Pt100Ω)				
Part Number	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 (P1656) is recommended.

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


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

Temperature Sensors

L-Shaped / Lead Wire Protection / Heat Resistant

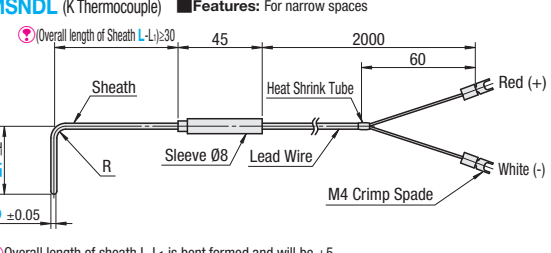
Be sure to refer to "Precautions for Use" in the Temperature Sensor Overview on P1653.

L-Shaped RoHS 10



MSNDL (K Thermocouple) ■ Features: For narrow spaces

Ⓢ (Overall length of Sheath L-L₁) ≥ 30

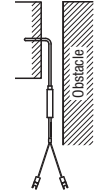


Ⓢ Overall length of sheath L-L₁ is bent formed and will be +5.

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

Ordering Example: Part Number - L - L₁
MSNDL2.3 - 150 - 70


Ⓢ L-L₁ ≥ 30



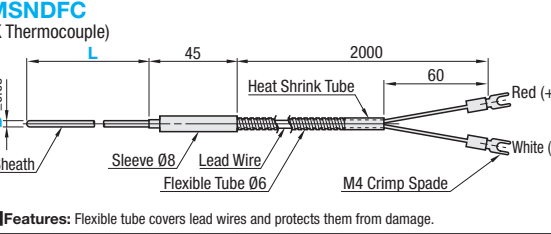
Part Number	Type	D	Overall Length of Sheath L	L ₁ 1mm Increment	R	Unit Price		
						L100	L150	L200
MSNDL		1.6	100	20~270	5			
		2.3	150	40~260	7			
		3.2	200	50~250	9			

Ordering Example: Part Number - L - L₁
MSNDL2.3 - 150 - 70

Lead Wire Protection RoHS 10




MSNDFC (K Thermocouple)



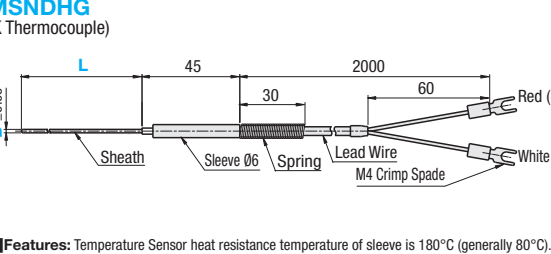
Ⓢ Features: Flexible tube covers lead wires and protects them from damage.

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

Heat Resistant RoHS 10



MSNDHG (K Thermocouple)



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

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

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

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.