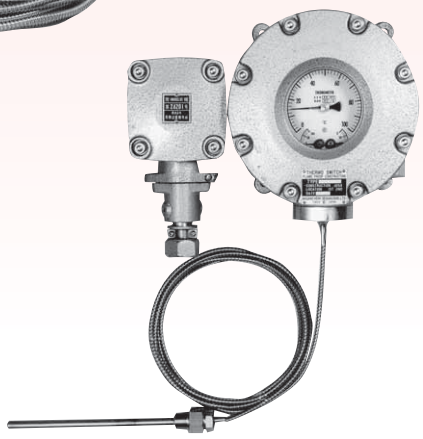
Environment responsive type

TF • TE • TD • TK • TW
Thermometers with Electric Contact



Outline

These thermometers equipped with electric contacts which can be set to any position. These are using organic liquids and/or inert gases as the enclosed medium to meet a pollution policy. This catalog classifies the thermometers by electric contact type into thermometers with microswitch and thermometers with contact switch and by case construction into indoor use type, drip-proof type, explosion-proof type, and water-proof type.

＊Please select the temperature range with your common temperature should be 75% or less. Furthermore, please ensure that the wetted parts materials listed are suitable for the use against measuring gas or liquid.

Specifications

Manufacturing temperature range:
-70 to 50℃ → 0 to 650℃

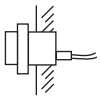
Electric contact type:
With micro switch
With contact switch

Construction:
Indoor use (With contact switch)
Drip-proof type (With micro switch)
Explosion-proof type (d2G4)
Water-proof (Application for transformer)

Size:
φ75, φ100, φ150

Mounting:
Remote surface mounting

Remote panel mounting
(Mounting hole・Mounting clamp)



Bulb / Connection mounting:
SUS304

Lead parts material:
Capillary: SUS304 or SUS316
Armored tube: SUS430

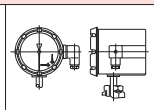
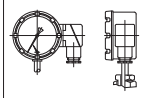
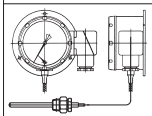
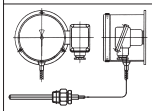
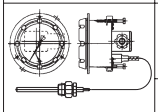
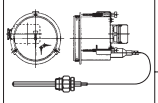
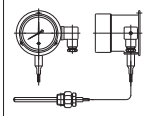
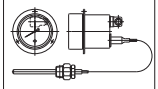
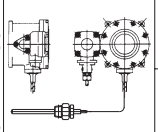
Connection:
R½, R¾, ½NPT, G½B, G¾B
JIS10K20ARF, JIS10K25ARF
ANSI1B150RF, ANSI1B300RF
＊ For other connections, please contact us.

Accuracy:

Indicator accuracy	Within ±2%F.S.
Reproducibility	Within ±2%F.S.

Thermometers with electric contact

1. Thermometer with micro switch

Mounting		Sensing method	Manufacturing range	Compensation	Max. lead length	Dial size (mm)	Model	Page
Drip-proof type (Non-explosion proof)	 I stem type	Liquid filled type	-70 to 50℃ →0 to 300℃	Lead compensation	——	100	TF14	9
	 I stem type	Gas filled type	0℃ to 400℃ 0℃ to 500℃ 0℃ to 600℃	Bimetal compensation			TE14	10
	 ϕ100 Surface mounting	Liquid filled type	-70 to 50℃ →0 to 300℃	Lead compensation	15m	100	TF54	12
		Gas filled type	0℃ to 400℃ 0℃ to 500℃ 0℃ to 600℃	Bimetal compensation	20m		TE54	14
	 ϕ150 Surface mounting	Liquid filled type	-70 to 50℃ →0 to 300℃	Lead compensation	20m	150	TF56	12
		Gas filled type	0℃ to 400℃ 0℃ to 500℃ 0℃ to 600℃	Bimetal compensation			TE56	14
	 ϕ100 Panel mounting	Liquid filled type	-70 to 50℃ →0 to 300℃	Lead compensation	15m	100 (Hole type)	TF64	13
						100 (Clamp type)	TF74	
		Gas filled type	0℃ to 400℃ 0℃ to 500℃ 0℃ to 600℃	Bimetal compensation	20m	100 (Hole type)	TE64	15
						100 (Clamp type)	TE74	
	 ϕ150 Panel mounting	Liquid filled type	-70 to 50℃ →0 to 300℃	Lead compensation	20m	150 (Hole type)	TF66	13
						150 (Clamp type)	TF76	
		Gas filled type	0℃ to 400℃ 0℃ to 500℃ 0℃ to 600℃	Bimetal compensation		150 (Hole type)	TE66	15
						150 (Clamp type)	TE76	
Indoor type (Non-explosion proof)		Liquid filled type	-70 to 50℃ →0 to 300℃	Lead compensation	10m	75	TF53	11
							TF63	
Explosion-proof type		Liquid filled type	-70 to 50℃ →0 to 300℃	Lead compensation	20m	——	TD25	18
		Gas filled type	0℃ to 400℃ 0℃ to 500℃ 0℃ to 600℃	Bimetal compensation			TD21	19

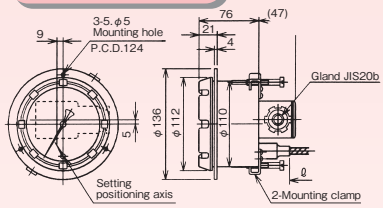
Thermometers with Micro Switch TE64・66・74・76

〈Remote type〉

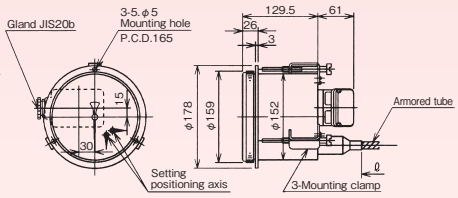
Gas filled dial thermometer

Corresponds to high temperature

Dimensions



TE64・74



TE66・76

Model	Dial size	Panel cut dimension	Mounting
TE64	φ100	φ112±1	Mounting hole
TE74			Mounting clamp
TE66	φ150	φ154±1	Mounting hole
TE76			Mounting clamp

Specifications

Item		Description	
Manufacturing range		0 to 400℃, 0 to 500℃, 90 to 600℃	
Case		Construction: Drip-proof / Equivalent to IP43, Material: TF64・74: AC7A, TF66・76: ADC12, Finish: Black	
Wetted parts material		Bulb: SUS304, Connection / Flange: SUS304	
Switch		Micro switch	Electric rating
Number of contacts		φ100: One contact, φ150: One contact (SPDT) / Two contacts (SPDT)	Resistance load / Inductive load＊ 125V AC 5A / 125V AC 3A 250V AC 5A / 250V AC 3A 30V DC 5A / 30V DC 3A 125V DC 0.4A / 125V DC 0.4A ＊ AC: Power factor 0.4 or more DC: Time-contact 7ms or less
Setting		Internal adjustment	
Lead length		1・2・3・4・5・8・10 (m)　Standard 3m Max. 20m	
Compensation		Bimetal compensation (Indication only)	
Connection		R½, R¾, ½NPT, G½B, G¾B ½ is not available with φ16 bulb and φ19, φ23 thermowell.	
Flange		JIS10K20ARF, JIS10K25ARF, ANSI1B150RF, ANSI1B300RF	
Connection	Without themowell	Union type, Slide type	Slide type is not available with φ16 bulb. When the maximum temperature in the temperature range exceeds 400℃, slide type is not available.
	With themowell	Double socket union type: R½, ½NPT (Connection) Double socket slide type: R½, ½NPT (Connection)	
Accuracy	Indication	Within ±2.5%F.S. (0 to 400℃), within ±2%F.S. (0 to 500℃, 0 to 600℃)	
	Reproducibility	Within ±2.5%F.S. (0 to 400℃), within ±2%F.S. (0 to 500℃, 0 to 600℃)	
	Setting	Within ±4.5%F.S. (0 to 400℃), within ±4%F.S. (0 to 500℃, 0 to 600℃)	
Dead band		Within 11%F.S. (0 to 400℃), within ±10%F.S. (0 to 500℃, 0 to 600℃)	
Ambient temperature error		Within ±2.5%F.S. /15℃ (0 to 400℃), within ±2%F.S. /15℃ (0 to 500℃, 0 to 600℃)	
Indication dial angle		250° (0 to 400℃), 270° (0 to 500℃, 0 to 600℃)	

●Other screws and flanges are manufactured. Please contact NKS for details.

Range / Bulb DIA. / Bulb length

Range ℃	Minimum graduation ℃	Bulb length (L) mm								Maximum
		Minimum insertion length								
		With one contact				With two contacts (φ150 only is available.)				
		d＝φ10	d＝φ12	d＝φ13	d＝φ16	d＝φ10	d＝φ12	d＝φ13	d＝φ16	
0～400	10	320	215	190	140	–	290	245	180	1000
0～500	10	320	215	190	140	–	290	245	180	
0～600	10	320	215	190	140	–	290	245	180	

●The above lengths are the minimum necessary of the bulb to be inserted into the fluid to be measured.
●Bulb length should be over the above length and specified in 5mm steps.
●For plain type, make the sum of 40mm added to the bulb minimum insertion dimension given in the table the minimum length.

The above minimum insertion length is the length without thermowell.
With thermowell, 25mm is added to the above length.