

배관 온도 감지기

PIPE TEMPERATURE SENSOR



TTP21X

TTP

TTP211, TTP221,
TTP212, TTP222,
TTP213, TTP223,
TTP214, TTP224



TTP22X

Product Application | 제품 적용 |

공조시스템(HVAC)의 온도 측정 및 파이프 배관, 탱크내에 흐르는 유체의 온도를 감지하는 센서입니다.
프라스틱 타입과 알미늄 다이캐스팅 타입 제품이 있고 스텐레스 보호관(Well)은 별도로 구성되어 있습니다.

▶ 냉수, 온수, 급수, 환수, 탱크내 온도 감지

Type | 타입 |

모델 (Model)	감지소자 (DIN) (Sensor Element)	감지범위 (Measuring Range)	정밀도 (Accuracy)
TTP211	Pt100Ω	-30~+150℃(최대-50~+300℃)	±0.15℃(at 0℃)
TTP221	Pt100Ω	-30~+150℃(최대-50~+300℃)	±0.15℃(at 0℃)
TTP212	Pt1000Ω	-30~+150℃(최대-50~+300℃)	±0.3℃ (at 0℃)
TTP222	Pt1000Ω	-30~+150℃(최대-50~+300℃)	±0.3℃ (at 0℃)
TTP213	NTC3KΩ	-30~+130℃	±0.2℃ (at 25℃)
TTP223	NTC3KΩ	-30~+130℃	±0.2℃ (at 25℃)
TTP214	NTC10KΩ (Ⅱ),(Ⅲ)	-30~+130℃	±0.2℃ (at 25℃)
TTP224	NTC10KΩ (Ⅱ),(Ⅲ)	-30~+130℃	±0.2℃ (at 25℃)

Model Code | 모델 선정 |

TTP 2XX. -

NO.	감지부길이(L)
05	50mm
08	80mm
10	100mm (기본 : STANDARD)
12	120mm
15	150mm
20	200mm
25	250mm
30	300mm
35	350mm
40	400mm
45	450mm
50	500mm

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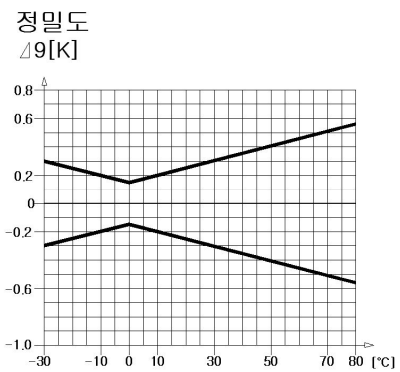
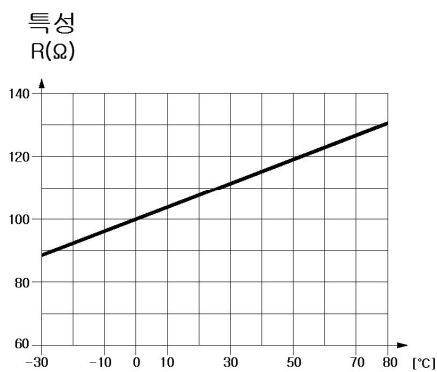
Technical data | 기술 사양 |

	Pt100Ω	Pt1000Ω	NTC10KΩ (Ⅱ),(Ⅲ)	NTC3KΩ
검출소요시간 (Time constant)	보호관 미장착시 : 10초	보호관 미장착시 : 10초	보호관 미장착시 : 10초	보호관 미장착시 : 10초
자기발열 (Self-heating)	2.5mW/°C (in Air, 1m/sec)	2.0mW/°C (in Air, 1m/sec)	2.7mW/°C (in Air, 1m/sec)	2.0mW/°C (in Air, 1m/sec)
최대 허용 전류 (Max. Applied Current)	1mA	0.3mA	-	-
온도계수(TCR)	3850 PPM/K	-	-	-
적용 (Application)	-	-	ACI/CP, AN PRECON TYPE Ⅱ,Ⅲ ANDOVER	ACI/3K MODEL22

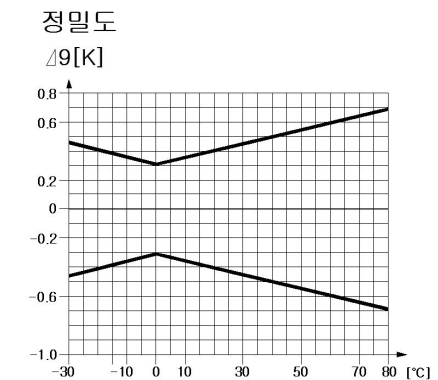
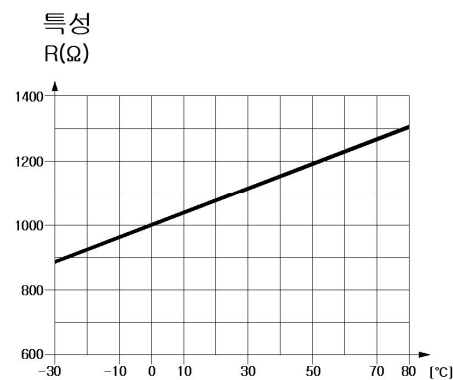
- | | | | |
|-----------|---|-------------|--|
| • 연결 사용 | : Controller or DDC, PLC System | • 결선 / 케이블 | : 3W/1.0 ~ 1.5mm ² |
| • 온도 변화 | : Table of Reference Value to
Pt / NTC (DIN EN60751) | • 케이블 인입그랜드 | : PF1/2" |
| • 허용 주변온도 | : 1)작동 시 : -25 ~ +80°C (Probe : -30 ~ +150°C)
2)저장 시 : -10 ~ +70°C | • 하우징 보호등급 | : IP65 to EN60529 |
| • 허용 주변습도 | : 5 ~ 95%Rh | • 하우징 재질 | : TTP22X - PC
TTP21X - Aluminum die-Casting |
| | | • 하우징 무게 | : A타입 - 보호관(Well) 미장착시 : 170g
B타입 - 보호관(Well) 미장착시 : 392g |

Accuracy | 감지소자 정밀도 |

▶ Pt100Ω (Class A)



▶ Pt1000Ω (Class B)

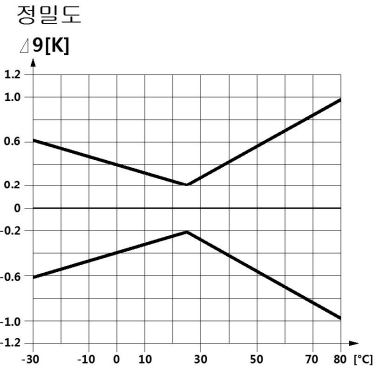
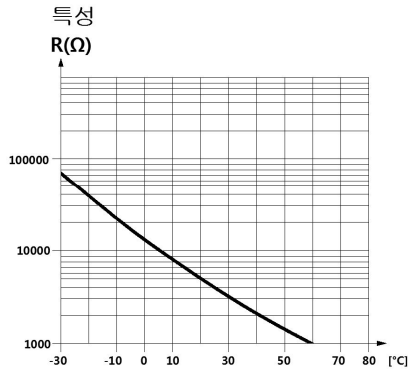


배관 온도 감지기

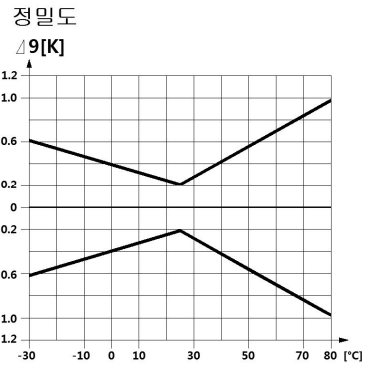
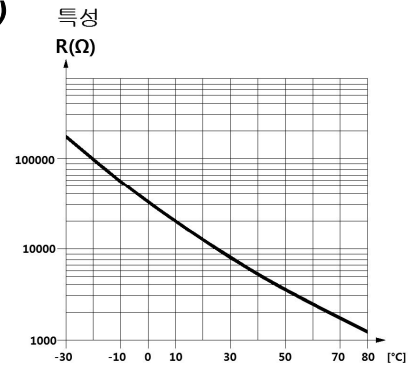
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Accuracy | 감지소자 정밀도 |

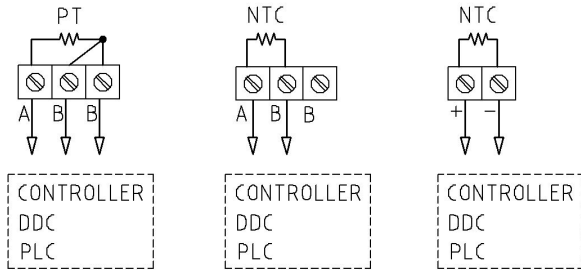
▶ NTC 3K Ω



▶ NTC 10K Ω (II)

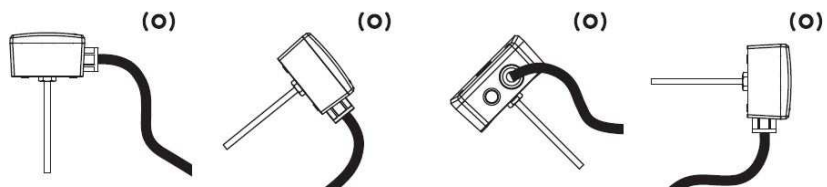


Wiring | 결선도 |

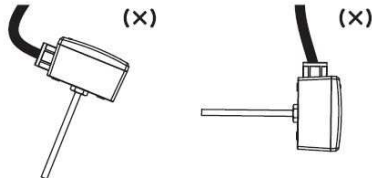


Installation Method | 설치 방법 |

▶ 적용가능 (O)

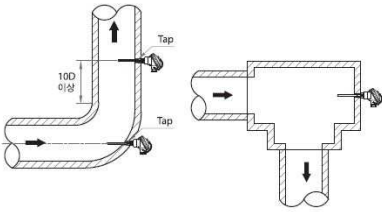


▶ 적용불가능 (X)

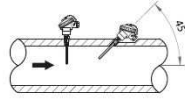


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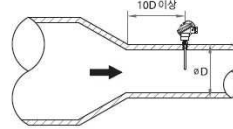
A) 엘보우(굽은관)에 설치시



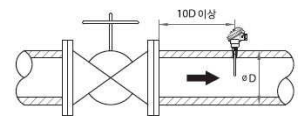
B) 스트레이트관(직관) 설치시



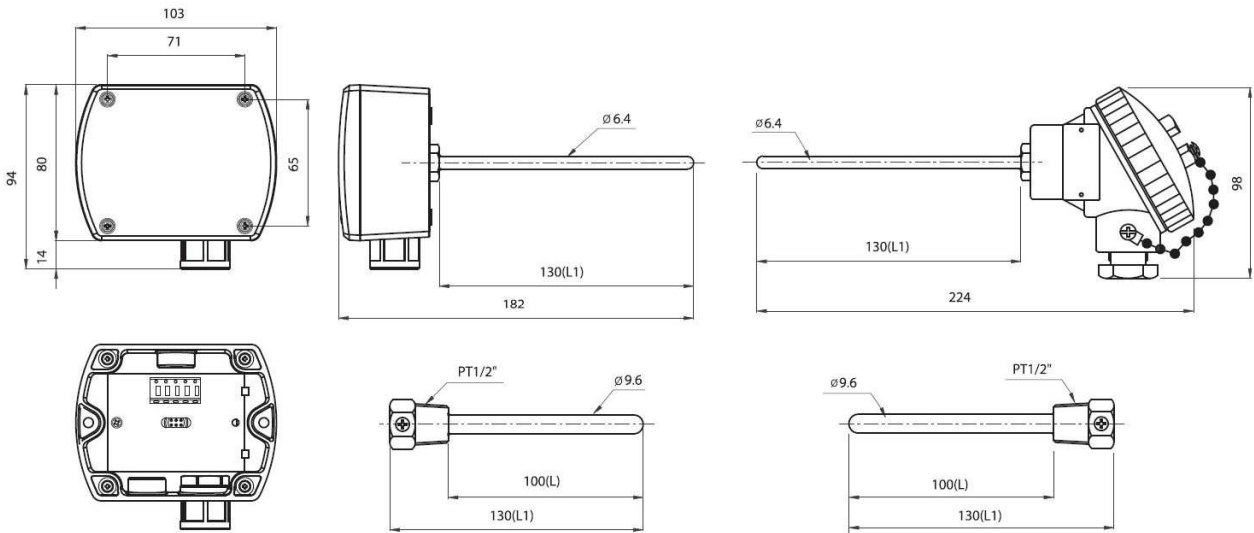
C) 좁아지는 배관에 설치시



D) 밸브근처에 설치시



Shape Dimension | 외형 치수 |



TTP22X

TTP21X

Resistance Curve Table | 온도 저항 변화표 |

온도		Pt100	Pt1000	NTC3K (ACI/3K)(22)	NTC10K (II)(CP)	NTC10K (III)(AN)	온도		Pt100	Pt1000	NTC3K (ACI/3K)(22)	NTC10K (II)(CP)	NTC10K (III)(AN)
Temp ℃	Temp ℉	Resistance Ω	Resistance Ω	Resistance Ω	Resistance Ω	Resistance Ω	Temp ℃	Temp ℉	Resistance Ω	Resistance Ω	Resistance Ω	Resistance Ω	Resistance Ω
-40	-40	84.3	843	100.701	335.60	239.78	55	131	121.3	1213	896	2.99	3.23
-35	-31	86.2	862	72.658	242.12	179.25	60	140	123.2	1232	747	2.49	2.72
-30	-22	88.2	882	53.196	173.34	135.23	65	149	125.2	1252	625	2.08	2.30
-25	-13	90.2	902	39.190	129.40	102.51	70	158	127.1	1271	526	1.75	1.96
-20	-4	92.2	922	29.162	96.46	79.01	75	167	129.0	1290	445	1.48	1.70
-15	5	94.1	941	21.909	71.55	61.02	80	176	130.9	1309	378	1.26	1.43
-10	14	96.1	961	16.611	55.07	47.55	85	185	132.8	1328	322	1.07	1.23
-5	23	98.0	980	12.705	42.17	37.55	90	194	134.7	1347	275	0.92	1.08
0	32	100	1000	9.800	32.56	29.99	95	203	136.6	1366	237	0.79	0.94
5	41	102.0	1020	7.620	25.34	23.90	100	212	138.5	1385	204	0.68	0.81
10	50	103.9	1039	5.971	19.87	19.03	105	221	140.4	1404	177	0.59	0.72
15	59	105.8	1058	4.713	15.93	15.26	110	230	142.3	1423	153	0.51	0.62
20	68	107.8	1078	3.747	12.49	12.31	115	239	144.2	1442	134	0.45	0.54
25	77	109.7	1097	3.000	10.00	10.00	120	248	146.1	1461	117	0.39	0.48
30	86	111.7	1117	2.416	8.06	8.17	125	257	148.0	1480	103	0.34	0.42
35	95	113.6	1136	1.959	6.53	6.71	130	266	149.8	1498	90	0.30	0.37
40	104	115.5	1155	1.597	5.33	5.55	135	275	151.7	1517	80	0.26	0.33
45	113	117.5	1175	1.310	4.37	4.61	140	284	153.6	1536	71	0.23	0.29
50	122	119.4	1194	1.081	3.60	3.85							