

TH61

Temperature Transmitters

Overview

This transmitter consists of the temperature sensing portion, which converts temperature into an electric signal and the conversion portion, which amplifies electrical signal and outputs.

Incorporated platinum thermometry resistance can be used depending on required temperature measuring range.

Features

Small and lightweight 2-wire remote type temperature transmitter for air conditioning, room and oil temperature measurement.



Specifications

Media:

Gases, steam and liquids

Installation environment:

Install in location where no gases or liquids may exist that have the potential to become flammable or ignitable under normal operating condition.

Mounting:

Panel mounting remote type

Temperature sensor:

Platinum thermometry resistance
 JIS C 1604 -1997 CLASS A
 Wetted parts General type SUS304
 Sheath type SUS316L

Temperature range:

0 to 50 → 300 to 500°C
 -50 to 50 → -20 to 100°C

Power source:

24V DC 2 wire system

Output:

4 to 20mA DC

Load resistance:

500Ω or less

Transmission system:

2 wire system

Operating temperature range:

-10 to 60°C

Accuracy:

±0.75%F.S.

Voltage variation of power source:

0.3%/10V

Ambient temperature change:

±0.025%F.S./°C

Outlet for electric wire:

Terminal box

Case material:

SPCC

Enclosure:

Indoor use

Weight:

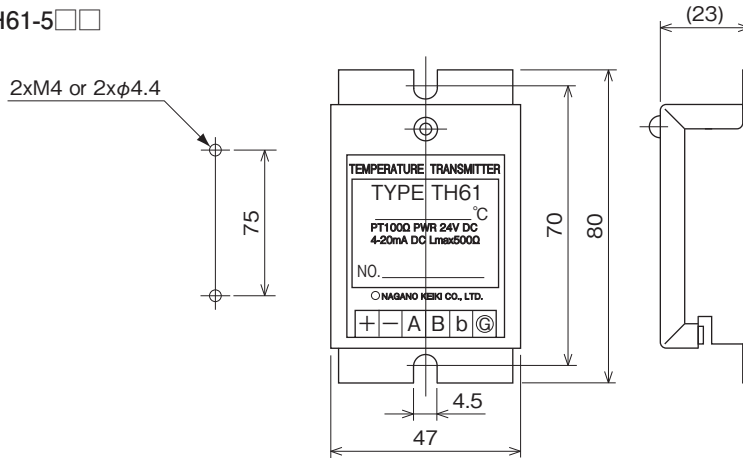
Approx. 150g (Excluding temperature sensor)

TH61

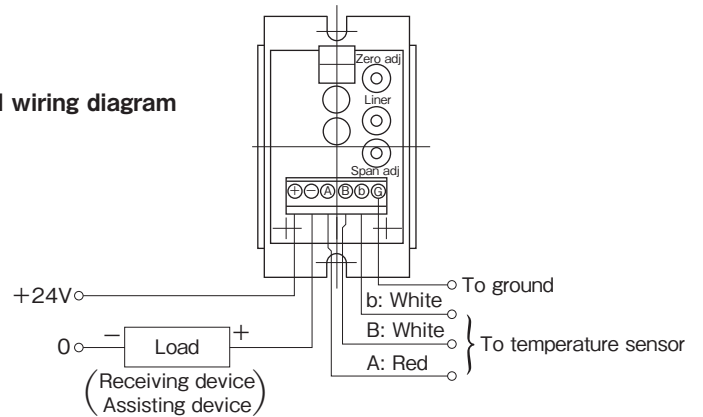
Temperature Transmitters

Dimensions

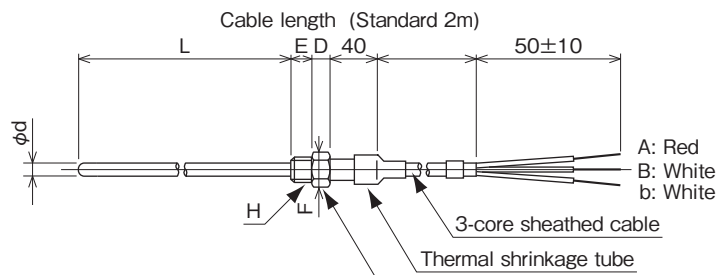
Body: TH61-5□□



Terminal wiring diagram



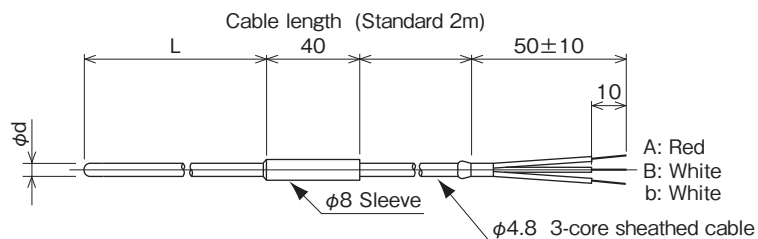
TH61-6□□ Temperature measuring resistor (Screw type)



Screw size (H)	D	E	Hex. screw (F)
R1/8	8	10	12×13.9
G1/8	8	9	14×16.2
R1/2	16	18	23×26.5
G1/2B	15	19	29×33.5

* Consult us for outline drawing of nonstandard connection.

TH61-7□□ Temperature measuring resistor (Submersible type)



Model number configuration

For ordering, please specify the model number, each specs and the range.

Model			①			②			③			④			⑤			⑥			⑦			⑧			⑨			⑩			⑪			⑫			⑬			⑭			⑮		
T H 6 1												6 1 1			X X X																																
Temperature Transmitters															Product specifications															Additional specifications (Optional)																	
Model number															Product specifications															Additional specifications (Optional)																	
① Mounting			5			Body only (without temperature sensor)																																									
			6			Body + Screw type temperature measuring resistor (Pt100) 2 wire system Standard: 2m Maximum: 10m (Order by 1m)																																									
			7			Body + Submersible type temperature measuring resistor (Pt100) 2 wire system Standard: 2m Maximum: 10m (Order by 1m)																																									
② Connection			0			Body only or Body + Submersible type Sensor diameter $\phi 8$ not available for submersible type																																									
			1			G1/2B (Screw type) Specify this screw size when thermowell is required																																									
			2			R1/2 (Screw type) Specify this screw size when thermowell is required																																									
			3			G1/8B (Screw type) Sensor diameter $\phi 6.4$ and $\phi 8$ not available																																									
			4			R1/8 (Screw type) Sensor diameter $\phi 6.4$ and $\phi 8$ not available																																									
③ Temperature sensor			0			Body only (without temperature sensor)																																									
			1			Standard type $\phi 4.8$ SUS304																																									
			2			Standard type $\phi 6$ SUS304																																									
			3			Standard type $\phi 8$ SUS304 Available only for screw type																																									
			A			Sheath type $\phi 4.8$ SUS316L only																																									
			B			Sheath type $\phi 6.4$ SUS316L only																																									
			C			Sheath type $\phi 8$ SUS316L only Available only for screw type																																									
Out dia.			A			Sheath type $\phi 4.8$ SUS316L only																																									
			B			Sheath type $\phi 6.4$ SUS316L only																																									
			C			Sheath type $\phi 8$ SUS316L only Available only for screw type																																									
			Sensor material			A			-50 to 50																																						
						B			-30 to 50																																						
						C			-20 to 100																																						
						D			-10 to 50																																						
E						0 to 50																																									
F						0 to 100																																									
9						Other																																									
④ Range °C			G			0 to 150																																									
			H			0 to 200																																									
			I			0 to 250																																									
			J			0 to 300																																									
			K			0 to 350																																									
			9			Other																																									
			⑤ L length			1			50 to 100mm Standard type $\phi 4.8, \phi 6, \phi 8$																																						
						2			110 to 200mm Standard type $\phi 4.8, \phi 6, \phi 8$																																						
						3			210 to 300mm Standard type $\phi 4.8, \phi 6, \phi 8$																																						
						A			50 to 100mm Sheath type $\phi 4.8$																																						
						B			110 to 200mm Sheath type $\phi 4.8$																																						
						C			210 to 300mm Sheath type $\phi 4.8$																																						
						G			50 to 100mm Sheath type $\phi 6.4$																																						
H						110 to 200mm Sheath type $\phi 6.4$																																									
J						210 to 300mm Sheath type $\phi 6.4$																																									
N						50 to 100mm Sheath type $\phi 8$																																									
P						110 to 200mm Sheath type $\phi 8$																																									
Q						210 to 300mm Sheath type $\phi 8$																																									
9						Other																																									
⑥ Accuracy			6			$\pm 0.75\%$ F.S.																																									
			7			24V DC																																									
⑦ Power source			1			24V DC																																									
			1			4 to 20mA DC																																									
			1			Cable length 2m (Standard)																																									
			2			Cable length 3m																																									
⑧ Output			3			Cable length 5m																																									
			9			Other																																									
			0			Not required																																									
⑨ Cable length (m)			1			Cable length 2m (Standard)																																									
			2			Cable length 3m																																									
			3			Cable length 5m																																									
⑩ Thermowell			9			Other																																									
			1			Welded type																																									
			4			Drilled type																																									
			2			R1/2																																									
⑪ Thermowell inner screw			4			G1/2B																																									
			9			Other																																									
			0			Not required																																									
⑫ Documents			1			Required (Documents available upon request) Datasheet (Drawing / Specifications) Instruction manual Inspection procedure Calibration test report (One-part one sheet) Strength calculation sheet Attending inspection																																									
			0			Not required																																									

Please specify the temperature range and units separately besides selection of range code.

[Available specifications]

- Sheath type is recommended for the range A to D to prevent condensation occurred inside temperature sensor.
- Cable to temperature sensor 2m (Standard) Maximum: 10m 1m step

- * When ordering, please specify length of temperature sensor. (10mm step)
- * Combination of screw type and thermowell needs additional +10mm temperature sensor length longer than thermowell.
- * SV⑬ and ⑭ are for thermowell part number.
- * When thermowell is required, refer to specification of thermowell on page 21 followed by specifying "SV".

* Specify code "X" to refer N/A

For Temperature Transmitters

SV Thermowell

When measuring process temperature with flows, and the pressure is high, temperature transmitter needs attachment of thermowell is needed like typical thermometer needs it. Generally speaking, it helps for easy maintenance.

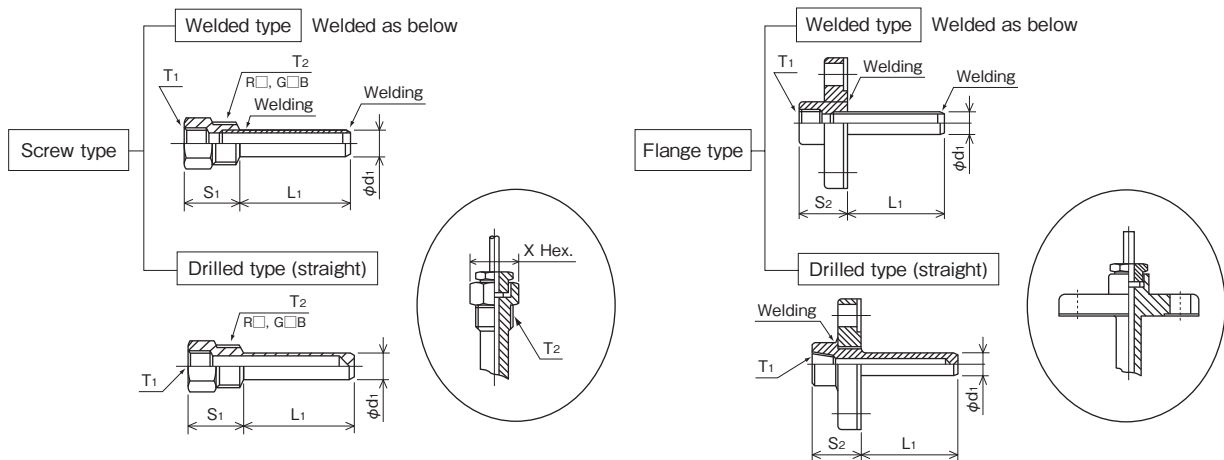
Role of thermowell

- 1) Standing up against measuring temperature and pressure (including flows).
- 2) No chemical reaction or corrosion caused by process media.
- 3) No leakage.
- 4) No damage even under sudden temperature changes.
- 5) Need to be durable against mechanical shock and vibration.
- 6) No toxic gases generation caused by thermowell itself.
- 7) Prompt transmission of temperature change to sensor element.

There are drilled type and welded type. Welded type is standard. Screw type and flange type are available upon installation method.

Specifications

Types and dimensions of thermowell



Thermowell length

- Maximum drilled type thermowell length is 200mm (Order by 10mm)

Connection and dimensions

Screw type

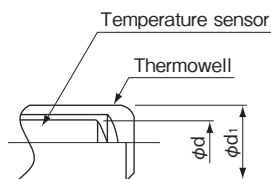
T1	S1	T2
Rc1/2	38	R1/2, R3/4
G1/2	35	G1/2B, G3/4B

Flange type

T1	S2	T2
G1/2	35	Depending on types of flange standard

Out dia. (φd1)

	Temperature sensor (d)	Thermowell outer dia. (d1)
Drilled type	φ4.8	φ8
	φ6	φ10
		φ12
	φ6.4	φ10
Welded type	φ8	φ12
	φ4.8	φ8
	φ6	φ10
	φ6.4	φ10
	φ8	φ12



Thermowell material

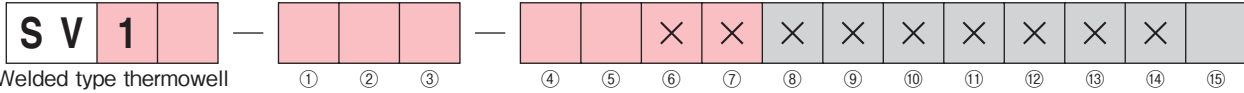
There are SUS304 and SUS316 for thermowell material. SUS304 is the standard.

Welded type

Model number configuration

Please specify the model number and each specs for ordering.

Model



Welded type thermowell for temperature transmitter

Model number		Product specifications		Additional specifications (Optional)	
Model	12	Welded type	Straight	Connection inner screw: Rc1/2	
	14	Welded type	Straight	Connection inner screw: G1/2	

①② Connection	③ Thermowell		④ Material		⑤ L length (mm)		⑬ Documents	
	outer dia./ inner dia.	Thermowell outer dia. d1	Thermowell inner dia.	Temperature sensor outer dia.				
00	R1/2	52	JIS20K25A FF					
01	R3/4	0F	JIS10K15A RF					
03	G1/2B	0G	JIS10K40A RF					
04	G3/4B	0H	JIS10K50A RF					
05	JIS10K20A RF	0J	JIS20K20A RF					
06	JIS10K25A RF	0K	JIS20K25A RF					
20	JIS5K15A RF	0L	JIS10K15A FF					
40	JIS5K15A FF	0M	JIS10K20A FF					
51	JIS20K20A FF	0N	JIS10K25A FF					

③ Thermowell	④ Material		⑤ L length (mm)		⑬ Documents	
	outer dia./ inner dia.	Thermowell outer dia. d1	Thermowell inner dia.	Temperature sensor outer dia.		
B	φ 8	φ 6	φ 4.8			
C	φ 10	φ 6.5	φ 6	Pipe material SUS304 only		
E	φ 10	φ 6.8	φ 6.4	Pipe material SUS304 only		
G	φ 12	φ 8.5	φ 8			
9	Others					

④ Material	⑤ L length (mm)		⑬ Documents	
	SUS304	SUS316		
1	SUS304	SUS316		
2	SUS316	SUS304		

⑤ L length (mm)	⑬ Documents	
	SUS304	SUS316
0	A	to 100
1	B	101 to 200
2	C	201 to 300
3	D	301 to 400
4	E	401 to 500

*Please specify temperature sensor length. →

* Specify code "X" to refer N/A

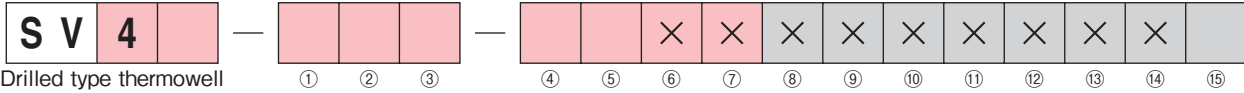
⑬ Documents	⑮ Documents	
	0	1
	0	Not required
	1	Required (Documents available upon request) Datasheet (Drawing / Specifications) Mill test report Strength calculation sheet

Drilled type

Model number configuration

Please specify the model number and each specs for ordering.

Model



Drilled type thermowell
for temperature transmitter

Model number		Product specifications		Additional specifications (Optional)	
Model	42	Drilled type	Straight	Connection inner screw: Rc1/2	
	44	Drilled type	Straight	Connection inner screw: G1/2	

①② Connection	③ Thermowell		④ Material		⑤ L length (mm) Order by 10mm		⑬ Documents	
00	R1/2	52	JIS20K25A	FF			0	Not required
01	R3/4	0F	JIS10K15A	RF			1	Required (Documents available upon request) Datasheet (Drawing / Specifications) Mill test report Strength calculation sheet
03	G1/2B	0G	JIS10K40A	RF				
04	G3/4B	0H	JIS10K50A	RF				
05	JIS10K20A	0J	JIS20K20A	RF				
06	JIS10K25A	0K	JIS20K25A	RF				
20	JIS5K15A	0L	JIS10K15A	FF				
40	JIS5K15A	0M	JIS10K20A	FF				
51	JIS20K20A	0N	JIS10K25A	FF				

③ Thermowell	Thermowell outer dia. d1		Thermowell inner dia.		Temperature sensor outer dia.	
	B	φ8	φ5.5	φ4.8		
C	φ10	φ6.5	φ6			
D	φ12	φ6.5	φ6			
E	φ10	φ6.8	φ6.4			
F	φ12	φ6.8	φ6.4			
G	φ12	φ8.5	φ8			
9	Others					

④ Material	⑤ L length (mm) Order by 10mm		⑬ Documents	
	1	SUS304		
2	SUS316			

⑤ L length (mm) Order by 10mm	SUS304		SUS316	
	0		A	50 to 100
1		B	101 to 150	
2		C	151 to 200	

*Please specify temperature sensor length. →

* Specify code "X" to refer N/A