

# TH71

## 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 direct connection type two-wire temperature transmitter for air duct.

Sanitary type is also available (Model: TH72)



### 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:

Direct mounting

#### Temperature sensor:

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

#### Temperature range:

0 to 50 → 0 to 100°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:

G1/2 (Conduit type) or JIS 15a (Gland)

#### Case material:

ADC12

#### Enclosure:

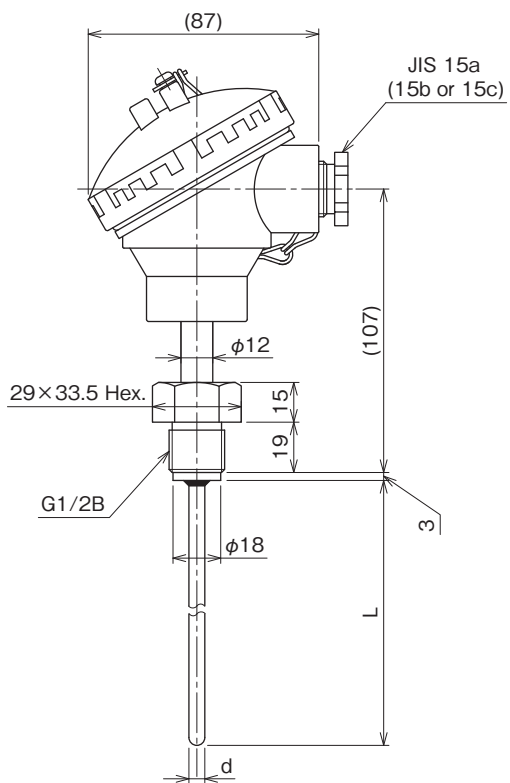
Drip-proof

#### Weight:

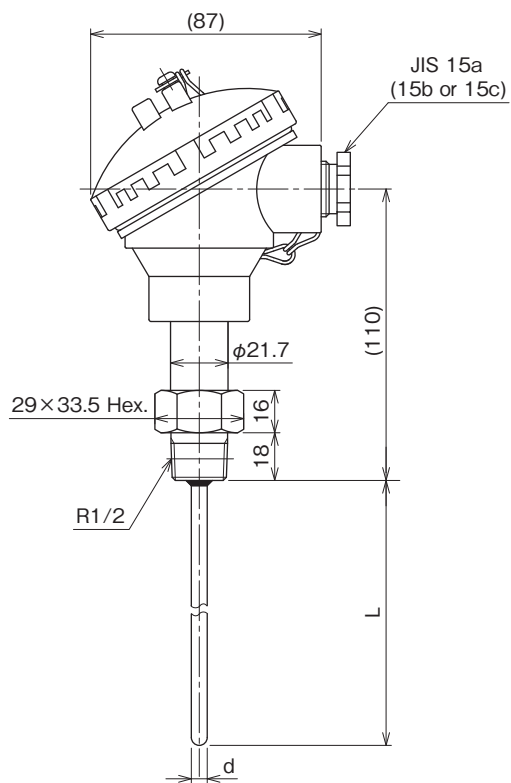
Approx. 500g

### Dimensions

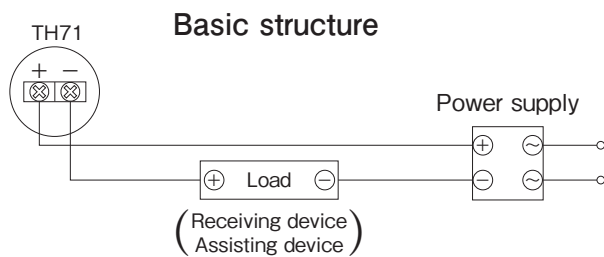
Connection G1/2B: Union  
TH71-A1□



Connection R1/2: Fixed  
TH71-A2□



\* Please refer to model number configuration to specify sensor outer d dia., material and length.



### Model number configuration

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

Model

Temperature Transmitters

Model number

Product specifications

Additional specifications (Optional)

① Mounting	A	Direct mounting	
② Connection	1	G1/2B Union	
	2	R1/2 Fixed	
③ Temperature sensor construction	1	Standard type φ4.8 SUS304	
	2	Standard type φ6 SUS304	
	3	Standard type φ8 SUS304	
	A	Sheath type φ4.8 SUS316L	
	B	Sheath type φ6.4 SUS316L	
	C	Sheath type φ8 SUS316L	
④ Range °C	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	
	⑤ L length Temperature sensor length	1	50 to 100mm Standard type φ4.8, φ6, φ8
		2	110 to 200mm Standard type φ4.8, φ6, φ8
3		210 to 300mm Standard type φ4.8, φ6, φ8	
A		50 to 100mm Sheath type φ4.8	
B		110 to 200mm Sheath type φ4.8	
C		210 to 300mm Sheath type φ4.8	
G		50 to 100mm Sheath type φ6.4	
H		110 to 200mm Sheath type φ6.4	
J		210 to 300mm Sheath type φ6.4	
N		50 to 100mm Sheath type φ8	
P		110 to 200mm Sheath type φ8	
Q		210 to 300mm Sheath type φ8	
9	Other		
⑥ Accuracy	6	±0.75%F.S.	
⑦ Power source	1	24V DC	
⑧ Output	1	4 to 20mA DC	
⑨ Outlet for electric wire	1	JIS15a (PF1/2)	
⑬ Thermowell	0	Not required	
	1	Welded type	
	4	Drilled type	
	9	Other	
⑭ Thermowell inner screw	2	R1/2	
	4	G1/2B	
	9	Other	
⑮ Documents	0	Not required	
	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	

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

① Mounting

② Connection

③ Temperature sensor construction

④ Range °C

⑤ L length  
Temperature sensor length

⑥ Accuracy

⑦ Power source

⑧ Output

⑨ Outlet for electric wire

⑬ Thermowell

⑭ Thermowell inner screw

⑮ Documents

#### 【Available specifications】

- Sheath type is recommended for the range A to D to prevent condensation occurred inside temperature sensor.
- G1/2 or JIS15a Gland for electrical wire outlet.
- SUS316L wetted parts only for sensor diameter φ4.8 sheath, φ6.4 and φ8 sheath.

#### 【Other additional spec.】

- 3-core shielded cable (/m)

- \* When ordering, please specify temperature sensor length (L). (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.

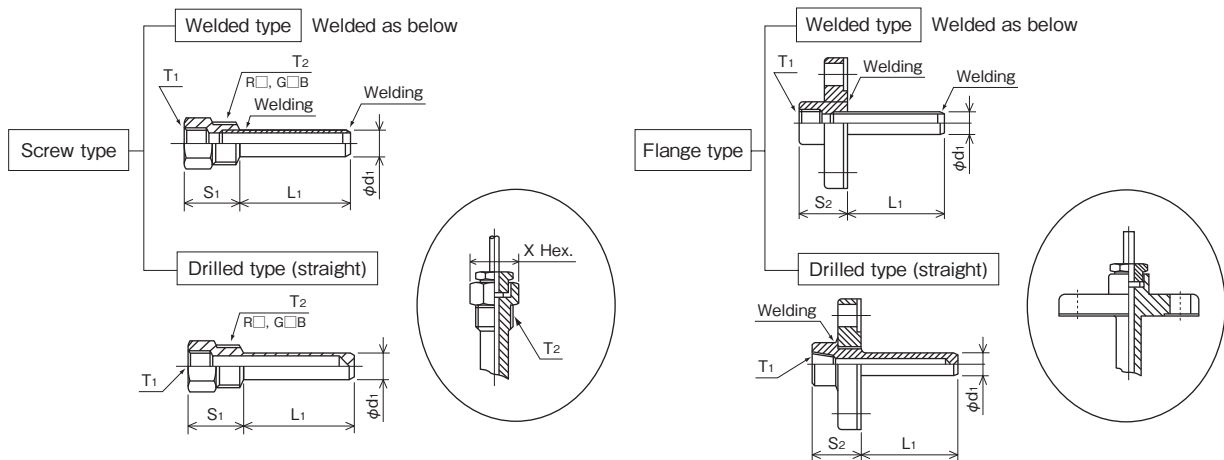
### Role of thermowell

- 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

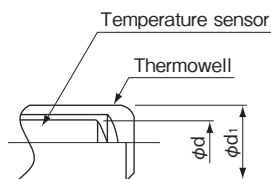
T1	S1	T2
Rc1/2	38	R1/2, R3/4
G1/2	35	G1/2B, G3/4B

#### 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

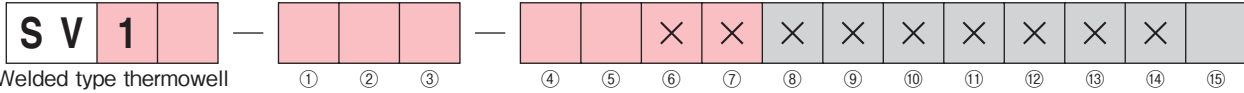
There are SUS304 and SUS316 for thermowell material. SUS304 is the standard.

### 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

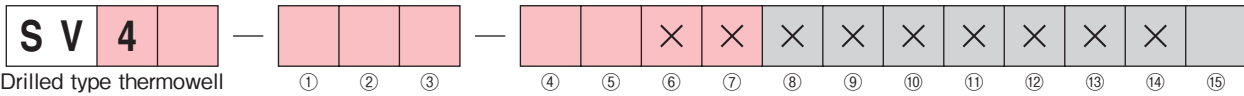
⑬ Documents	⑮ Documents	
	0	1
	0	Not required
	1	Required (Documents available upon request) Datasheet (Drawing / Specifications) Mill test report Strength calculation sheet

### 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