

# TH81

## 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

This industrial temperature transmitter can be used with choice of mounting method, transmission method and power supply depending on the application.

Available with d2G4 explosion proof type (Model: RD81) and sanitary type (Model: TH82).



### 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, Pipe mounting, Panel 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→300 to 500°C  
-50 to 50→-20 to 100°C  
(100°C max. for direct connection type)

#### Power source:

24V DC (Standard) 2 wire system  
100V AC, 110V AC, 200V AC, 220V AC 4 wire system

#### Output:

4 to 20mA DC

#### Load resistance:

500Ω or less (At 24V DC)  
400Ω or less (At AC power source)

#### Transmission system:

2 wire system or 4 wire system

#### Operating temperature range:

-40 to 80°C

#### Accuracy:

±0.2%F.S.

#### Voltage variation of power source:

0.1%/10V

#### Ambient temperature change:

±0.025%F.S./°C

#### Outlet for electric wire:

JIS 20b (Gland)

#### Case material:

ADC12

#### Enclosure:

Drip-proof

#### Weight:

Approx. 2kg





# 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.

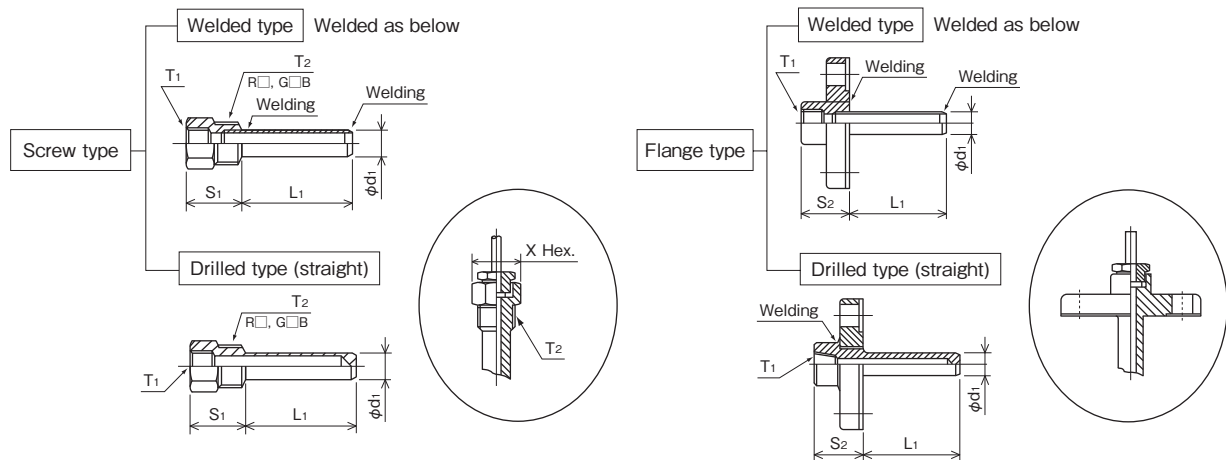
### Role of thermowell

- 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

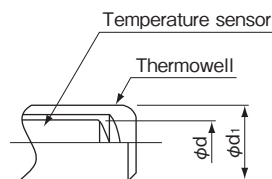
T1	S1	T2
Rc1/2	38	R1/2, R3/4
G1/2	35	G1/2B, G3/4B

#### 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

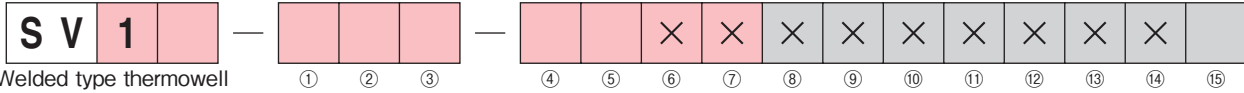
There are SUS304 and SUS316 for thermowell material. SUS304 is the standard.

### 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	φ8	φ6	φ4.8			
C	φ10	φ6.5	φ6	Pipe material SUS304 only		
E	φ10	φ6.8	φ6.4	Pipe material SUS304 only		
G	φ12	φ8.5	φ8			
9	Others					

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

⑤ L length (mm)	④ Material		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		

⑬ Documents	④ Material		⑤ L length (mm)	
	SUS304	SUS316		
0	Not required			
1	Required (Documents available upon request) Datasheet (Drawing / Specifications) Mill test report Strength calculation sheet			

\*Please specify temperature sensor length. →

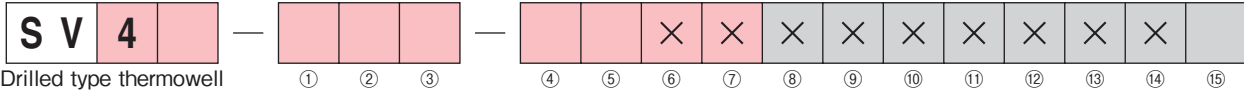
\* Specify code "X" to refer N/A

### 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		④		⑤	
	Code	Spec	Code	Spec	Code	Spec
①② Connection	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	Outer dia./ inner dia.	Thermowell outer dia. d1		Thermowell inner dia.		Temperature sensor outer dia.	
		Code	Spec	Code	Spec	Code	Spec
③ Thermowell	Outer dia./ inner 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	
	Code	Spec
④ Material	1	SUS304
	2	SUS316

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

⑥ Documents	⑦	
	Code	Spec
⑥ Documents	0	Not required
	1	Required (Documents available upon request) Datasheet (Drawing / Specifications) Mill test report Strength calculation sheet

\*Please specify temperature sensor length. →

\* Specify code "X" to refer N/A