

# SPECIAL TYPE THERMOMETER

• SRG Series – Surface Type Temperature Gauge

## Technical Data

Liquid, Gas Filled Available

### Optional Type:

- SRG-QS: Surface mount sensor bulb c/w every angle connection
- SRG-W: Surface mount sensor bulb c/w capillary & wall mounting flange
- SRG-P: Surface mount sensor bulb c/w capillary & panel mounting flange

Dial Size:  $\phi 100$ ,  $\phi 150$ mm available

Case & Cover Material: SS304 or SS316 available

Stem Material: SS316

Lens: Glass, Safety glass available

Sensor Bulb Capillary Tube, Flex Tube Material: SS304

Capillary Tube Length Limited: Liquid filled type: 10M

Gas filled type: max. 50M; option available

Housing Enclosure: IP66, liquid filled available

Range Limit:  $-200^{\circ}\text{C}$  to  $+650^{\circ}\text{C}$  available

Stem Dimensions:  $\phi 10$ ,  $12$ mm; option on request

Stem Length Limit: Standard  $100$ mm(H); option on request

Sensor Bulb Length: Standard  $120$ mm(L); option on request

Accuracy:  $\pm 1\%$  F.S.

Over Range Protection: 130% F.S.

Switch Form: Limit Switch: available 7 functions for usage

Micro Switch: One setting point SPDT x 1 or Two setting points SPDT x 2

Switch Data: Please see the *Contact Type Assemblies Table*



### Approvals:

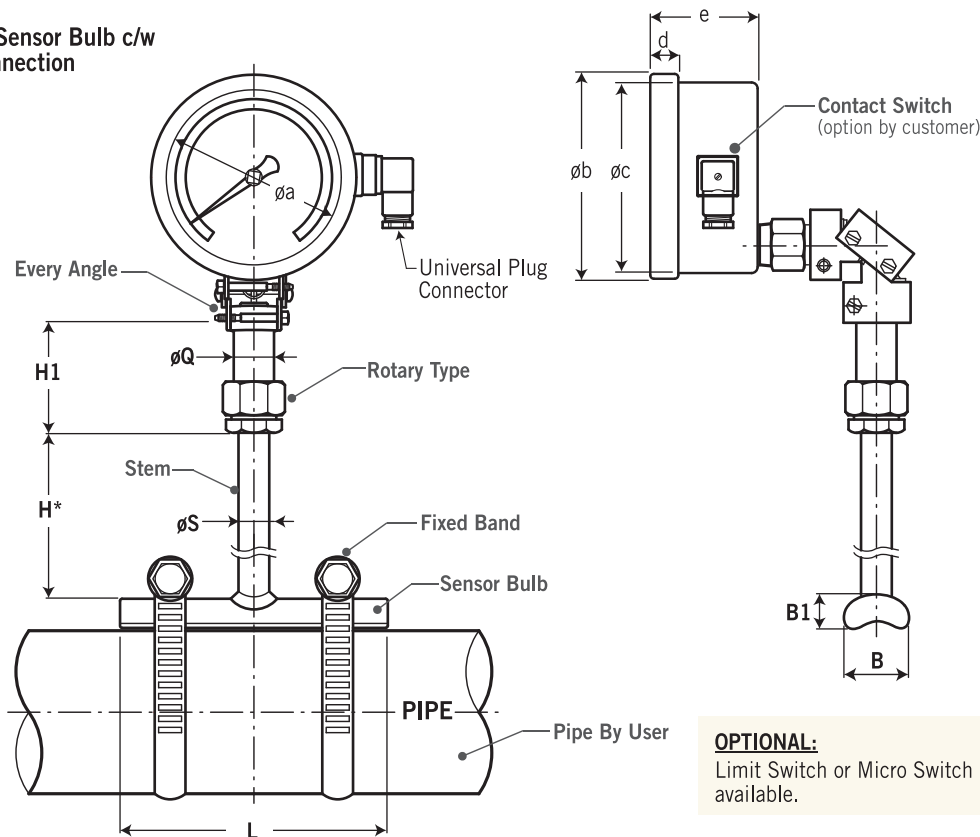


Switches with UL & CSA Recognized and File No. E12252.

## Dimensions

### Type QS:

Surface Mount Sensor Bulb c/w Every Angle Connection



**OPTIONAL:**  
Limit Switch or Micro Switch available.

### Dimensions Data

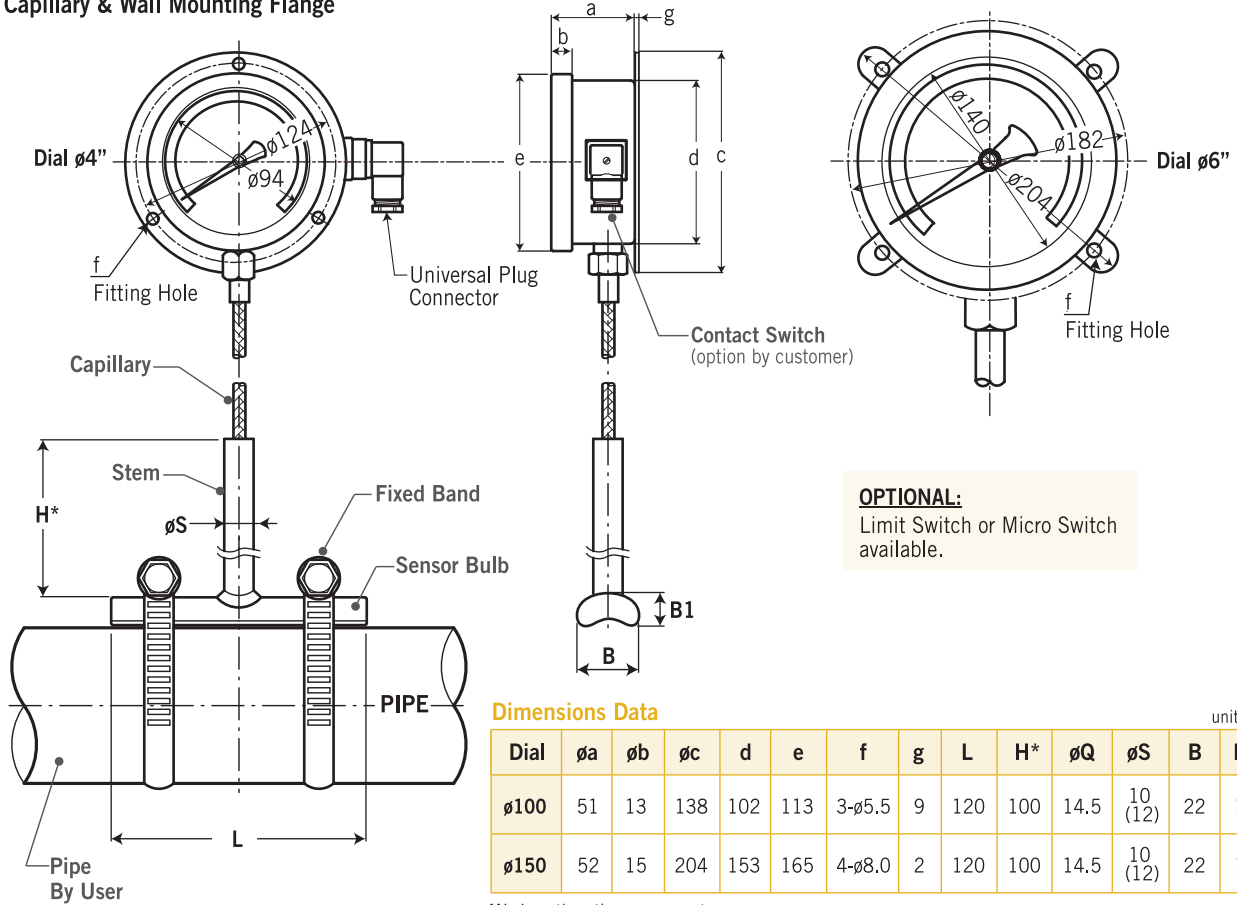
unit=mm

Dial	$\phi a$	$\phi b$	$\phi c$	d	e	L	H*	H1	$\phi Q$	$\phi S$	B	B1
$\phi 100$	94	113	102	13	54	120	100	50	14.5	10 (12)	22	12
$\phi 150$	140	165	153	15	54	120	100	50	14.5	10 (12)	22	12

H\*: Length option on request.

**Type W:**

**Surface Mount Sensor Bulb c/w Capillary & Wall Mounting Flange**



**OPTIONAL:**  
Limit Switch or Micro Switch available.

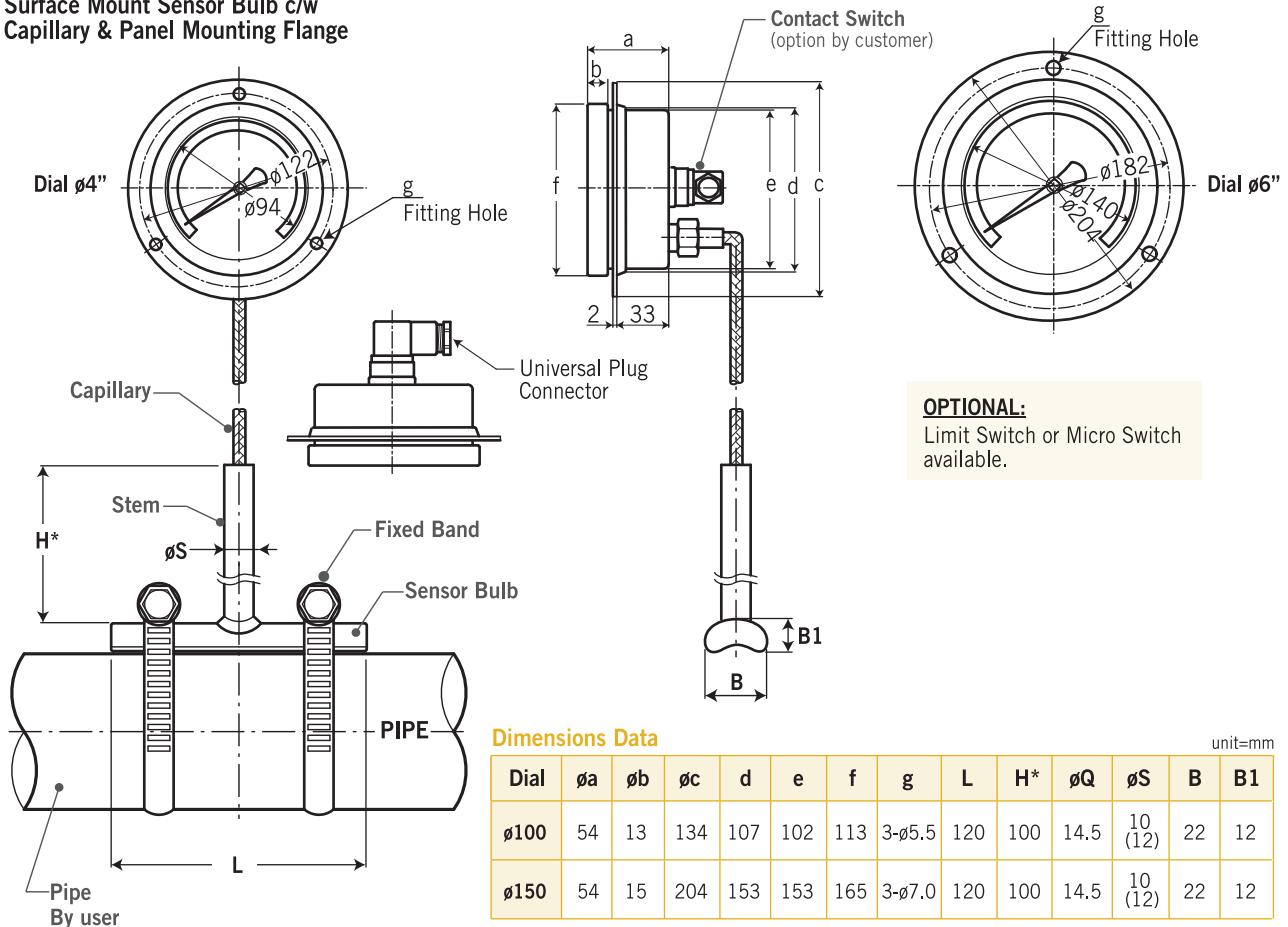
**Dimensions Data**

Dial	øa	øb	øc	d	e	f	g	L	H*	øQ	øS	B	B1
ø100	51	13	138	102	113	3-ø5.5	9	120	100	14.5	10 (12)	22	12
ø150	52	15	204	153	165	4-ø8.0	2	120	100	14.5	10 (12)	22	12

H\*: Length option on request.  
Remote Capillary Length: max. 50M

**Type P:**

**Surface Mount Sensor Bulb c/w Capillary & Panel Mounting Flange**



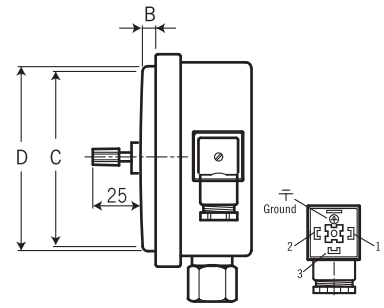
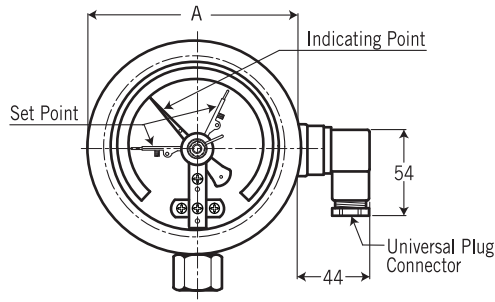
**OPTIONAL:**  
Limit Switch or Micro Switch available.

**Dimensions Data**

Dial	øa	øb	øc	d	e	f	g	L	H*	øQ	øS	B	B1
ø100	54	13	134	107	102	113	3-ø5.5	120	100	14.5	10 (12)	22	12
ø150	54	15	204	153	153	165	3-ø7.0	120	100	14.5	10 (12)	22	12

H\*: Length option on request.  
Remote Capillary Length: max. 50M

## Contact Type Limit Switch (Platinum Contact) Assemblies



	A	B	C	D	
∅100	114	9	84	88	unit=mm

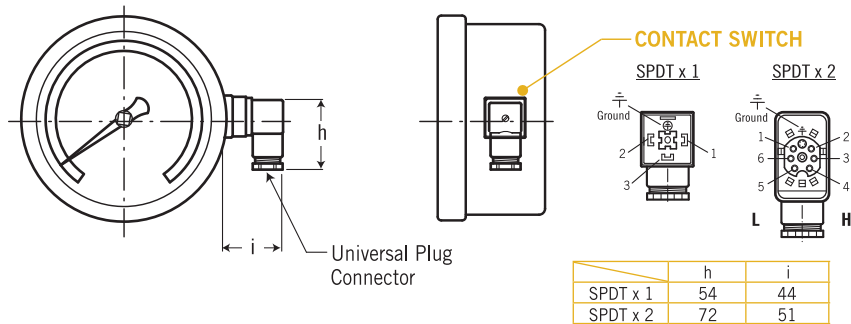
### Limit Switch Contact Rating

CONTACT MODE	MS-SERIES MAGNETIC SNAP CONTACT			
	AC 220V	AC 110V	DC 200V	DC 100V
VOLTAGE				
LOADING CURRENT	0.2A	0.4A	0.01A	0.02A

### LIMIT SWITCH FUNCTION MODE

WIRE DRAWING	CONTACT FUNCTION	CONTACT TYPE
	SINGLE CONTACT	MAGNETIC SNAP-ACTION
	Contact ON When pointer clockwise reaches and passed set point.	MS1
	Contact OFF When pointer clockwise reaches and passed set point.	MS2
<b>TWO CONTACTS</b>		
	Common pole: 3 1st and 2nd contact ON When pointer clockwise reaches and passed each set point.	MS11
	Common pole: 3 1st contact OFF 2nd contact ON When pointer clockwise reaches and passed each set point.	MS21
	Common pole: 3 1st and 2nd contact OFF When pointer clockwise reaches and passed each set point.	MS22

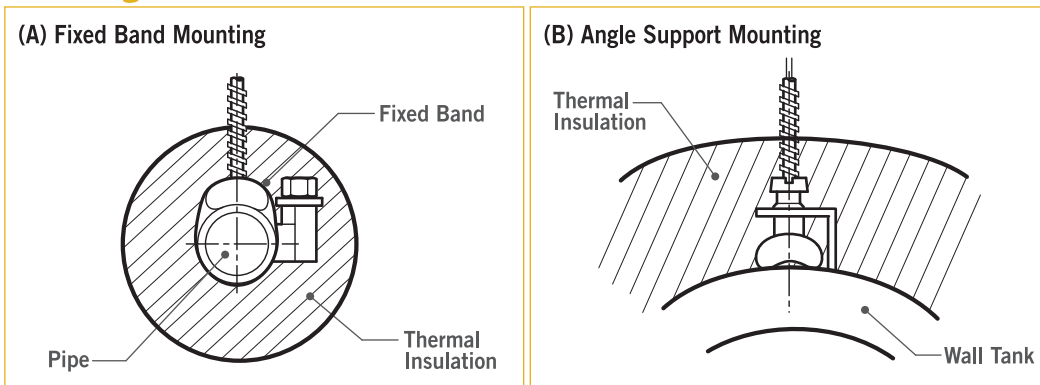
### Contact Type “Micro Switch” Assemblies



### Micro Switch Contact Rating

CONTACT MODE	AC LOAD	DC LOAD
NOMINAL OPERATING VOLTAGE	250 VAC max.	28 VDC max.
CURRENT	5A max.	5A max. (ohmic load) 3A max. (inductive load)
CONTACT MATERIAL	Pure Silver 999.9	Pure Silver 999.9
AMBIENT TEMPERATURE	-20°C~+70°C	-20°C~+70°C

### Mounting Instructions



### Table for Range

GAS FILLED TYPE			LIQUID FILLED TYPE		
Standard Scale Range (°C)	Minor Division (°C)		Standard Scale Range (°C)	Minor Division (°C)	
	ø100	ø150		ø100	ø150
-200~+50	5	5	-30~+50	1	1
-200~+100	5	5	-30~+100	2	2
-200~+150	5	5	-10~+50	1	1
-200~+200	5	5	-10~+100	2	2
-100~+100	2	2	0~50	1	1
-100~+150	5	5	0~80	1	1
-100~+200	5	5	0~100	1	1
-50~+300	5	5	0~120	2	2
-50~+400	5	5	0~150	2	2
-50~+500	10	10	0~200	2	2
-50~+600	10	10	0~250	5	5
0~400	5	5	0~300	5	5
0~500	10	10	0~400	5	5
0~600	10	10			

## Ordering Information

SRG	Code	Type
	<b>QS</b>	Surface Mount Sensor Bulb c/w Every Angle Connection
	<b>W</b>	Surface Mount Sensor Bulb c/w Capillary & Wall Mounting Flange
	<b>P</b>	Surface Mount Sensor Bulb c/w Capillary & Pipe Mounting Flange
	<b>Code</b>	<b>Dial Size</b>
	<b>4</b>	ø100mm <b>6</b> ø150mm
	<b>Code</b>	<b>Case &amp; Cover Material</b>
	<b>1</b>	SS304 <b>2</b> SS316
	<b>Code</b>	<b>Lens Material</b>
	<b>G</b>	Glass <b>S</b> Safety Glass
	<b>Code</b>	<b>Capillary Length</b>
	<b>O</b>	Without
		Please fill in the request length. (e.g. 3M)
	<b>Code</b>	<b>Stem Diameter</b>
		(1) ø10 (2) ø12 (3) Option
	<b>Code</b>	<b>Stem Length (H)</b>
	<b>S</b>	Standard 100mmH
		Please fill in the request length.
	<b>Code</b>	<b>Sensor Bulb Length (L)</b>
	<b>S</b>	Standard 120mmL
	<b>Code</b>	<b>Scale Range</b>
		Please refer to the <i>Scale Range Table</i> . Fill in the request range directly.
	<b>Code</b>	<b>Contact Type</b>
	<b>O</b>	Without
	<b>L</b>	Limit Switch (please refer to limit switch function mode, and fill in the contact type directly. e.g. MS21)
	<b>M1</b>	Micro Switch, One Setting Point, SPDT x 1
	<b>M2</b>	Micro Switch, Two Setting Points, SPDT x 2
<b>SRG</b>		<b>Complete Ordering Code</b>

### Ordering code example:

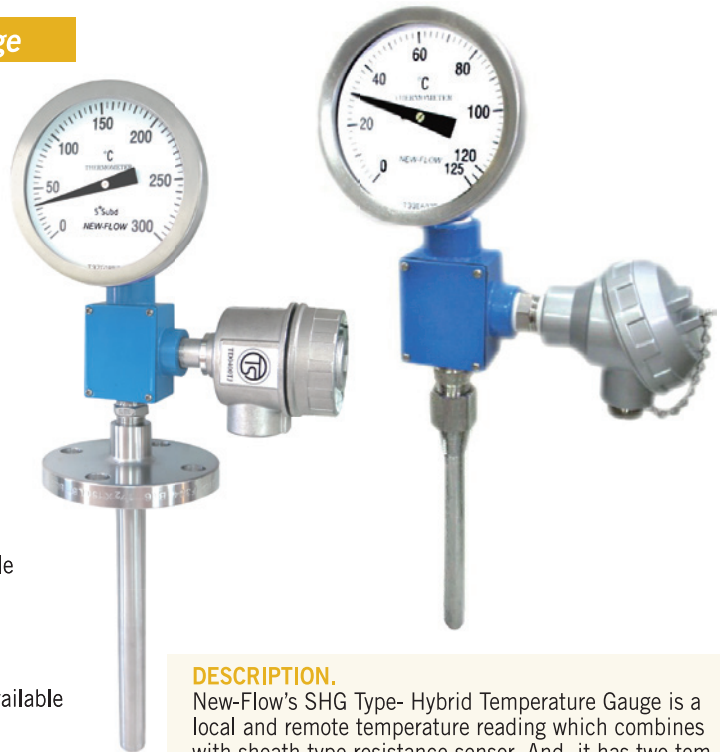
**SRG-W-4-1-S-3M-2-S-S-0~100°C-M1**

- SRG-W = Type: Surface mount sensor bulb c/w capillary & wall mounting flange
- 4 = Dial Size: ø100mm
- 1 = Case & Cover Material: SS304
- S = Lens Material: Safety Glass
- 3M = Capillary Length: 3M
- S = Standard 100mm(H)
- S = Standard 120mm(L)
- 0~100°C = Scale Range
- M1 = Micro switch, one setting point, SPDT x 1

• SHG Series – Hybrid Type Temperature Gauge

**Technical Data**

- Thermometer Type:** Available for BI-Metal Thermometer, or Liquid & Gases Filled Type Thermometer
- Case & Cover Material:** SS304 or SS316 available
- Stem Material:** SS316
- Lens:** Glass, Safety glass available
- Housing Enclosure:** IP66, liquid filled available
- Dial Size:**  $\phi 75$ ,  $\phi 100$ ,  $\phi 125$ mm available for BI-Metal Thermometer;  $\phi 100$ ,  $\phi 150$  available for Filled Type Thermometer
- Range Limit:**  $-50^{\circ}\text{C}$  to  $600^{\circ}\text{C}$
- Stem Dimensions:**  $\phi 4$  or  $\phi 6$  mm available
- Stem Length Limit:** 65~1000 mm; option available
- Zero Adjustable:** External (for BI-Metal Thermometer)
- Accuracy:**  $\pm 1\%$  F.S.
- Process Connection:**  $\frac{1}{2}$ "NPT standard; others available
- Over Range Protection:** 130% F.S.
- Junction Box Material:** Aluminum alloy
- Enclosure Head Protection:** Weather Proof or Explosion Proof available
- Electrical Output:**
  - Thermocouple: N, K, E, J, T type available
  - RTD: PT100 $\Omega$ , 3-wires
  - Micro Switch: SPDT x 1, and SPDT x 2 available
  - Transmitter: Analog 4~20mA (2-wires); HART Protocol (2-wires) available
- T/C Sensor Diameter:**  $\phi 1.0$ , 1.6, 3.2, 4.8mm on request
- RTD Sensor Diameter:**  $\phi 1.6$ , 3.2, 4.8mm on request
- Sheath Material:** SS316
- Thermowell:** Necessary and on request

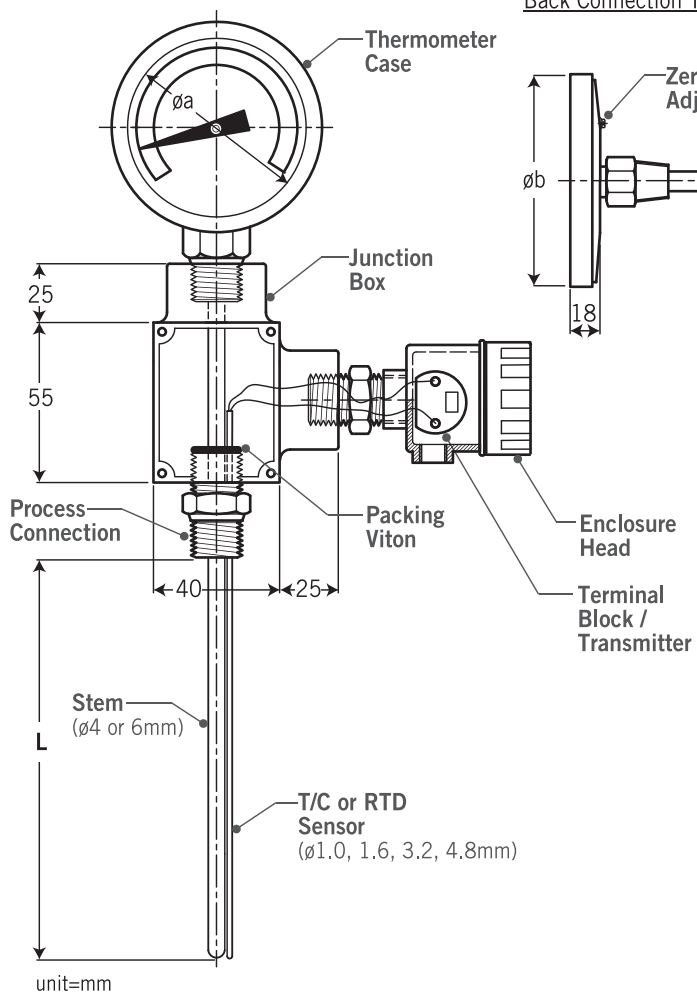


**DESCRIPTION.**

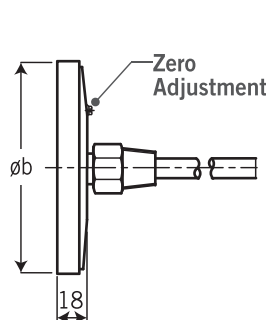
New-Flow's SHG Type- Hybrid Temperature Gauge is a local and remote temperature reading which combines with sheath type resistance sensor. And, it has two temperature sensors assembled with the thermowell to work at the location. SHG Type is a high precision and reliability measuring temperature sensor.

**Model Type & Dimensions**

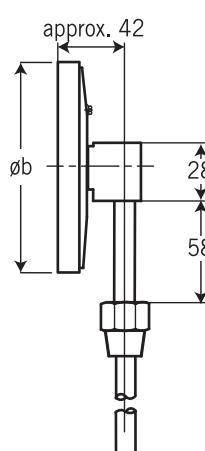
**BI-METAL THERMOMETER:**



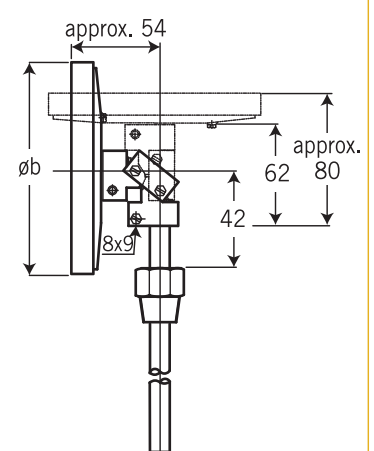
**Model: SHG-AY\_**  
Back Connection Type



**Model: SHG-AI\_**  
Bottom Connection Type



**Model: SHG-AY\_-QS**  
Every Angle Connection Type

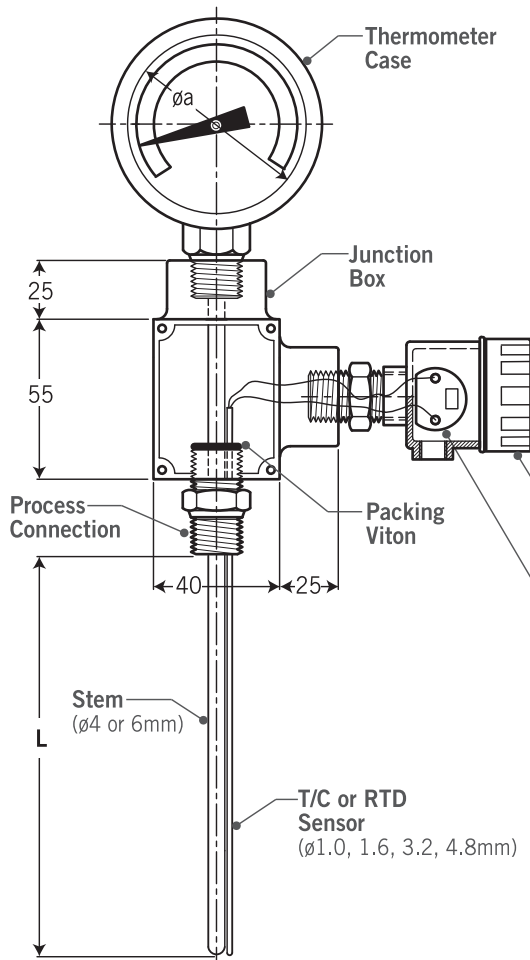


**Dimensions Data:**

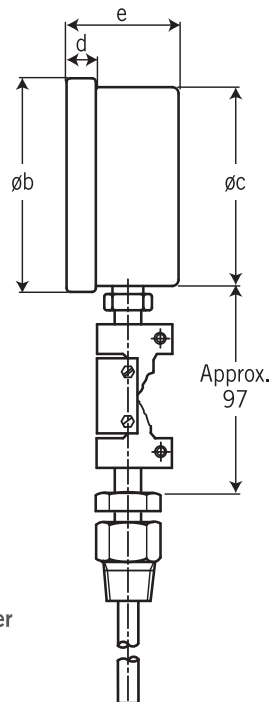
Model / Dial Size	$\phi a$	$\phi b$
SHG-AY3 / $\phi 75$	70	83
SHG-AY4 / $\phi 100$	94	112
SHG-AY5 / $\phi 125$	108	130
Model / Dial Size	$\phi a$	$\phi b$
SHG-AI3 / $\phi 75$	70	83
SHG-AI4 / $\phi 100$	94	112
SHG-AI5 / $\phi 125$	108	130
Model / Dial Size	$\phi a$	$\phi b$
SHG-AY3-QS / $\phi 75$	70	83
SHG-AY4-QS / $\phi 100$	94	112
SHG-AY5-QS / $\phi 125$	108	130

L= option by customer.

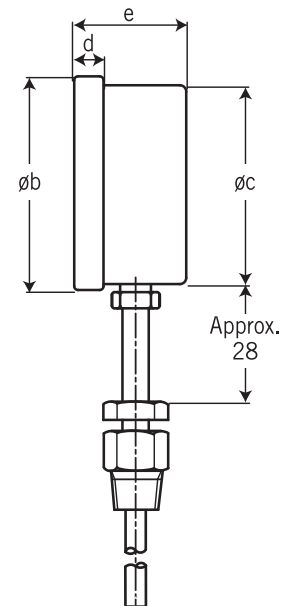
## FILLED TYPE THERMOMETER:



Model: SHG-SH\_-QS  
Every Angle Connection Type



Model: SHG-SH\_  
Bottom Connection Type



**NOTE.**  
If the requested temperature  $\geq 250^{\circ}\text{C}$ ,  
the length is approx. 100mm.

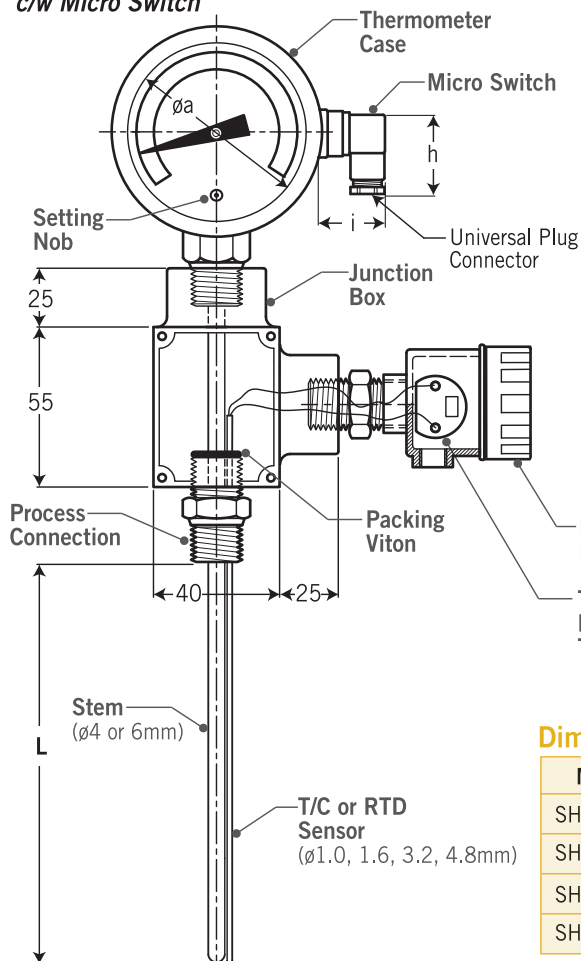
### Dimensions Data:

Model / Dial Size	$\phi a$	$\phi b$	$\phi c$	d	e
SHG-SH4 / $\phi 100$	94	113	102	13	54
SHG-SH4-QS / $\phi 100$	94	113	102	13	54
SHG-SH6 / $\phi 150$	140	165	153	15	54
SHG-SH6-QS / $\phi 150$	140	165	153	15	54

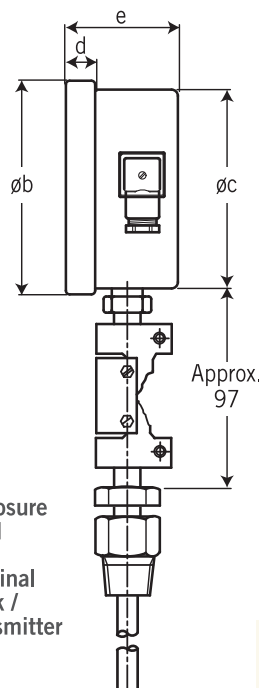
unit=mm

L= option by customer.

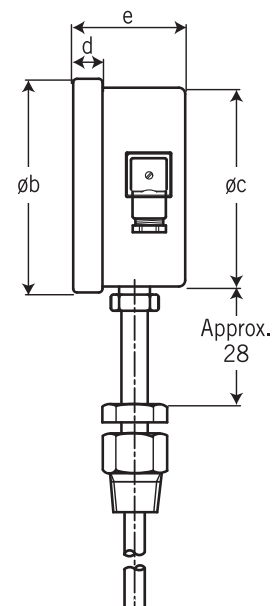
## FILLED TYPE THERMOMETER: c/w Micro Switch



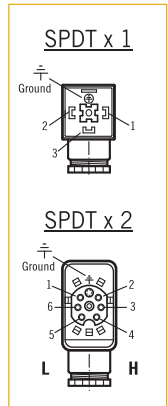
Model: SHG-SHE\_-QS  
Every Angle Connection Type



Model: SHG-SHE\_  
Bottom Connection Type



### Micro Switch:



**NOTE.**  
If the requested temperature  $\geq 250^{\circ}\text{C}$ ,  
the length is approx. 100mm.

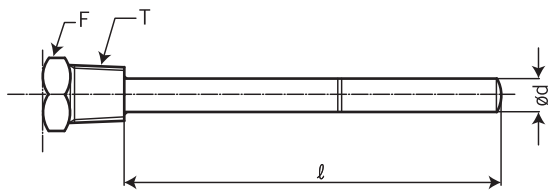
### Dimensions Data:

Model / Dial Size	$\phi a$	$\phi b$	$\phi c$	d	e	d	e
SHG-SHE4 / $\phi 100$	94	113	102	33	74	54	44
SHG-SHE4-QS / $\phi 100$	94	113	102	33	74	54	44
SHG-SHE6 / $\phi 150$	140	165	153	34	73.5	72	51
SHG-SHE6-QS / $\phi 150$	140	165	153	34	73.5	72	51

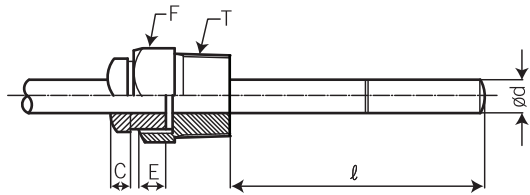
unit=mm

L= option by customer.

Connection Type

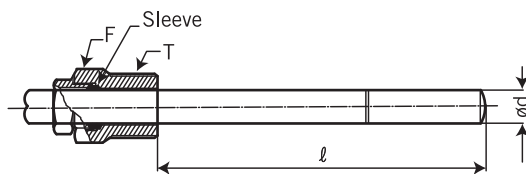


(A) Fixed Thread Type



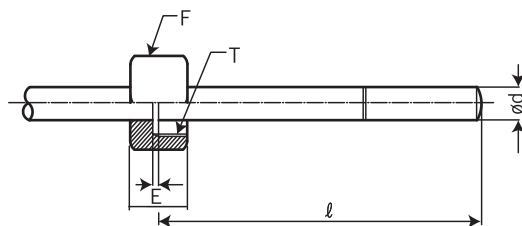
(B) Rotary Thread Type (Male thread)

(The male thread position is immobile, but rotation 360° available.)



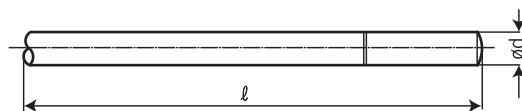
(C) Slide Thread Type  
(Length "l" changed available.)

(The slide thread can be moved up and down, and the length of sensor can be adjusted by user.)



(D) Rotary Thread Type (Female thread)

(The female thread position is immobile, but rotation 360° available.)



(E) Non Thread Type

- T: Process connection
- E: Stop plate for (rotary & rotation style)
- F: Hexagonal head
- l: Sensor length
- d: Sensor dimension

Table For Range And Insertion

For Type of BI-Metal Thermometer:

Standard Scale Range (°C)	Minor Division (°C)			Minimum Insertion Length (mm)			
	ø75	ø100	ø125	Outer Diameter of Stem			
				ø4	ø6	ø8	ø10
-50~50	1	1	1	80	65	60	55
-30~50	1	1	1	80	65	60	55
-20~60	1	1	1	80	65	60	55
-10~50	1	1	1	95	80	75	70
-10~110	2	2	2	80	65	60	55
0~50(60)	1	1	1	105	95	85	80
0~80	1	1	1	80	65	60	55
0~100	1	1	1	80	65	60	55
0~120	2	2	2	80	65	60	55
0~150	2	2	2	80	65	60	55
0~200	2	2	2	80	65	60	55
0~250	5	5	5	95	80	75	70
0~300	5	5	5	85	70	65	60
0~400	5	5	5	---	65	60	55
0~500	10	10	10	---	65	60	55
0~600	10	10	10	---	65	60	55

For Type of Liquid Filled Thermometer:

Standard Scale Range (°C)	Minor Division (°C)		Minimum Insertion Length (mm)			
	ø100	ø125	Outer Diameter of Stem			
			ø6	ø8	ø10	ø12
-30~+50	1	1	135	91	53	37
-30~+100	2	2	89	61	38	28
-10~+50	1	1	175	116	66	45
-10~+100	2	2	102	70	42	31
0~50	1	1	207	137	76	52
0~80	1	1	135	91	53	37
0~100	1	1	111	75	45	33
0~120	2	2	95	65	40	29
0~150	2	2	79	55	34	26
0~200	2	2	63	44	29	23
0~250	5	5	53	38	26	21
0~300	5	5	47	34	24	20
0~400	5	5	39	29	21	18

For Type of Gas Filled Thermometer:

Standard Scale Range (°C)	Minor Division (°C)	
	ø100	ø125
-200~+50	5	5
-200~+100	5	5
-200~+150	5	5
-200~+200	5	5
-100~+100	2	2
-100~+150	5	5
-100~+200	5	5
-50~+300	5	5
-50~+400	5	5
-50~+500	10	10
-50~+600	10	10
0~400	5	5
0~500	10	10
0~600	10	10

Minimum Stem Length		
mm	ød	
	ø10	ø12
Minimum Length	270	200

OPTION.

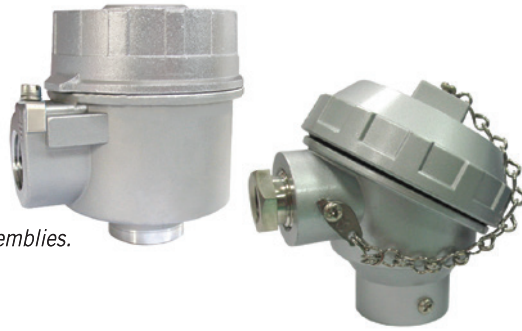
1. Please note the min. insertion length is not including the thread.
2. Special Range / Scale / Stem Diameter / Length are available upon request.



## Assembly Configuration for Enclosure Head & Output

### 1. Enclosure Head:

- Protection:**  
Weather Proof Approval  
Explosion Proof Approval
- Material:**  
SS316 or Aluminum alloy available
- Reference:**  
Please refer to our catalogue of *Thermocouple and RTD Assemblies*.



### 2. Optional Output:

- Thermocouple:** N, K, E, J, T type available
- RTD:** PT100Ω, 3-wires
- Element No.:** Single or Dual elements
- Terminal Blocks:** Mounts to enclosure head with two screws.
- Reference:** Please refer to our catalogue of *Thermocouple and RTD Assemblies*.



### 3. Optional Output:

- Converter Transmitter for RTD and T/C:**  
4~20mA (2-wires), linear with respect to the measured temperature
- Power Supply:** 10 to 35 VDC, across the transmitter
- HART® Communication:** available
- Two Wire Transmitter with HART® Protocol:**
  - Galvanic Isolation
  - Suitable for application in SIL 2 installations



## Micro Switch Data for Model SHG-SHE\_\_QS & SHG-SHE\_\_ Only

- Switch Form:** Micro Switch One setting point SPDT x 1, or Two setting points SPDT x 2
- Set Point:** Full Scale Range Available
- Conduit Size:** Universal Plug Connector
- Switch Data:**

	AC Load	DC Load
Nominal Operating Voltage	250 VAC max.	28 VDC max.
Current	5A max.	5A max. (ohmic load) 3A max. (inductive load)
Contact Material	Pure Silver 999.9	Pure Silver 999.9
Ambient Temperature	-20°C~+70°C	-20°C~+70°C

