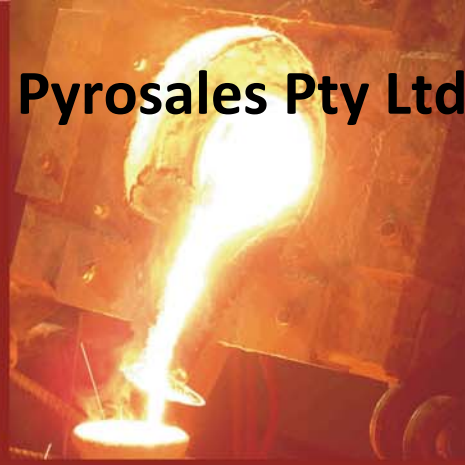




Pyrosales Pty Ltd



General



4 Wordie Place
Padstow NSW 2211
Ph: (02) 9790 1988
Fax: (02) 9790 1040
Email: sales@pyrosales.com.au
Website: www.pyrosales.com.au

TEMPERATURE GAUGES



Bimetal Dial Thermometer

The Bimetal thermometer employs a bimetal strip in the form of helix (it works on the principle of thermal expansion - two metals having different coefficient of expansions are joined to form a bimetal. The resultant expansion of bimetal is proportional to temperature). Bimetal dial thermometers are simple in construction, yet rugged. They are used for measurement of temperature in most of the industrial applications. They are offered in the range of (-) 50°C to 600°C. With rigid stem having bottom or back entry. It can also be offered in every angle rotatable construction.

Features

- Rugged construction
- Bottom/Back entry, every angle construction
- Fast response
- Protection class IP-67
- Accuracy $\pm 1\%$ FSD
- High repeatability, low hysteresis
- Hermetically sealed case

Specifications

Reference standard : ASME B 40.3, EN 13190

Dial : 63 mm, 100 mm or 150 mm in aluminium white background, black markings

Case : Die cast aluminium with screwed bezel
SS304 with bayonet bezel

Protection : Weatherproof to IP - 67 (IS : 13947)

Window : Shatterproof glass

Pointer : Aluminium, black

Stem : SS304 or SS316 in 6 mm, 8 mm, 9.5 mm, 10 mm, 12 mm, 12.7 mm, 14 mm, 16 mm dia and length from 100 mm to 1000 mm as standard

Connection : 1/2" NPT (M) as standard in SS304 or SS316 adjustable three piece compression fitting

Range : (-) 50°C to 600°C with a minimum span of 80°C

Accuracy : $\pm 1\%$ FSD ($\pm 2\%$ FSD for 63 mm dial size)
(In accordance with EN 13190)

Overrange : 125% FSD
(130% on request upto 500°C)

Reset : External

Contact : Single SPST, normally open, closed on rise in temperature (specify action required) adjustable over the entire range, rating 30 VA @ 230 V AC (100 mm dial back entry model in SS case only)

Note : 1) For minimum insertion length essential for proper sensing, contact our design department.
2) Three point calibration certificate accompanies each thermometer.





Bimetal Dial Thermometer

How to Order

TYPE : BDT



MOUNTING
 V - Bottom Entry, Local Mounting
 C - Back Entry, Local Mounting
 E - Every Angle, Local Mounting

DIAL
 63 - 63 mm 10 - 100 mm
 15 - 150 mm

CASE
 AL - Die-cast Aluminium
 S4 - SS304
 S6 - SS316

STEM-OD
 A - 6 mm E - 12 mm
 B - 8 mm F - 12.7 mm
 C - 9.5 mm G - 14 mm
 D - 10 mm H - 16 mm

STEM LENGTH
 Specify in mm

STEM MATERIAL
 S4-SS304 S6-SS316

CONNECTION		
Size	Type	Male / Female
6 - 1/4"	NT - NPT	M - Male F - Female
10 - 3/8"	BP - BSP	
15 - 1/2"	BT - BSPT	
20 - 3/4"	PF - PF	
25 - 1"	GS - Gas	
32 - 1.1/4"	NS - NPSM	
40 - 1.1/2"		
Metric Threads		
18 M - M 18 x 1.5		
20 M - M 20 x 1.5		
24 M - M 24 x 1.5		
27 M - M 27 x 2		
33 M - M 33 x 2		
XX - Any other		

OPTION
 A - Thermowell
 S - Liquid Filled Case *
 C - Colour Band
 D - Dual Scale
 E - 1 SPST # Electrical contact

UNIT
 C - Deg C
 F - Deg F

RANGE	
(-) 50 to (+) 30	0 to 200
(-) 30 to (+) 50	0 to 250
(-) 20 to (+) 60	0 to 300
0 to 80	0 to 350
0 to 100	0 to 400
0 to 120	0 to 500
0 to 160	0 to 600

* Suitable upto maximum temperature 339°C.

In 100 mm dial size, back entry, SS case.

Mercury in Steel Dial Thermometer



Mercury filled system based on mercury expansion principle is used for measuring temperature ranging from (-) 40°C to 600°C. It has faster response and the same is available in rigid stem as well as capillary type for remote sensing. Every angle type can be offered in all SS construction. Manufactured in accordance with BS:5235. System is case compensated as standard (SAMA CI VB). Fully compensated (capillary compensation) system is offered wherever essential.

Features

- Rugged construction
- Rigid stem or capillary type
- Fast response
- Protection class IP- 67
- Accuracy $\pm 1\%$ FSD (0.5% FSD on request)
- High repeatability, low hysteresis
- Case compensated system
- Micrometer Pointer

Specifications

Ref Standard	: BS 5235
System	: Mercury filled, case compensated in accordance with SAMA CI. V B
Dial	: 100 mm or 150 mm in aluminium, white background, black markings
Case	: Die cast aluminum with screwed bezel, SS304 / SS316 with bayonet bezel
Protection	: Weather proof to IP - 67 (IS : 13947 Part I)
Window	: Shatterproof glass
Pointer	: Aluminium, black
Stem	: SS304 or SS316 in 6 mm, 8 mm, 9.5 mm, 10 mm, 12 mm, 12.7 mm, 14 mm, 16 mm dia and length from 100 mm to 1000 mm (longer lengths available on request)
Capillary	: SS covered / SS covered + PVC / SS armoured (up to 15 M).
Connection	: 1/2" NPT (M) as standard in SS304 or SS316 three piece adjustable compression fitting.
Range	: (-) 40°C to 600°C with a minimum span of 50°C
Accuracy	: $\pm 1\%$ FSD / $\pm 0.5\%$ FSD
Overrange	: 130% FSD as standard
Zero reset	: Micrometer Pointer
Optional	: 1) Glycerine filled SS304 / SS316 case 2) Fully compensated double bourdon system in accordance with SAMA CI. V A 3) SS solid drawn capillary for better performance

Note : 1) For minimum immersion length essential for proper sensing, contact our design department.
2) Three point calibration certificate accompanies each thermometer.



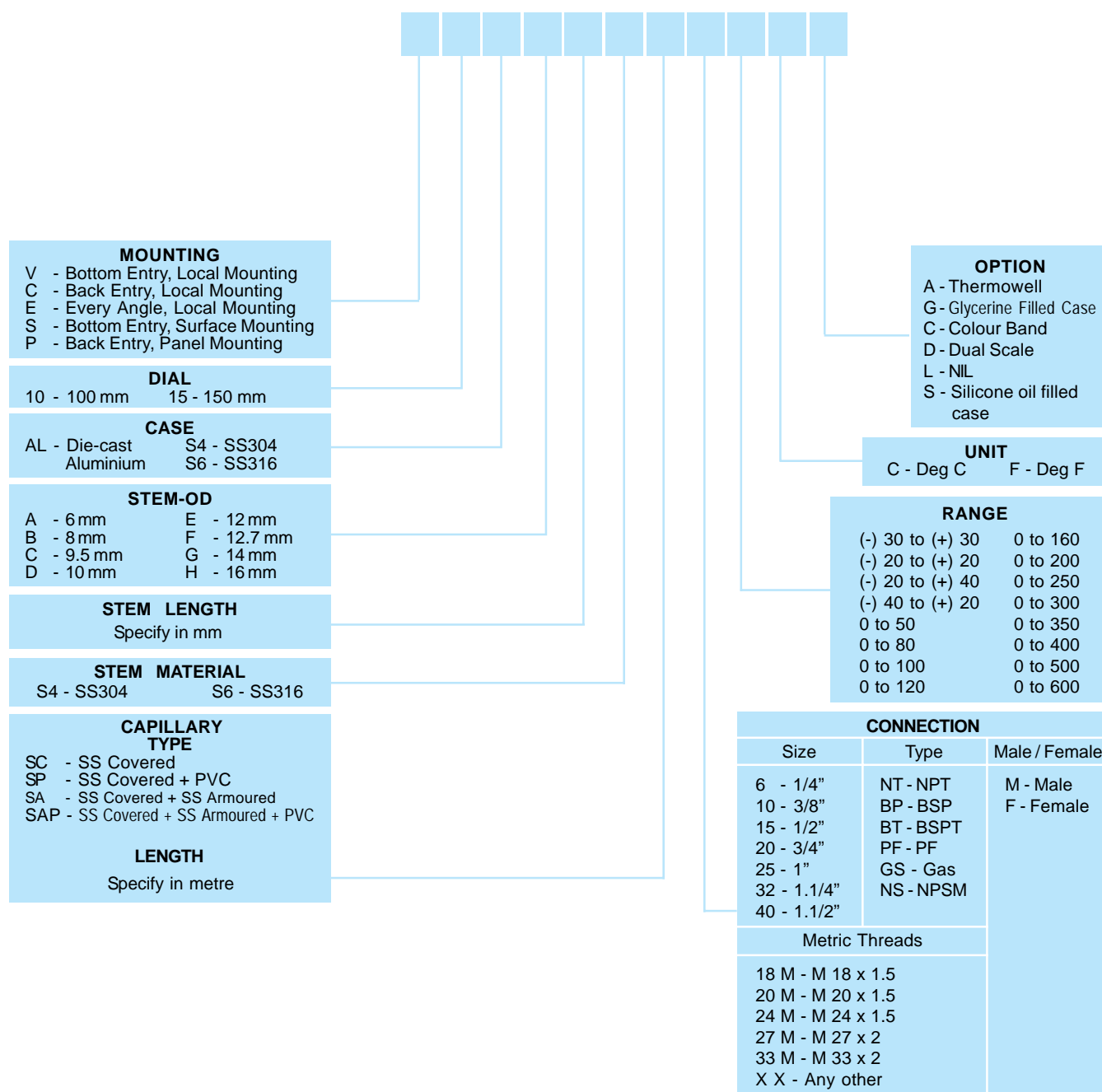
Mercury in Steel Dial Thermometer

How to Order

TYPE

MIS-R - Rigid Stem

MIS-C - Capillary Type





Liquid Filled Dial Thermometer

Liquid filled system based on liquid (other than mercury) expansion principle is used for measuring temperature ranging from (-) 30°C to 250°C.

It has faster response and the same is available in rigid stem as well as capillary type for remote sensing. Every angle type can be offered in all SS construction. Generally used where mercury type thermometer is not used in industries such as Food, Pharmaceutical, etc. The main advantage is its minimum immersion length required for sensing (as low as 30mm suffices for proper sensing thereby making it ideal for installing in lower line sizes)



Features

- Rugged construction
- Rigid stem or capillary type
- Suitable for pharmaceutical, food, biotechnology industry.
- Protection class IP-67
- Accuracy $\pm 1\%$ FSD
- Minimum immersion length (as low as 30 mm suitable for lower line sizes) possible.
- Case compensated system (SAMA Cl. IB)



Specifications

- System** : Liquid filled, case compensated in accordance with SAMA Cl. IB
- Dial** : 100 mm or 150 mm in aluminium, white background, black markings
- Case** : Die cast aluminum with screwed bezel, SS304 / SS316 with bayonet bezel
- Protection** : Weather proof to IP - 67 (IS : 13947 Part I)
- Window** : Shatterproof glass
- Pointer** : Aluminium, black
- Stem** : SS304 or SS316 in 6 mm, 8 mm, 9.5 mm, 10 mm, 12 mm, 12.7 mm, 14 mm, 16 mm dia (immersion length as small as 30 mm possible).
- Capillary** : SS covered / SS covered + PVC / SS armoured (up to 5 Mtr.).
- Connection** : 1/2" NPT (M) as standard in SS304 or SS316 three piece adjustable compression fitting.
- Range** : (-) 30°C to 250°C with a minimum span of 50°C
- Accuracy** : $\pm 1\%$ FSD
- Overrange** : 125% FSD as standard
- Zero reset** : Micrometer Pointer
- Optional** : Glycerine filled SS304 case



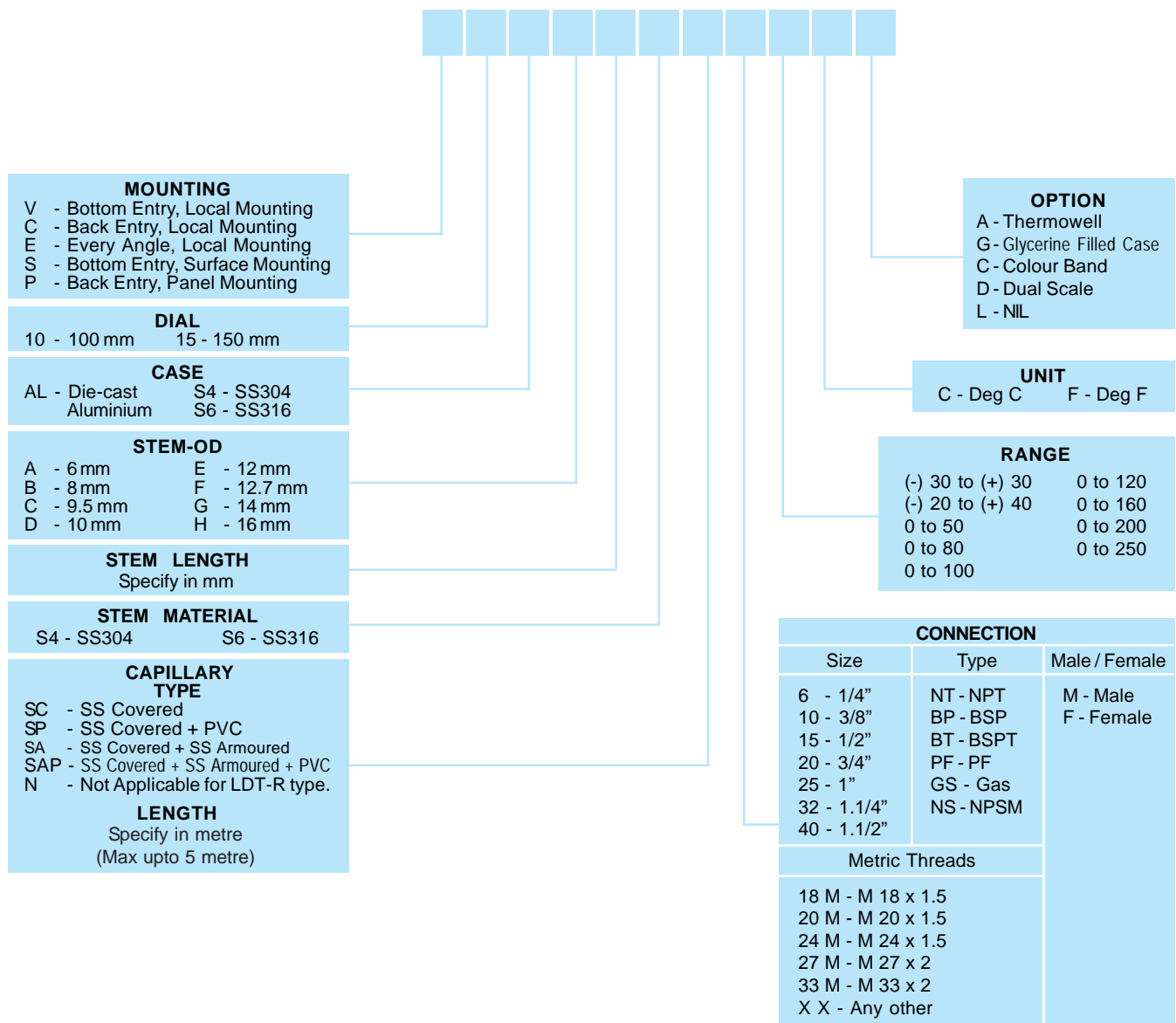
Liquid Filled Dial Thermometer

How to Order

TYPE

LDT-R - Rigid Stem

LDT-C - Capillary Type





Gas Filled Dial Thermometer

Gas filled temperature gauge overcomes most of the limitations of other members of family. It is offered in a very wide temperature range i.e. (-)200 to 800°C. Practically any stem length can be offered and capillary length as long as 25 mtr, without any loss of accuracy. Inert, non hazardous, non toxic nature of the filled system makes it virtually ideal choice of cross section of industries.

Features

- Use of inert gas - N₂
- Suitable for sanitary application
- All SS construction
- Rigid stem or capillary type
- Fast response
- Non-polluting, environment friendly
- Non-hazardous for the service
- High reliability
- IP-67 protection
- Accuracy $\pm 1\%$ FSD



Specifications

System	: Gas (N ₂) filled, case compensated in accordance with SAMA Cl. III B
Dial	: 100 mm or 150 mm in aluminium, white background, black marking
Case	: SS304 / SS316 with bayonet bezel
Protection	: Weatherproof to IP-67 (IS:13947 Part I)
Window	: Shatterproof glass
Pointer	: Aluminium, black with micrometer adjustment
Stem	: SS316 in 8 mm, 10 mm, 12 mm dia as standard
Capillary	: SS solid drawn or SS armoured or SS + PVC covered up to 25 M
Connection	: 1/2"NPT (M) adjustable three piece compression fitting in SS304 or SS316
Range	: (-) 200°C to 800°C with minimum span of 80°C
Accuracy	: $\pm 1\%$ FSD in accordance with EN 13190
Overrange	: 130% FSD
Zero Reset	: Micrometer pointer

Note :For minimum immersion length (excluding thread length) for proper sensing, contact our design department.



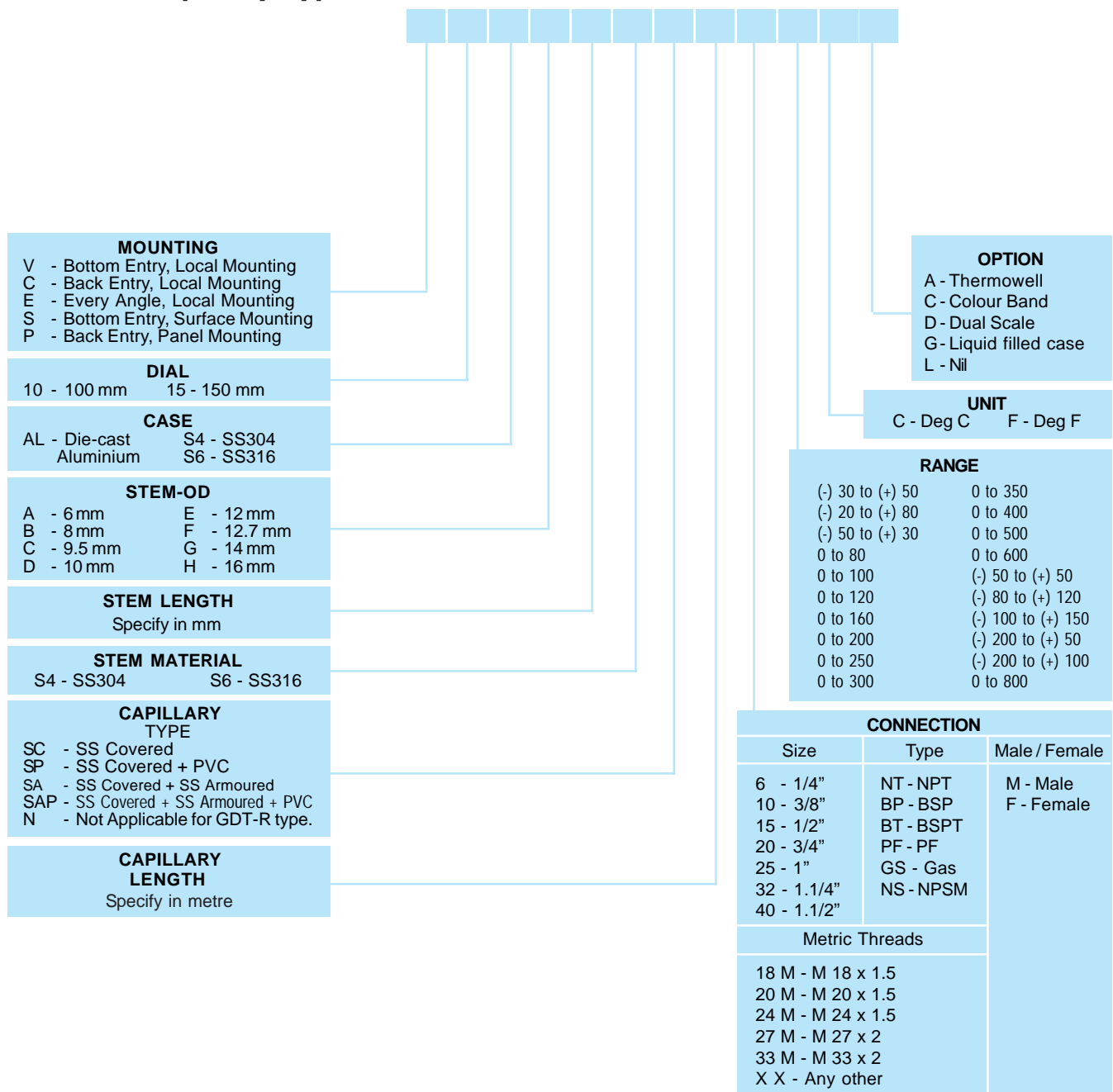
Gas Filled Dial Thermometer

How to Order

TYPE

GDT-R - Rigid Stem

GDT-C - Capillary Type





Indicating Temperature Switch

Indicating temperature switch combines indication with switching (in order to make or break the associated electrical circuit). Can be offered with contact assembly as well as microswitch (as a combination of switch and movement)

Features

- Combination of indication and switch
- Fast response
- Choice of contact assembly or microswitch
- Switching accuracy $\pm 2\%$ FSD
- High repeatability and low hysteresis
- Flameproof version available
- Case compensated system



Specifications

- System** : Mercury filled, Gas (N₂) filled case compensated in accordance with SAMA C1. V B/IIIB
- Dial** : 100 mm or 150 mm, white anodised, black markings
- Case** : SS304 / SS316 with bayonet bezel (Flameproof case in Al only)
- Protection** : Weatherproof to IP-67 (IS : 13947)
Flameproof to IIA IIB (Equivalent to NEC C1. I Div 2 Gr. C&D)
- Stem** : SS304 or SS316, 6 mm, 8 mm, 10 mm, 12 mm
- Connection** : 1/2" NPT (M) adjustable three piece compression fitting as standard
- Capillary** : SS covered or SS armoured or SS covered with PVC up to 15 M.
- Range** : (-) 40°C to 600°C with a minimum span 50°C for mercury filled temperature switch / (-) 100 to 600°C for gas filled temperature switch (minimum span 80°C)
- Accuracy** : $\pm 1\%$ FSD for indication, $\pm 2\%$ FSD for switching
- Overrange** : 125% FSD as standard (130% FSD on request upto 500°C)
- Contacts** : 1) 1 SPST, single, normally open, closed on rise in temperature or vice versa, rated 30 VA @ 230V AC
2) 2 SPST, two contacts, independently adjustable, one normally open other normally closed or both normally open or both normally closed, rated 30VA @ 230 V AC
3) ISPDT, single microswitch, adjustable over entire range, rated 5amp @ 230 V AC (3A @ 28 VDC)
4) 2 SPDT, double microswitch, adjustable over entire range, rated 5 amp @ 230 V AC (3A @ 28 VDC)
- Accessory** : Relay for the contact assembly to suit 5 amp @ 230 V AC, separately mounted.
- Note** : 1) SPDT microswitch is offered in flameproof housing, 100mm dial and diecast Al case.
2) Surface mounted flameproof housing is available with capillary.
3) Flameproof (conforming to IIC) version also available with microswitch.
4) 2 SPDT only in 150 mm dial size.



Advantages of Microswitch Type Models : Microswitch is rated 5 amp @ 230 V AC (3A @ 28 VDC). No relay is required. Microswitch is imported from reputed international supplier as combination of movement and switch. Microswitch assembly gives better switching accuracy. Compact design.

Note : For minimum immersion length essential for proper sensing, contact our design department.

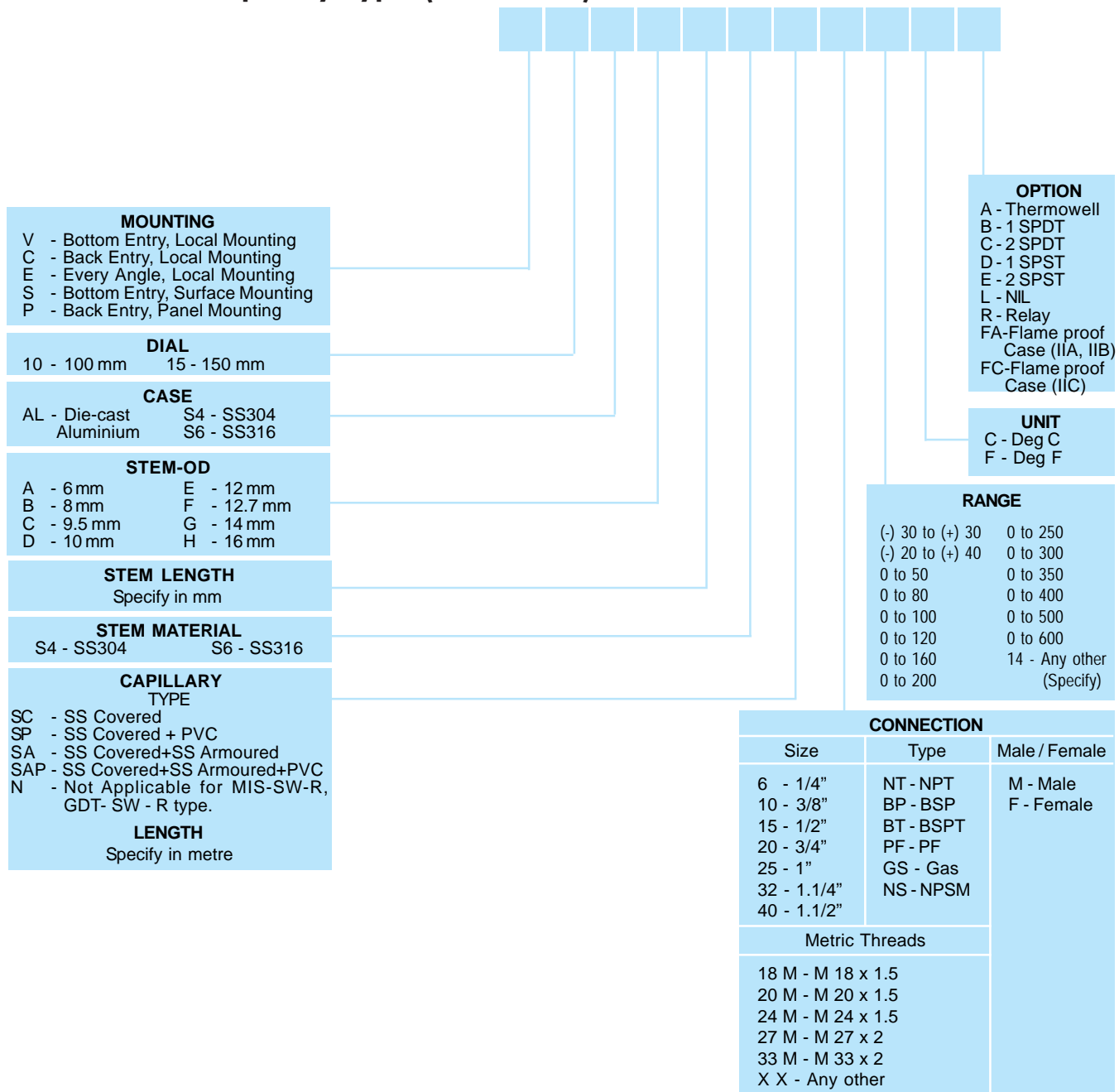


Indicating Temperature Switch

How to Order

TYPE

- MIS-SW-R - Rigid Stem (Mercury Filled)**
- MIS-SW-C - Capillary Type (Mercury Filled)**
- GDT-SW-R - Rigid Stem (Gas Filled)**
- GDT-SW-C - Capillary Type (Gas Filled)**



In-House Testing facilities for Temperature Gauges

For the manufacturing & testing of temperature gauges, we strictly follow EN : 13190-2001 and DIN 16203, 16204, 16205 and 16206 standard. Following tests are carried out to ensure the quality of temperature gauges. We have facilities to carry out following tests in-house at our manufacturing plant.

1. Accuracy test
2. Overrange test
3. Hysteresis test
4. Response time test
5. Repeatability test
6. Vibration test (rattling test)
7. Load test
8. Mounting position test
9. Ambient temperature compensation test (Case compensation test)
10. Capillary compensation test
11. Hermetical sealing test (for Bimetal temperature gauges)
12. Thermal stability test
13. End nipple test (for Bimetal temperature gauges)
14. Hose down test (water spray test)
15. Switching accuracy test (for contact assembly & microswitch type models)
16. High voltage test (for contact assembly & microswitch type models)
17. Insulation test
18. Contact resistance test
19. Altitude test
20. Dial printing stability test
21. Life test for SPDT movement
22. Cyclic test
23. Friction test

