

# 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

<b>System</b>	Gas (N <sub>2</sub> ) filled case compensated in accordance with SAMA Cl. IIIB
<b>Dial</b>	100 mm / 150 mm in aluminium, white background, black marking
<b>Case</b>	SS304 / SS316 with bayonet bezel (Flameproof case in AI only)
<b>Protection</b>	Weatherproof to IP-68 (IS/IEC : 60947 / IEC : 60529) Flameproof to IIA IIB (Equivalent to NEC Cl. I Div 2 Gr. C&D) Flameproof to IIC (Equivalent to NEC Cl. Div 1 Gr. A&B)
<b>Stem</b>	SS304 or SS316, 6 mm, 8 mm, 10 mm, 12 mm dia as standard
<b>Connection</b>	½" NPT (M) adjustable three piece compression fitting as standard
<b>Capillary</b>	SS316 with SS304 / SS316 armouring or SS316 with SS304 / SS316 armouring, with PVC covering
<b>Range</b>	(-) 200 to 800°C (minimum span 80°C )
<b>Accuracy</b>	$\pm 1\%$ FSD for indication, $\pm 2\%$ FSD for switching
<b>Over range</b>	125% FSD
<b>Contacts</b>	1) 1SPST /2SPST (Single/ Double) Electrical Contacts, independently adjustable over the entire Range, rated 30VA@230V AC 2) 1SPDT /2SPDT (Single/ Double) Microswitch, independently adjustable over entire range, rated 5A@230V AC (3A@28V DC) 3) Inductive Contacts (NAMUR), Single or Double, independently adjustable between 10% & 90% of the Range, Nominal Voltage, 8.32 V DC, Operating Voltage, 5 to 25 V DC
<b>Accessory</b>	Relay for the contact assembly to suit 5 amp @ 230 V AC, separately mounted.
<b>Note</b>	1) Flameproof version is offered with SPDT Microswitch in Die Cast Aluminium housing only. 2) Surface mounted flameproof housing is available with capillary. 3) For minimum insertion length essential for proper sensing, contact our design department. 4) Three point calibration certificate accompanies each thermometer. 5) For operating temp > 600°C; stem of SS310 / Inconel 600 shall be recommended.



**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.

# Ordering Information

**GDT-SW-R - Rigid Stem**  
**GDT-SW-C - Capillary Type**

## MODEL : GDT-SW-R / GDT-SW-C



### MOUNTING

**V** Bottom Entry, Local Mounting  
**C** Back Entry, Local Mounting  
**E** Every Angle, Local Mounting  
**S** Bottom Entry, Surface Mounting  
**P** Back Entry, Panel Mounting  
**Y** Bottom Entry, 2" Pipe Mounting

### DIAL

**100** 100 mm      **150** 150 mm

### CASE

**S4S** SS304      **S6S** SS316  
**ALM** Die Cast Al\*\*\*

### STEM-OD

**S06** 6 mm      **S10** 10 mm  
**S08** 8 mm      **S12** 12 mm

### STEM LENGTH

Specify in mm

### STEM MATERIAL

**S6S** SS316      **S4S** SS304  
**310** SS310\*\*      **600** Inconel 600\*\*

### CAPILLARY

**4AR(\*)** SS 316 Capillary, SS 304 Armoured  
**4PV(\*)** SS 316 Capillary, SS 304 Armoured+PVC Covered  
**6AR(\*)** SS 316 Capillary, SS 316 Armoured  
**6PV(\*)** SS 316 Capillary, SS 316 Armoured+PVC Covered  
**NIL** Not Applicable for GDT-SW-R type.

\* Specify the length of Capillary in Meters.

\*\*Stem material of SS310 is recommended for Temperature 600 Deg. C and Inconel 600 for temperature above 600 Deg.C

\*\*\* for Flame proof case with microswitch only

### OPTION

**TW** Thermowell  
**CLB** Colour Band  
**DUS** Dual Scale  
**1ST** 1SPST  
**2ST** 2SPST  
**1DT** 1SPDT  
**2DT** 2SPDT  
**1NR** NAMUR Switch, Single  
**2NR** NAMUR Switch, Double  
**REL** Relay  
**FAB** Flame Proof Case (IIA, IIB)  
**F2C** Flame Proof Case (IIC)

### UNIT

**DGC** Deg C      **DGF** Deg F

### RANGE #

0 to 80	0 to 300
0 to 100	0 to 350
0 to 120	0 to 400
0 to 160	0 to 500
0 to 200	0 to 600
0 to 250	0 to 800

### CONNECTION

Conn	Code	Size	Code	Type	Code	Male/ Female	Code
Thread	T	1/4"	06	NPS	NS	Male	M
		3/8"	10	NPT	NT		
		1/2"	15	BSP	BP		
		3/4"	20	BSPT	BT		
		1"	25	JIS-PF	PF		
		M20	M20	JIS-PT	PT		
				Gas	GS		
				R	RR		
				Rp	RP		
				Pitch 1.5	C		

e.g. For 1/2"NPT(M), Code: **T15NTM**  
 For M20x1.5 (F), Code: **TM20CF**

# Ranges mentioned are in °C. Equivalent unit in °F can be provided on request.

**Sample Model Code: GDT-SW-C-S-150-S4S-S10-400-600-4AR(3)-T15NTM-(0-800)-DGC-2DT**

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# Blind Temperature Switch

*General* has been designing and manufacturing reliable, high quality Temperature Switches for accurate control of the process equipments to suit to most of the industrial applications in various process industries. With inert Gas Nitrogen, our Switches are most environment friendly and Safe, which makes them the ideal choice of almost all types of process industries / applications.



## Features

- Use of Inert Gas (Nitrogen)
- Non-polluting, Environment friendly
- Rugged construction
- Rigid Stem or Capillary type
- Weather proof or Flame proof enclosure
- Fast Response
- 1SPDT / 2SPDT micro-switches

## Specifications

<b>System Case</b>	: Inert Gas (Nitrogen) filled System : Weather proof, Die-Cast Aluminium enclosure, epoxy powder coated, conforming to IP-68 protection, in accordance with IS/IEC-60529:2001 Flameproof Die Cast Aluminum Enclosure, epoxy powder coated, conforming to Gr. IIA, IIB & IIC T6 in accordance with IS 2148-2004 (IEC-60079:2001) & Weatherproof to IP 66 in accordance with IS-12063:1987 (IEC-60529), approved by CMRI/CCOE/PESO
<b>Cable entry Stem Connection</b>	: As shown in <b>Table-III</b> : SS304 or SS316, 6 mm, 8 mm, 10 mm, 12 mm : ½" NPT(M) adjustable compression fitting in SS316 as standard (other connections on request)
<b>Capillary</b>	: SS316 with SS304 / SS316 armouring or SS316 with SS304 / SS316 armouring, with PVC covering
<b>Range</b>	: As shown in <b>Table-I</b>
<b>Switching Accuracy</b>	: ±1% FSD
<b>Repeatability</b>	: ±1% FSD
<b>Scale Accuracy</b>	: ±5% FSD
<b>Over Range</b>	: 125% FSD
<b>Switch Type</b>	: 1SPDT / 2SPDT Snap Action Microswitch
<b>Switch Rating</b>	: As shown in <b>Table-II</b>
<b>Set Point</b>	: To be specified by Customer (Adjustable from 10 to 90% of the Maximum Range), Internal Setting with tamperproof locking arrangement
<b>Switching Differential</b>	: Fixed or Adjustable
<b>High Voltage Strength</b>	: Withstands 0.5 KV between open contact for 1 Sec & 2 KV between terminals and earth for one minute.
<b>Insulation Resistance</b>	: Insulation Resistance >10 M Ohms at 500VDC
<b>Thermowell</b>	: Refer our Catalogue for Thermowell



# Blind Temperature Switch



**Note:**

- 1) Weatherproof enclosure is effective only if all entries and joint faces are properly sealed.
- 2) Flameproof enclosure is weatherproof only if cover 'O' ring is retained in position; and flameproof only if suitable Flameproof Cable Gland is provided. It is highly recommended to procure Cable Glands along with flameproof instruments to avoid negligence of the same during installation.
- 3) Switch Accuracy & Repeatability are one and the same for all Blind Temperature Switches (being a switching device; not an indicating/measuring device).
- 4) The instrument is calibrated in vertical mounting position. Hence mounting in any other position may cause a minor range shift.
- 5) Ambient temperature range: All models are suitable for operating within a range of ambient temperature from (-) 20°C to (+) 60°C provided the process fluid does not freeze within this range. Below 0°C, precautions should be taken in humid atmospheres to prevent frost formation inside the instrument from jamming the mechanism.
- 6) It is recommended to select the range of the instrument such that the set value falls between 35% to 65% of the FSR.
- 7) Scale Markings are for guidance only. Set the correct set value against precision Master instrument
- 8) Thermowells of different process connections & Material of Construction can be provided as per process requirement.

## Table I : Ranges (in Deg. C)

20 to 60	(-)30 to (+)30
20 to 80	(-)30 to (+)50
20 to 100	(-)30 to (+)90
20 to 120	
20 to 160	(-)40 to (+)40
20 to 200	(-)40 to (+)60
20 to 250	(-)40 to (+)80
20 to 300	
	(-)50 to (+)30
(-)20 to (+)40	(-)50 to (+)50
(-)20 to (+)60	(-)50 to (+)100
(-)20 to (+)80	
<b>Any other (Please specify)</b>	

**Note:** Ranges mentioned are in Deg.C.  
Equivalent unit in Deg.F can be provided on request.

## Table II : Type of Micro Switch

Description	Code	Availability In Type	A/C Rating Current Voltage	Volt	DC Rating Current	
					Resistive	Inductive
1-SPDT	<b>100</b>	Fixed switching Differential only	5A-250VAC	220	0.25 A	0.03 A
				110	0.50 A	0.07 A
2-SPDT				24	5.0 A	3.00 A
1-SPDT	<b>102</b>	Fixed or Adjustable Switching Differential	5A-250VAC	220	0.25A	0.1A
				110	0.5A	0.2A
2-SPDT				24	8A	7A
1-SPDT	<b>103</b>	Fixed or Adjustable Switching Differential	15A-250VAC	220	0.25A	0.1A
				110	0.5A	0.2A
2-SPDT				24	8A	7A
Any Special Requirement	<b>XXX</b>	—	—	—	—	---

## Table III : Type of Cable Entry

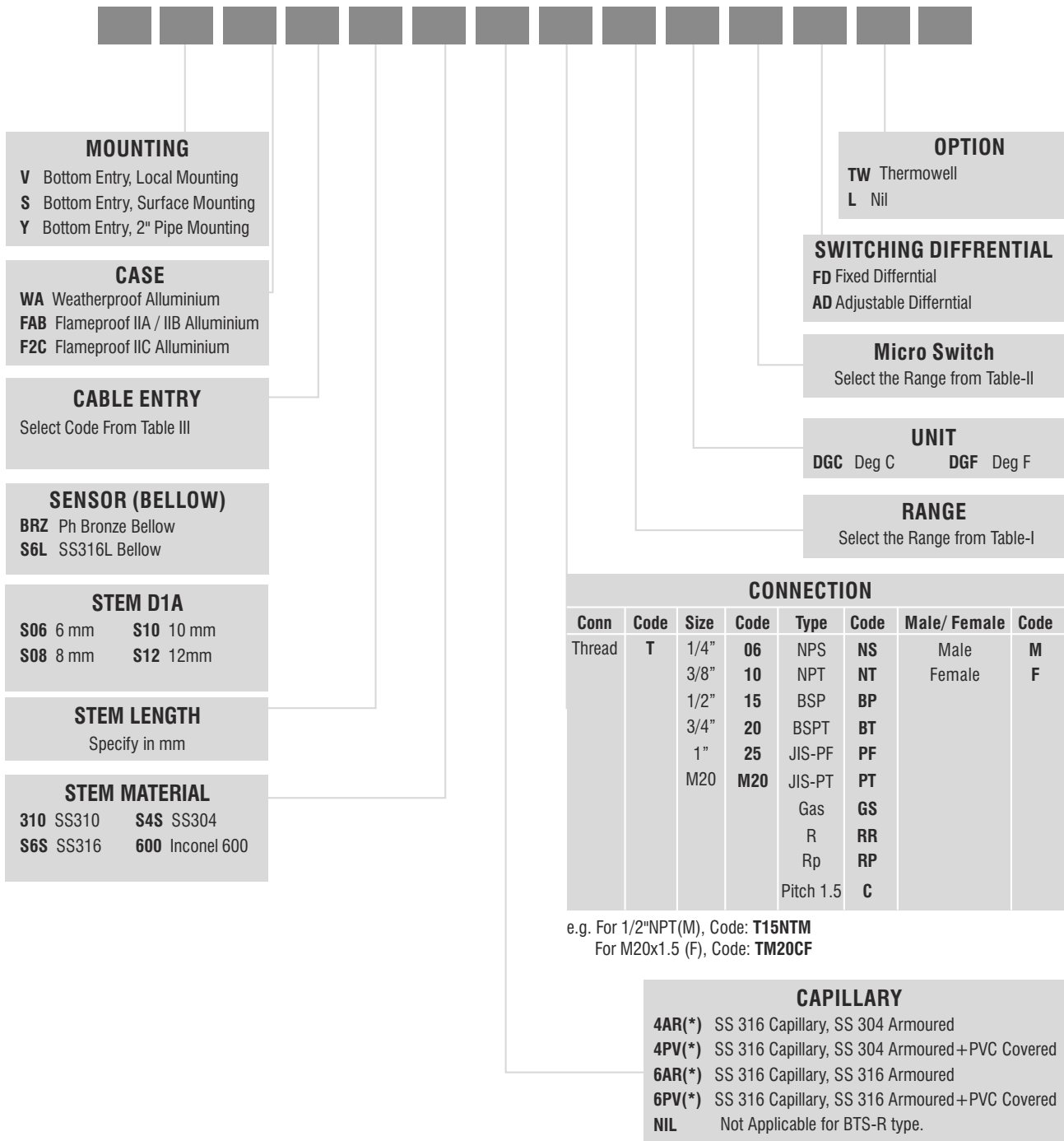
Cable Entry	Single Cable Entry		Double Cable Entries		Double Cable Entries, one plugged	
	W/P	FLP (IIA/IIIB/IIC)	W/P	FLP (IIA/IIIB/IIC)	W/P	FLP (IIA/IIIB/IIC)
3/4" ET(F)	W10	F10	W20	F20	WP0	FP0
3/8" BSP(F)	W11	F11	W21	F21	WP1	FP1
1/2" BSP(F)	W12	F12	W22	F22	WP2	FP2
1/2" NPT(F)	W13	F13	W23	F23	WP3	FP3
3/4" BSP(F)	W14	F14	W24	F24	WP4	FP4
3/4" NPT(F)	W15	F15	W25	F25	WP5	FP5
3/4"ET, DCCG - Brass	W1A	F1A	W2A	F2A	WPA	FPA
3/4"ET, DCCG - SS	W1B	F1B	W2B	F2B	WPB	FPB
1/2"BSP, DCCG - Brass	W1C	F1C	W2C	F2C	WPC	FPC
1/2"BSP, DCCG - SS	W1D	F1D	W2D	F2D	WPD	FPD
1/2"NPT, DCCG - Brass	W1E	F1E	W2E	F2E	WPE	FPE
1/2"NPT, DCCG - SS	W1F	F1F	W2F	F2F	WPF	FPF
3/4"NPT, DCCG - Brass	W1G	F1G	W2G	F2G	WPG	FPG
3/4"NPT, DCCG - SS	W1H	F1H	W2H	F2H	WPH	FPH
3/4"BSP, DCCG - Brass	W1J	F1J	W2J	F2J	WPJ	FPJ
3/4"BSP, DCCG - SS	W1K	F1K	W2K	F2K	WPK	FPK
3/4" ET, SCCG - PVC	PVC	---	---	---	---	---
4 Pin Connector	4PC	---	---	---	---	---
7 Pin Connector	7PC	---	---	---	---	---

# Ordering Information

**BTS-R : Rigid Stem type**

**BTS-C : Capillary type**

**MODEL : BTS-R / BTS-C**



**MOUNTING**  
**V** Bottom Entry, Local Mounting  
**S** Bottom Entry, Surface Mounting  
**Y** Bottom Entry, 2" Pipe Mounting

**CASE**  
**WA** Weatherproof Alluminium  
**FAB** Flameproof IIA / IIB Alluminium  
**F2C** Flameproof IIC Alluminium

**CABLE ENTRY**  
 Select Code From Table III

**SENSOR (BELLOW)**  
**BRZ** Ph Bronze Bellow  
**S6L** SS316L Bellow

**STEM D1A**  
**S06** 6 mm    **S10** 10 mm  
**S08** 8 mm    **S12** 12 mm

**STEM LENGTH**  
 Specify in mm

**STEM MATERIAL**  
**310** SS310    **S4S** SS304  
**S6S** SS316    **600** Inconel 600

**OPTION**  
**TW** Thermowell  
**L** Nil

**SWITCHING DIFFERENTIAL**  
**FD** Fixed Differential  
**AD** Adjustable Differential

**Micro Switch**  
 Select the Range from Table-II

**UNIT**  
**DGC** Deg C    **DGF** Deg F

**RANGE**  
 Select the Range from Table-I

CONNECTION							
Conn	Code	Size	Code	Type	Code	Male/ Female	Code
Thread	<b>T</b>	1/4"	<b>06</b>	NPS	<b>NS</b>	Male	<b>M</b>
		3/8"	<b>10</b>	NPT	<b>NT</b>	Female	
		1/2"	<b>15</b>	BSP	<b>BP</b>		
		3/4"	<b>20</b>	BSPT	<b>BT</b>		
		1"	<b>25</b>	JIS-PF	<b>PF</b>		
		M20	<b>M20</b>	JIS-PT	<b>PT</b>		
				Gas	<b>GS</b>		
				R	<b>RR</b>		
				Rp	<b>RP</b>		
				Pitch 1.5	<b>C</b>		

e.g. For 1/2"NPT(M), Code: **T15NTM**  
 For M20x1.5 (F), Code: **TM20CF**

**CAPILLARY**  
**4AR(\*)** SS 316 Capillary, SS 304 Armoured  
**4PV(\*)** SS 316 Capillary, SS 304 Armoured+PVC Covered  
**6AR(\*)** SS 316 Capillary, SS 316 Armoured  
**6PV(\*)** SS 316 Capillary, SS 316 Armoured+PVC Covered  
**NIL** Not Applicable for BTS-R type.

\* Specify the length of Capillary in Meters.

**Sample Model Code: BTS-R-V-WA-W13-S6L-S10-300-S6S-NIL-T15NTM-(20-200)-DGC-100-FD-L**

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