

# Euro gauge Electrical contact type temperature gauge

**Model : T521(H), T522(H/L), T523(L), T524(H/HH), T525(L/LL), T526(H/L)**

Spec. sheet no. TD05-03

## Service intended

Contact type temperature gauge is installed with electric contact actuated by pointer. It provides the function which electrical circuit can be opened or closed by manual set point. It is applicable where signal is required (Audible or visual alarm) for control of resistance or any other application with auxiliary relay and contact.



## Nominal diameter

100 mm

## Accuracy

±2.0% of full scale

## Measuring system (SAMA class IIIB)

Organic gas : 0 ~ 200°C  
Inert gas : -200 ~ 700°C

## Working range

Maximum scale value



## Standard features

### Location of stem and mounting

Bottom connection, surface, case mounting

### Case

304SS

### Cover

304SS  
Bayonet type

### Capillary

Capillary : 1.6/0.2 mm, 316SS  
Armored tube : 7.5/5.5 mm, 304SS

### Window

Safety glass  
Polycarbonate

### Dial

White aluminium with black graduation

### Contacts

Maximum voltage : 250 V AC  
Contact rating : AC 220 V, 0.25 A  
DC 100 V, 0.5 A  
With max. no of contact : 2 sets per gauge

### Pointer

Black painted aluminium alloy

### Stem

8.0, 10.0 and 12.0 mm  
316SS and 316L SS

### Stem, process connection

3/8", 1/2", 3/4" PT, NPT and PF

### Option

Special accuracy, ±1.0% of full scale

**1. Base model**

- T521** Electrical contacts type temperature gauge (High alarm)
- T522** Electrical contacts type temperature gauge (High and low alarm)
- T523** Electrical contacts type temperature gauge (Low alarm)
- T524** Electrical contacts type temperature gauge (Two high alarm)
- T525** Electrical contacts type temperature gauge (Two low alarm)
- T526** Failsafe high and low alarm

**2. Nominal diameter and window material**

- 4** 100 mm and safety glass
- 5** 100 mm and polycarbonate window

**3. Type of mounting**

- A** Bottom connection (Only direct mounting)
- B** Bottom connection, surface, case mounting plate
- N** Lower back entry and panel mounting

**4. Stem material**

- 1** 316SS
- 2** 316L SS

**5. Stem, process connection**

- A** None
- D** 3/8"
- E** 1/2"
- F** 3/4"

**6. Stem connection type (CF: Compression fitting)**

- A** None
- E** CF + PT
- F** CF + NPT
- G** CF + PF
- H** MT + PT (Movable thread)
- I** MT + NPT (Movable thread)
- J** MT + PF (Movable thread)

**7. Stem outer diameter (mm)**

- 2** 8.0
- 3** 10.0
- 4** 12.0 (Standard)
- Z** Other

**8. Range**

- XXX** Refer to scale range table

**9. Capillary length**

- A** Direct mounting type
- P** 2 metre
- Q** 3 metre
- S** 5 metre
- V** 8 metre
- X** 10 metre
- Z** Other

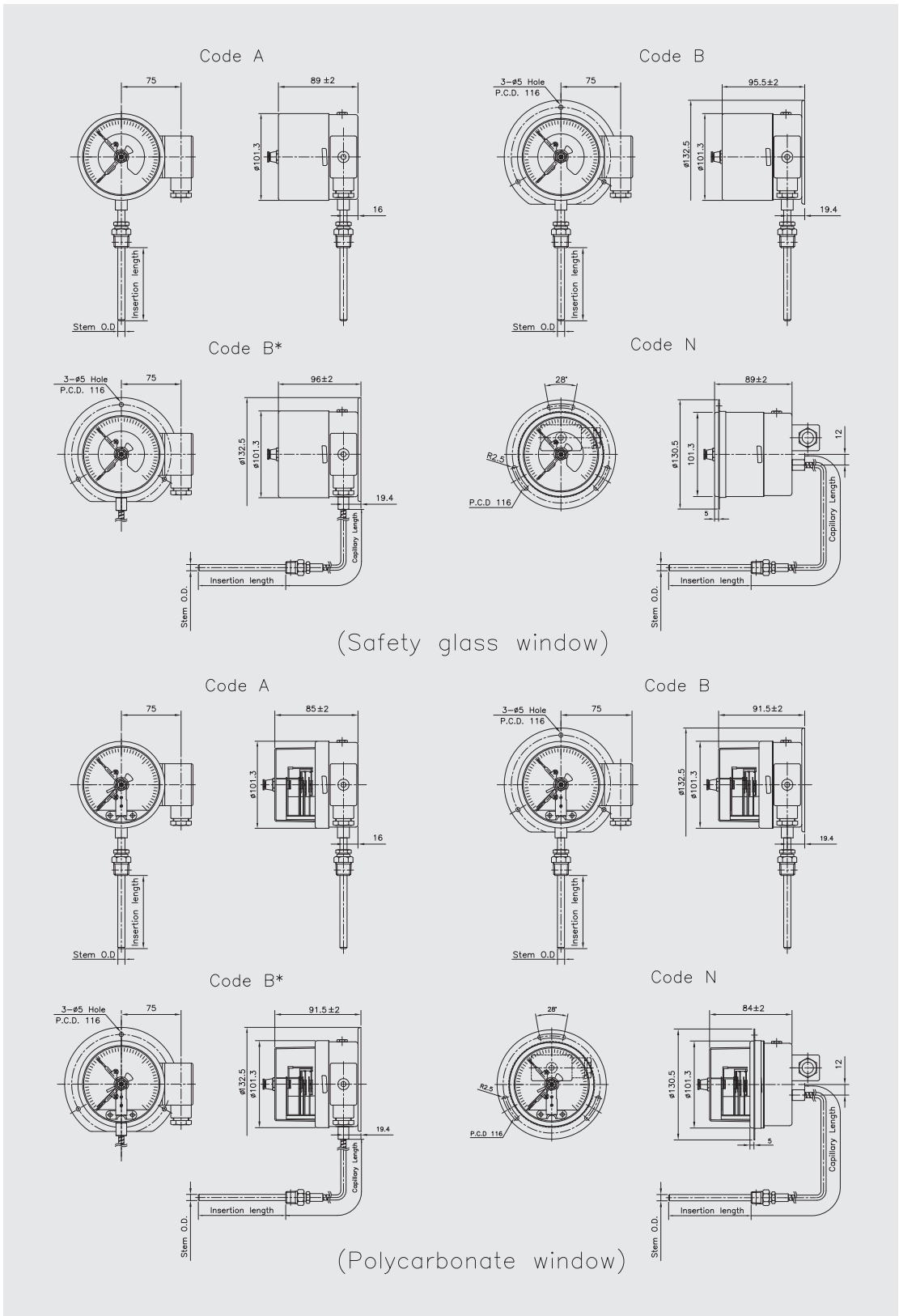
**10. Accessories**

- 0** None
- 1** Thermowell
- 2** Special accuracy ( $\pm 1.0\%$  of full scale)
- 3** Thermowell and special accuracy

1	2	3	4	5	6	7	8	9	10
T521	4	B	1	E	C	3	XXX	P	1

Sample  
ordering code

# T52X : Type of mounting



## Snap - action contacts

### General

Electromechanical limit switches in pointer type measuring instruments are auxiliary current switches which open or close electrical circuits at set limit values by means of a contact arm which is moved by the actual value pointer.

The snap action contact is a mechanical contact for switching capacities up to 30 W 50 VA max.

Contact making will be delayed and or advanced in relation to the movement of the actual value pointer.

To closed the circuit, the contact pin of the movable contact arm is attracted in a jump by the permanent magnet fastened to the supporting arm shortly before the set value has been reached.

Due to the retention force of the magnet, snap action contacts are more resistant against shock and vibration.

The switching safety is increased by the increased contact pressure.

When the circuit is opened, the magnet keeps the contact arm in its place until the restoring force of the measuring element exceeds the magnetic force, and the contact opens in a jump.

### Specifications

Maximum contact rating with non-inductive (ohmic) load		Electrical contacts type temperature gauge model T520 series	
		Dry gauges	Liquid filled gauges
Maximum voltage		250 V	250 V
Current ratings	Make ratings	1.0 A	1.0 A
	Break ratings	1.0 A	1.0 A
	Continuous load	0.6 A	0.6 A
Maximum load		30 W 50 VA	20 W 20 VA
Material of contact points		Silver-Nickel alloy (80% Ag / 20%Ni / 10µm) gold-plated	
Ambient operating temperature		-20°C...+70°C	
Max. no. of contacts		2	
Voltage test		Circuit / protective earth conductor - 2,000 vac 1 minute ----- Circuit /circuit - 2,000 vac 1 minute	

### Recommended contact ratings with ohmic and inductive load

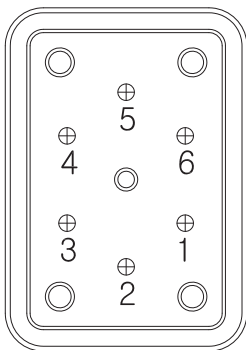
Voltage (DIN IEC 38) DC / AC	Electrical contacts type temperature gauge model T520 series					
	Dry gauges			Liquid filled gauges		
	Ohmic load		Inductive load	Ohmic load		Inductive load
	DC	AC		DC	AC	
			cosØ > 0.7			cosØ > 0.7
V	mA	mA	mA	mA	mA	mA
220 / 230	100	120	65	65	90	40
110 / 110	200	240	130	130	180	85
48 / 48	300	450	200	190	330	130
24 / 24	400	600	250	250	450	150

In order to ensure a high switching reliability of the contacts the switching voltage should not be below 24 V, also taking environmental influences in the long term into account.

## Contact function table

CODE	Wiring Scheme	Contact Function		Wiebrock Code No.	Remark	
		1st Contact	2nd Contact			
<b>Single Contact</b>						
1	Contact make when pointer reachse setpoint (Normal open - NO)				S/M-1	Normal use high alarm system
3	Contact break when pointer reachse setpoint (Normal close - NC)				S/M-2	Normal use low alarm system
<b>Double Contact - Common Circuit</b>						
4	1 <sup>st</sup> and 2 <sup>nd</sup> contact make when pointer reaches setpoint				S/M-11	Normal use high and hihigh alarm system
6	1 <sup>st</sup> contact make 2 <sup>nd</sup> contact break when pointer reaches setpoint				S/M-12	Normal use failsafe high and low alarm system
2	1 <sup>st</sup> contact break 2 <sup>nd</sup> contact make when pointer reaches setpoint				S/M-21	Normal use high and low alarm system
5	1 <sup>st</sup> and 2 <sup>nd</sup> contact break when pointer reaches setpoint				S/M-22	Normal use low and lolow alarm system

## Terminal block arrangement



### 1. High alarm (S/M-1)

- ① Normal open
- ② Common
- ④ Ground

### 2. High and low alarm (S/M-21)

#### Low alarm

- ① Normal close
- ② Common
- ④ Ground

#### High alarm

- ② Common
- ③ Normal open

### 3. Low alarm (S/M-2)

- ① Normal close
- ② Common
- ④ Ground

### 4. Two high alarm (S/M-11)

#### No.1 High alarm

- ① Normal open
- ② Common
- ④ Ground

#### No.2 High alarm

- ② Common
- ③ Normal open

### 5. Two low alarm (S/M-22)

#### No.2 Low alarm

- ① Normal close
- ② Common
- ④ Ground

#### No.1 Low alarm

- ② Common
- ③ Normal close

### 6. Failsafe high and low alarm (S/M-12)

#### High alarm

- ② Common
- ③ Normal close
- ④ Ground

#### Low alarm

- ① Normal open
- ② Common

## Scale ranges

Code	Scale range (°C)	Scale spacing(°C)	Minimum stem length (mm)			Standard stem length (mm)		
			8.0	10.0	12.0	8.0	10.0	12.0
032	-50 ~ 50	2	100	85	65	200	130	100
037	-50 ~ 100	5	100	88	65	200	130	100
054	-30 ~ 50	2	100	85	65	200	130	100
059	-30 ~ 100	2	100	85	65	200	130	100
061	-30 ~ 120	5	100	85	65	200	130	100
069	-20 ~ 50	2	100	85	65	200	130	100
074	-20 ~ 100	2	100	85	65	200	130	100
079	-20 ~ 150	5	100	85	65	200	130	100
084	-10 ~ 50	1	100	85	65	200	130	100
099	0 ~ 50	1	100	85	65	200	130	100
100	0 ~ 60	1	100	85	65	200	130	100
101	0 ~ 70	2	100	85	65	200	130	100
102	0 ~ 80	2	100	85	65	200	130	100
104	0 ~ 100	2	100	85	65	200	130	100
106	0 ~ 120	2	100	85	65	200	130	100
109	0 ~ 150	5	100	85	65	200	130	100
114	0 ~ 200	5	100	85	65	200	130	100
119	0 ~ 250	5	100	85	65	200	130	100
124	0 ~ 300	5	100	85	65	200	130	100
129	0 ~ 350	5	100	85	65	200	130	100
134	0 ~ 400	10	100	85	65	200	130	100
144	0 ~ 500	10	100	85	65	200	130	100
154	0 ~ 600	10	100	85	65	200	130	100
164	0 ~ 700	10	100	85	65	200	130	100

\* 0 ~ 700°C/Special range

## Insertion length

(For direct mounting)

Code	1	2	3	4	5	6	7	8	9	A	B	C
Length (mm)	50	60	70	80	100	120	130	150	175	200	225	250

Code	D	E	F	G	H	J	K	L	M	N	P
Length (mm)	275	300	350	375	400	450	500	550	1,000	1,500	2,000