

Resistance thermometers are used in the locations where precise temperature measurement is demanded in the industry. It is based on change of electrical resistance of conductor subject to the temperature. It is used the resistance detector that is wound from thin platinum or nickel wire insulated within enamel, glass or ceramic as conductor. Detector provides 100 ohm resistance output in 0 °C. Increasing or decreasing values of resistance subject to temperature are measured and then, temperature is detected. Copper, silver or nickel-chromium connection wires are added into two ends of resistance detector. It can be used from (-) 50 °C to (+) 350 °C. Analogue output information is taken through pt100 sensors in compliance with EN60751 and then, assessed in the automation system.

In order that resistance thermometers can measure accurately, it is recommended that it has dipping length as much as 6 and 15 times of dipping diameter.

Copper or Silver wire is used up to 500 °C and Nickel chromium is used after 550 °C between Pt 100 and connector. Copper conducting wire is used between device and pt100. It should have 2 wires up to 10 m. , 3 wires up to 150 m. and 4 wires after 150 m.



#### Certification



II 1/2G Ex db IIC TX<sup>1</sup> Ga/Gb for gas

II 1/2D Ex ta/tb IIIC TX<sup>2</sup> Da/Db for dust

-20°C ≤ Tamb ≤ +60°C , IP 66/68 (2 Metre / 2 Meters)

\* Have a look at the temperature class chart.

## DX-ETT

### TEMPERATURE SENSOR AND TRANSMITTER

**DX-ETT 01 , DX-ETT 02**  
**DX-ETT 03 , DX-ETT 04**  
**DX-ETT 07**

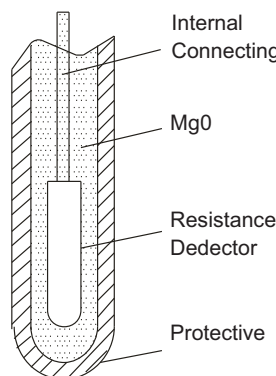
#### Advantages:

- \* Models up to max. of 600 bar
- \* Pratical and economical
- \* Digital display can be mounted

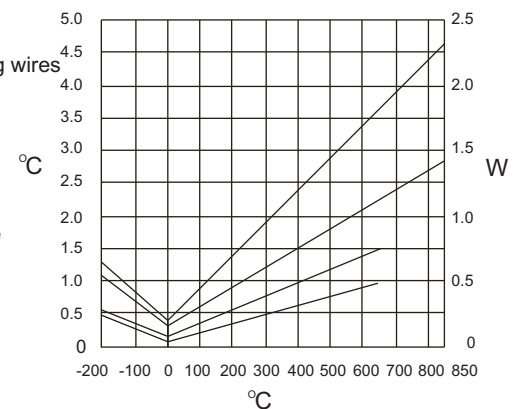
#### Areas of application :

Machines, tank, boilers, gas and liquid fluid,  
surface temp. measurement,  
ambient temperature measurement.

CE 1783



PT 100 RESISTANCE THERMOMETER TOLERANTSTABLE



| TEMP.<br>°C | TOLERANCE<br>EN 60751 |      |         |      |
|-------------|-----------------------|------|---------|------|
|             | A CLASS               |      | B CLASS |      |
|             | ±°C                   | ±OHM | ±°C     | ±OHM |
| -200        | 0.55                  | 0.24 | 1.3     | 0.56 |
| -100        | 0.35                  | 0.14 | 0.8     | 0.32 |
| 0           | 0.15                  | 0.06 | 0.3     | 0.12 |
| 100         | 0.35                  | 0.13 | 0.8     | 0.30 |
| 200         | 0.55                  | 0.20 | 1.3     | 0.48 |
| 300         | 0.75                  | 0.27 | 1.8     | 0.64 |
| 400         | 0.95                  | 0.33 | 2.3     | 0.79 |
| 500         | 1.15                  | 1.38 | 2.8     | 0.93 |
| 600         | 1.35                  | 1.43 | 3.3     | 1.06 |

# Technical Specifications :

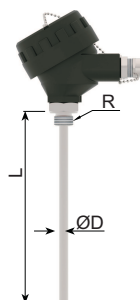
## DX-ETT 01

| Type              | Submersible                                               |
|-------------------|-----------------------------------------------------------|
| Range             | (-) 50....(+) 200 °C                                      |
| Mechanical Conn.  | 1/2" BSP (Std)                                            |
| Electrical Conn.  | Terminal                                                  |
| Sensor            | 1 x pt100 3 wire<br>Class B (EN 60751)<br>Opt. Selectable |
| Material          | 304 St. St.<br>Opt. 316 St. St.                           |
| Stem Lenght (L)   | Optional                                                  |
| Ambient Temp.     | (-)20 °C...(+) 60 °C                                      |
| Protection Class  | IP 66 / 68                                                |
| Pipe Diameter (D) | 6 / 9 / 11 / 14 mm                                        |



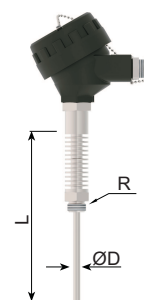
## DX-ETT 02

| Type              | Submersible                                               |
|-------------------|-----------------------------------------------------------|
| Range             | (-) 50....(+) 200 °C                                      |
| Mechanical Conn.  | 1/2" BSP (Std)                                            |
| Electrical Conn.  | Terminal                                                  |
| Sensor            | 1 x pt100 3 wire<br>Class B (EN 60751)<br>Opt. Selectable |
| Material          | 304 St. St.<br>Opt. 316 St. St.                           |
| Stem Lenght (L)   | Optional                                                  |
| Ambient Temp.     | (-)20 °C...(+) 60 °C                                      |
| Protection Class  | IP 66 / 68                                                |
| Pipe Diameter (D) | 6 / 9 / 11 / 14 mm                                        |



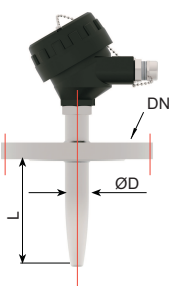
## DX-ETT 03

| Type              | Submersible                                               |
|-------------------|-----------------------------------------------------------|
| Range             | (-) 50....(+) 395 °C                                      |
| Mechanical Conn.  | 1/2" BSP (Std)                                            |
| Electrical Conn.  | Terminal                                                  |
| Sensor            | 1 x pt100 3 wire<br>Class B (EN 60751)<br>Opt. Selectable |
| Material          | 304 St. St.<br>Opt. 316 St. St.                           |
| Stem Lenght (L)   | Optional                                                  |
| Ambient Temp.     | (-)20 °C...(+) 60 °C                                      |
| Protection Class  | IP 66 / 68                                                |
| Pipe Diameter (D) | 9 / 11 / 14 mm                                            |



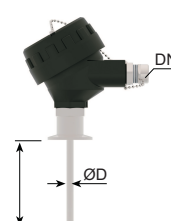
## DX-ETT 04

| Type              | Submersible                                               |
|-------------------|-----------------------------------------------------------|
| Range             | (-) 50....(+) 200 °C                                      |
| Mechanical Conn.  | 2" PN16 Flanged (Std)                                     |
| Electrical Conn.  | Terminal                                                  |
| Sensor            | 1 x pt100 3 wire<br>Class B (EN 60751)<br>Opt. Selectable |
| Material          | 304 St. St.<br>Opt. 316 St. St.                           |
| Stem Lenght (L)   | Optional                                                  |
| Ambient Temp.     | (-)20 °C...(+) 60 °C                                      |
| Protection Class  | IP 66 / 68                                                |
| Pipe Diameter (D) | 9 / 11 / 14 mm                                            |

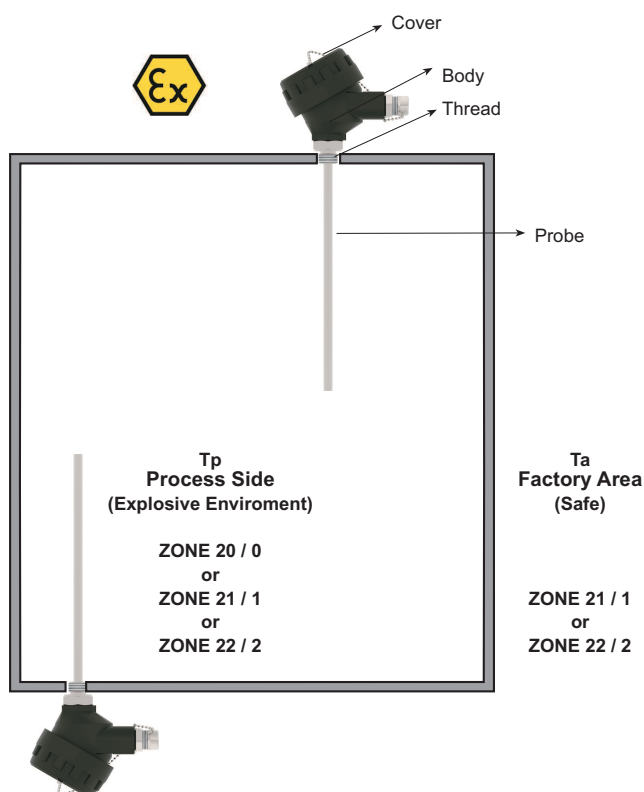


## DX-ETT 07

| Type              | Submersible                                               |
|-------------------|-----------------------------------------------------------|
| Range             | (-) 50....(+) 200 °C                                      |
| Mechanical Conn.  | 1" Clamp (Std)                                            |
| Electrical Conn.  | Terminal                                                  |
| Sensor            | 1 x pt100 3 wire<br>Class B (EN 60751)<br>Opt. Selectable |
| Material          | 304 St. St.<br>Opt. 316 St. St.                           |
| Stem Lenght (L)   | Optional                                                  |
| Ambient Temp.     | (-)20 °C...(+) 60 °C                                      |
| Protection Class  | IP 66 / 68                                                |
| Pipe Diameter (D) | 9 / 11 / 14 mm                                            |



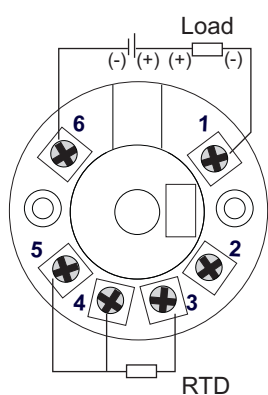
## Example Mounting Types:



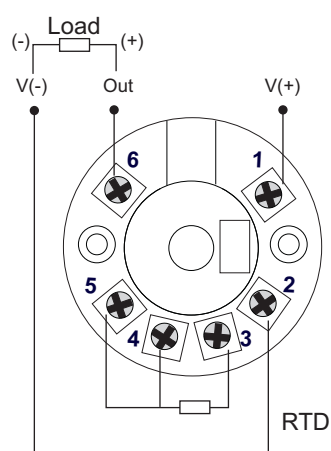
## Electrical Connection :



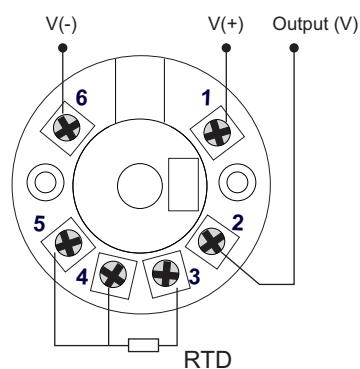
### 4-20mA Two Wire



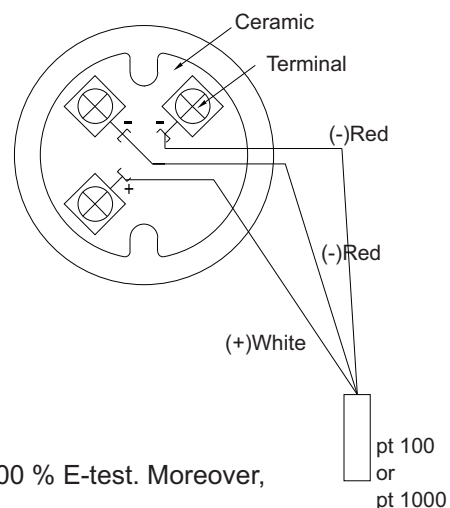
### 4-20mA Three Wire



### 0-5v, 1-5v, 0-10V Three Wire

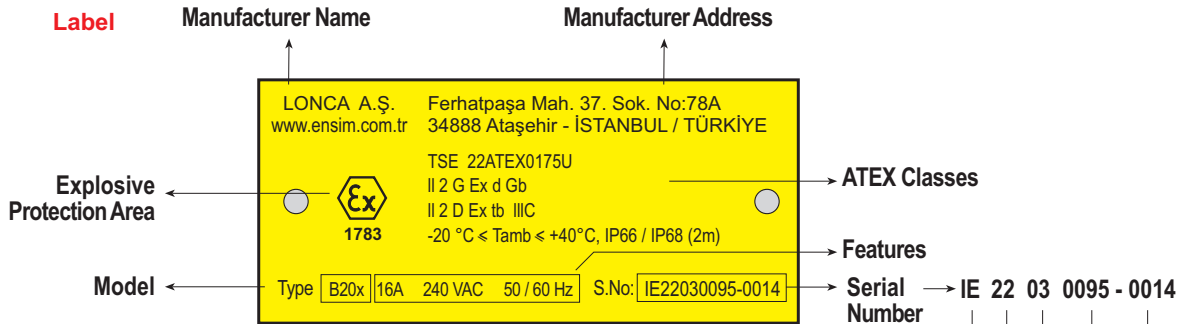
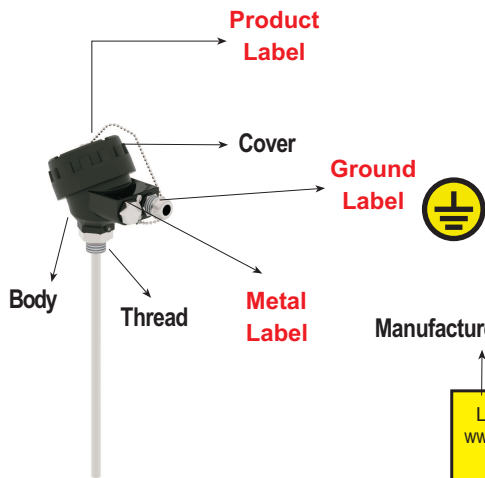
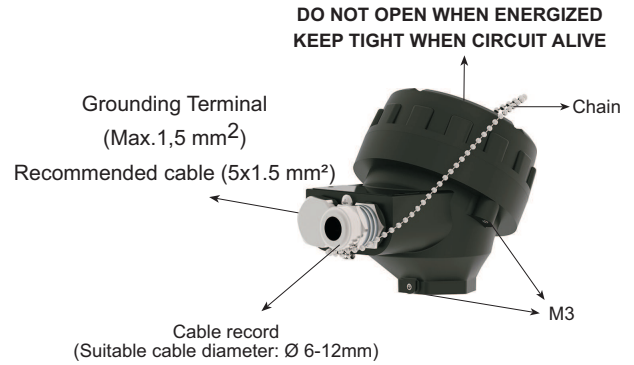
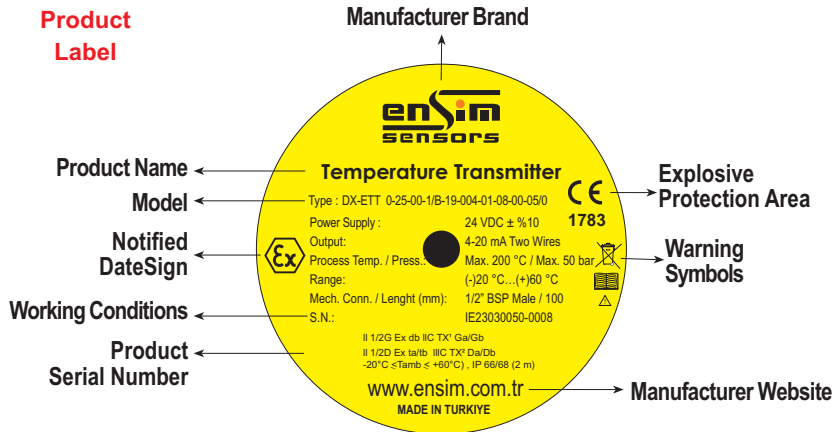


### pt100 or pt1000



**Note :** It has been produced according to IPC A 600 class 2 conditions and tested with 100 % E-test. Moreover, HASL (non-lead) surface test has been applied.

## Product Label



**Note :** If the ATEX certificate metal label is damaged, you can contact the manufacturer with the serial number.

## Housing:

| ORDER CODE | TYPE | MATERIAL  | PROTECTION CLASS | TEMPERATURE (°C) | SIZE a x b (mm) |
|------------|------|-----------|------------------|------------------|-----------------|
| 750        | B22x | Aluminium | IP 66/68         | (-) 40...(+) 200 | 117 x 102       |

Cover Seal : NBR Nitrile Rubber 120 °C, Opt. FPM (Viton) 200 °C)

EU-Type Examination Certificate Number : TSE 22ATEX 0175U

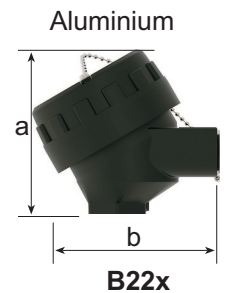
The marking of the equipment :



## Protection Case:



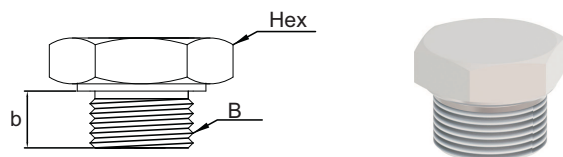
**Material :** 304 Stainless Steel  
Welded manufacturing  
Opens - Closes Hinged  
To Protect Against external conditions.



Product Number  
System Number  
Month  
Year  
Work Order

## Mechanical Connection :

### Thread (Connection has been welded with sensor)

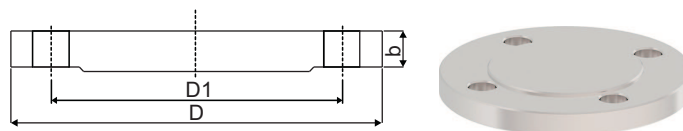


(ISO228-1)

| Order Code | Dimension B | Hex [mm] | Stem Length b [mm] |
|------------|-------------|----------|--------------------|
| 0001       | 1/8" BSP    | 17       | 12                 |
| 0002       | 1/4" BSP    | 17       | 12                 |
| 0003       | 3/8" BSP    | 24       | 20                 |
| 0004       | 1/2" BSP    | 27       | 14                 |
| 0005       | 3/4" BSP    | 32       | 14                 |
| 0006       | 1" BSP      | 41       | 23                 |
| 0008       | 1 1/4" BSP  | 51       | 23                 |
| 0009       | 1 1/2" BSP  | 60       | 23                 |
| 0012       | 2" BSP      | 70       | 23                 |

### Flanged (Connection has been welded with sensor)

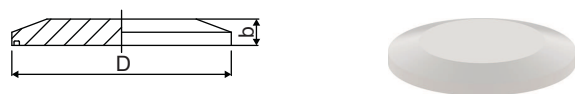
| Order Code | (ISO1092-1) PN 16 | D (mm) | D1 (mm) | b (mm) |
|------------|-------------------|--------|---------|--------|
| 0502       | DN 25             | 165    | 85      | 16     |
| 0503       | DN 32             | 140    | 100     | 16     |
| 0505       | DN 50             | 165    | 125     | 18     |
| 0507       | DN 80             | 200    | 160     | 20     |
| 0508       | DN 100            | 220    | 180     | 20     |



| Order Code | (ISO1092-1) PN 40 | D (mm) | D1 (mm) | b (mm) |
|------------|-------------------|--------|---------|--------|
| 0702       | DN 25             | 115    | 85      | 18     |
| 0703       | DN 32             | 140    | 100     | 20     |
| 0705       | DN 50             | 165    | 125     | 20     |
| 0707       | DN 80             | 200    | 160     | 20     |
| 0708       | DN 100            | 235    | 190     | 24     |

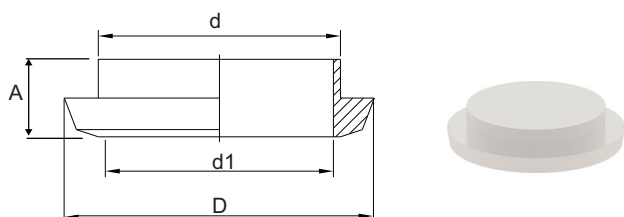
| Order Code | (ANSI B16.5) 150 LBS | D (mm) | D1 (mm) | b (mm) |
|------------|----------------------|--------|---------|--------|
| 1005       | DN 50                | 152,4  | 121     | 19     |
| 1006       | DN 65                | 177,8  | 139,7   | 22,2   |
| 1007       | DN 80                | 190,5  | 152,4   | 23,8   |
| 1008       | DN 100               | 228,6  | 157,2   | 23,8   |

### Clamp (Connection has been welded with sensor)



| Order Code | (ISO2852) Dimension | Diameter D (mm) | b (mm) |
|------------|---------------------|-----------------|--------|
| 1501       | DN 32               | 50,5            | 15     |
| 1502       | DN 50               | 64              | 17     |
| 1503       | DN 65               | 91              | 17     |

### Dairy (Connection has been welded with sensor)



| Order Code | Dimension | Dimension | D (mm) | d1 (mm) | A (mm) |
|------------|-----------|-----------|--------|---------|--------|
| 1600       | DN 40     | DN 40     | 56     | 48      | 13     |
| 1601       | DN 50     | DN 50     | 68     | 61      | 14     |
| 1602       | DN 100    | DN 100    | 121    | 114     | 20     |

**Temperature Class Table**

| STD. MODEL                             | DX-ETT (Metal)          |
|----------------------------------------|-------------------------|
| Working temperature                    | (-) 50 °C... (+) 395 °C |
| Without opening the cover standby time | 30 min.                 |

Thermal Protection Insurance is 105 °C

| (-) 20° C < T Ambient < (+) 60° C Working Temperature: (-) 50 °C... (+) 395 °C GRUP II |                                                      |                   |
|----------------------------------------------------------------------------------------|------------------------------------------------------|-------------------|
| DX-ETT (Metal)                                                                         |                                                      |                   |
| T Ambient<br>MAX. AMBIENT TEMPERATURE<br>ZONE 21 / 1                                   | T Process<br>MAX. PROCESS TEMPERATURE<br>ZONE 20 / 0 | TEMPERATURE CLASS |
| 60°C                                                                                   | <80°C                                                | T6                |
| 60°C                                                                                   | <95°C                                                | T5                |
| 60°C                                                                                   | <130°C                                               | T4                |
| 60°C                                                                                   | <195°C                                               | T3                |
| 60°C                                                                                   | <295°C                                               | T2                |
| 60°C                                                                                   | <395°C                                               | T1                |

| (-) 20° C < T Ambient < (+) 60° C Working Temperature: 50 °C... (+) 395 °C GRUP III |                                                      |                   |
|-------------------------------------------------------------------------------------|------------------------------------------------------|-------------------|
| DX-ETT (Metal)                                                                      |                                                      |                   |
| T Ambient<br>MAX. AMBIENT TEMPERATURE<br>ZONE 21 / 1                                | T Process<br>MAX. PROCESS TEMPERATURE<br>ZONE 20 / 0 | TEMPERATURE CLASS |
| 60°C                                                                                | <60°C                                                | T 60°C            |

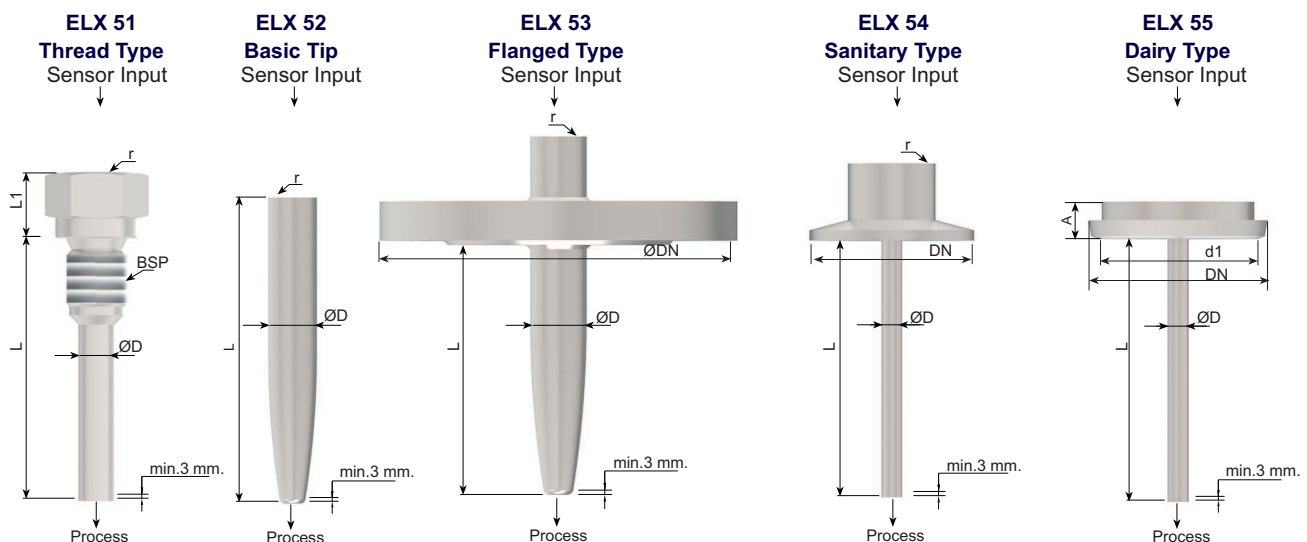
## RTD CABLES

Different section copper wires are used between resistance thermometer and device. The section of wires is important. Generally, 0,2 OHM resistance, 2 x 1,5 mm section copper wires are preferred. Up to 10 m. 2 wires, up to 150 m. 3 wires, over 150 m. 4 wires cable should be used.

**ETK - RTD - Silicon - With Silicon Isolation - 2 Damarlı - 1.5 mm Sectioned - numerous wires**

**Thermowell ELX 51, 52, 53, 54**

(Can be produced using requested diemensions and materials. ) **Please see detailed instructions.**



Order Form : **Please consider sample models when coding!..**

## 1 MODEL DX-ETT

Thread Type.....01  
Thread Type.....02  
Cooling Type.....03

Flanged Type.....04  
Fof Food Industry Type.....07

## 2 CERTIFICATE

None.....0

(EN10204-3-1) Material Certification.....1

## 3 HOUSING

Aluminium Housing , B22x , IP66 / 68.....750

Special.....x

## 4 ELECTRICAL CONNECTION

Terminal (For Housing Models).....00

Special Cable.....x  
Special Socket.....x

## 5 NUMBER OF SENSOR

Single Sensors.....1  
Double Sensors.....2

B Class Sensor (Std.).....B  
A Class Sensor (Std.).....A  
Special.....x

## 6 OUTPUT

4-20 mA Two Wire.....19  
4-20 mA Three Wire.....20  
0-10 V Three Wire .....21  
0-20 V Three Wire.....22

Pt-100 (Class A) .....41  
Pt-100 (Class B).....42  
Special.....x

## 7 CONNECTION MEASUREMENT (Connection has been welded with sensor)

1/2"BSP.....0004  
3/4"BSP.....0005  
1"BSP.....0006  
DN 25 PN16 Flanged ISO 1092-1.....0502  
DN 50 PN 16 Flanged ISO 1092-1.....0505  
DN 25 Clamp ISO 2852.....1500  
DN 32 Clamp ISO 2852.....1501  
DN 50 Clamp ISO 2852.....1502  
DN 65 Clamp ISO 2852.....1503

DN 25 PN40 Flanged ISO 1092-1....0702  
DN 32 PN40 Flanged ISO 1092-1....0703  
DN 50 PN40 Flanged ISO 1092-1....0705  
DN 80 PN40 Flanged ISO 1092-1....0707  
DN 100 PN40 Flanged ISO 1092-1....0708  
DN 50 ANSI 150 Flanged .....1005  
DN 80 ANSI 150 Flanged .....1007  
DN 100 ANSI 150 Flanged .....1008  
Special.....x

## 8 CONNECTION MATERIAL

|                           |     |              |   |
|---------------------------|-----|--------------|---|
| 304 Stainless Steel.....  | 001 | Special..... | x |
| 316 Stainless Steel ..... | 002 |              |   |

## 9 PROTECTIVE SHEATING DIAMETER (PIPE SIZE) (mm)

|            |    |              |    |
|------------|----|--------------|----|
| 6 mm.....  | 06 | 12 mm.....   | 12 |
| 8 mm.....  | 08 | 14 mm.....   | 14 |
| 9 mm.....  | 09 | 15 mm.....   | 15 |
| 11 mm..... | 11 | 22 mm.....   | 22 |
|            |    | Special..... | x  |

## 10 EXTERIOR PROTECTIVE SHEATH (PIPE MATERIAL)

|                          |     |                          |     |
|--------------------------|-----|--------------------------|-----|
| None.....                | 000 | 321 Stainless Steel..... | 005 |
| 304 Stainless Steel..... | 001 | PTFE.....                | 066 |
| 316 Stainless Steel..... | 002 | Special.....             | x   |

## 11 STEM LENGHT (mm) L

|             |    |              |     |
|-------------|----|--------------|-----|
| 15 mm.....  | 01 | 400 mm.....  | 40  |
| 25 mm.....  | 02 | 500 mm.....  | 50  |
| 50 mm.....  | 05 | 710 mm.....  | 71  |
| 100 mm..... | 10 | 1000 mm..... | 100 |
| 160 mm..... | 16 | 1200 mm..... | 120 |
| 200 mm..... | 20 | 1500 mm..... | 150 |
| 250 mm..... | 25 | Special..... | x   |
| 300 mm..... | 30 |              |     |

## 12 OPTIONAL

|                                                        |     |                 |          |
|--------------------------------------------------------|-----|-----------------|----------|
| None.....                                              | / 0 | Thermowell..... | / ELX ?? |
| Shetter (For the outside of the tank) 304 St.St. ./ K2 |     | Special.....    | / x      |

## SAMPLE

DX-ETT 02-0-750-00-1/B-19-004-001-08-000-05/0

DX-ETT 02 B Sınıfı 4-20 mA , 304 Stainless Steel , 1/2" BSP , Ø 8 mm , L= 500 mm