

TEMPERATURE SENSING TECHNOLOGY



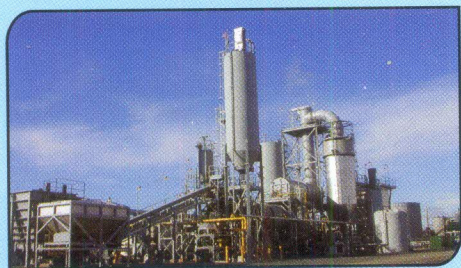
STEEL



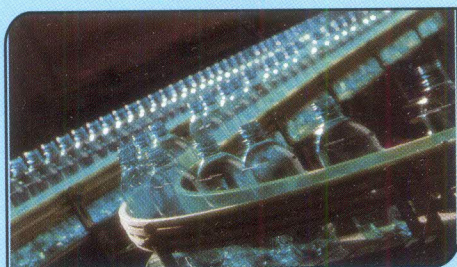
Power



Chemicals



Cement



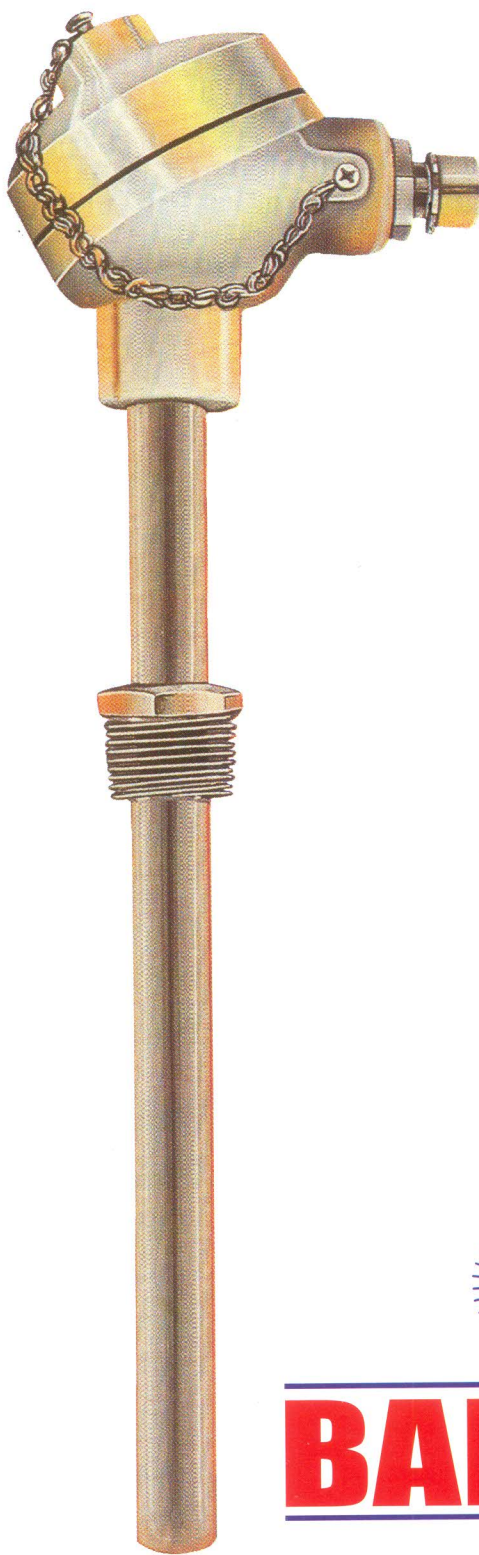
Glass



Oil & Gas



Food



BARTEM

TEMPERATURE SENSOR
for
RELIABILITY AND ACCURACY

Process control instrumentation depends on various kinds of sensors like Temperature, Pressure, Flow Vibration etc. 'Bartem Instruments' brings to you reliable temperature sensors and its accessories.

Our Thermocouple and RTD assemblies are manufactured using high grade materials obtained from the best manufactured around the globe, under strict Quality Control procedures.

Thermocouple

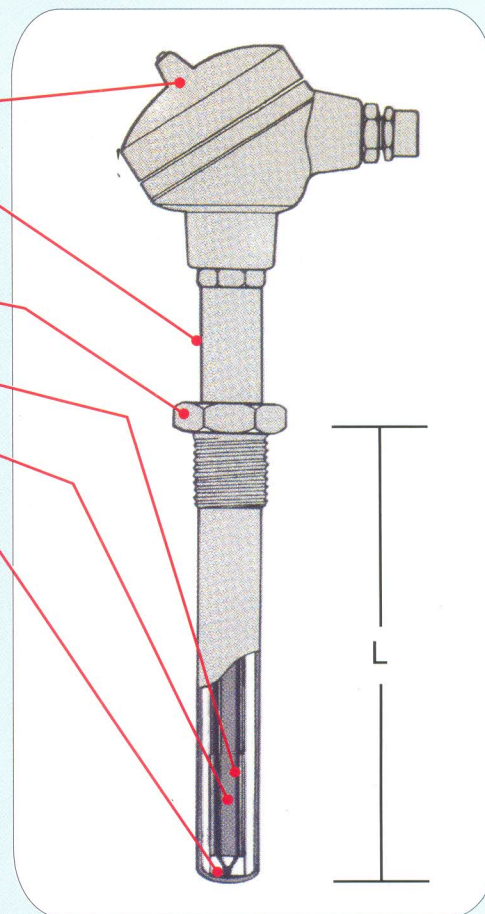
1. Aluminum, Cast Iron, Die Cast Moisture proof/Explosion proof, Simplex/Duplex Junction Head, with complete terminal block.
2. Protection tubes in various materials such as mild steel, S.S., Chrome alloys and special material of different diameters, length and wall thickness, spun, welded or with closed ends.
3. Gland or Flange-adjustable or welded can be provided in different materials for mounting.
4. Elements conform to international standards, in 18 SWG to 10 SWG (3.25 mm) depending on applications. Special diameter on request.
5. Inner protection tube will be provided depending on the application.
6. Junctions are fused in a Helium atmosphere using specialized techniques.

Material selection depending on the environment, process and temperature.

Mineral insulated material sheathed Thermocouple assemblies can be supplied for operation from -200°C to $+1100^{\circ}\text{C}$.

Ordering information should contain :

- ◆ Immersion Length-L
- ◆ Temperature Range
- ◆ Mounting arrangement
- ◆ Termination arrangement
- ◆ Process media
- ◆ General environment details



Resistance Temperature Detectors

Bartem Resistance Temperature Detectors (RTD's) are specially designed to ensure precise and repeatable temperature versus resistance Characteristics.

The sensors are constructed in a unique stain free manner, and used high quality RTD elements. Ceramic wire wound elements, Flat film technology elements and anti vibration elements are used as per customer's requirements to ensure the most suitable specifications is supplied.

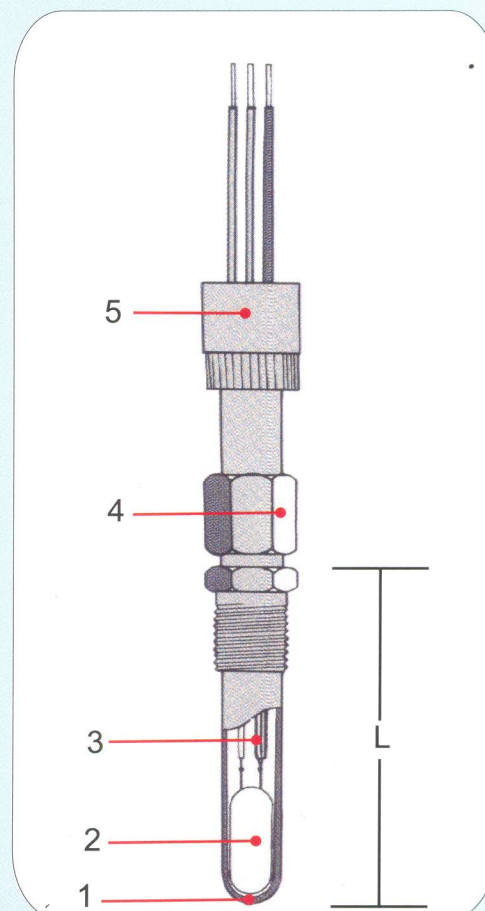
We maintain the standards of IEC-751 and DIN-43760 of RTD elements

Supplied in 2,3,4, wire configurations in cylindrical, strip type, flat type or button type to suit wide range of applications in single, duplex and triplex variants. Mineral insulated RTD's are also supplied.

1. S.S. Metal sheath closed at one end, in suitable diameter and shape as per requirements.
2. Simplex, Duplex and Triplex elements in various sizes depending on the size of the assembly in 2,3,4, wire configurations.
3. The gap between the sheath and the element is normally filled with a moisture-free inert material and sealed.
4. Adjustable, Fixed gland/Flange to meet most of the mounting arrangements.
5. Termination arrangement can be aluminum die cast moisture-proof head

Ordering information should preferably contain the following :

- ◆ Immersion Length-L
- ◆ Mounting arrangement
- ◆ Termination arrangement



TECHNICAL REFERENCES

THERMOCOUPLE WIRE CALIBRATIONS

TYP	CONDUCTOR	CALIBRATION	EQUIVALANT CALIBRATION	TEMP RANGE °C
K	NiCr-NiAL	IS:2054	ITS 90 ANSI MC 96.1 DIN 43710	0-1200
T	Cu-CuNi	IS:2056	Cu-CuNi	0-400
J	Fe-CuNi	IS:2057	Fe-CuNi	0-900
R	PtRh 13%-Pt	IS:2055	PtRh 13%-Pt	0-1600
S	PtRh 10%-Pt	IS:2055	PtRh 10%-Pt	0-1600
B	Pt Rh 30% Pt Rh 6%	IS:6720	Pt Rh 30% Pt Rh 6%	0-1800
N	NiCrSi-NiSi		NiCrSi-NiSi	0-1200

SHEATH MATERIALS

SHEATH	MELTING POINT °C	USABLE TEMP °C	CHARECTERSTICS
SS-304	1400	900	High resistance to heat and corrosion
SS-316	1400	900	Excellent resistance to Heat, Acids & Alkalies
SS-321	1400	900	Excellent resistance to corrosion
SS-310	1410	1150	Good oxidation resistance and sulphur atmospheres at low temperature
HRS-446	1400	1150	Excellent Oxidation resistance at elevated temperature and sulphur atmosphere
Inconel 600/800	1410	1150	Excellent Oxidation resistance (do not use in sulphur
High Alumina 610		1500	General purpose
Sintered Alumina 710/C-799	1800	1500	Excellent thermal, mechanical electrical and corrosion resistant
Silicon Carbide (sic) Recrystallised Sic	1850	1500	outstanding resistance to thermal shock, good mechanical strength

Thermowell

Custom built machined from bar stock of Mild steel, various grades of S.S., nickel iron alloys and in special materials of powder metallurgy to meet various applications.

General Application Notes

- ☞ the main factors for selection of Temperature Sensors will depend on temperature range, chemical composition of temperature zones, mechanical dimensions and strength etc.
- ☞ It is very essential to establish a good thermal linkage between the sensor and measurement region to help the sensor collect the temperature effectively.
- ☞ Thermocouple and Resistance Thermometry Provide the best known method of Temperature measurement for most applications. However a good sensor should be supported by correct transmission and quality secondary instrumentation.

Suitable compensating cable for connection between sensor and instrument will be supplied with various sheathings like PVC/Fiberglass/Asbestos etc. Metal braiding and screening can also be provided.

Bartem Instruments is expanding to bring international quality temperature indicating controlling systems.

Note : The basic data provided is only for guidance. For more information on your application please contact us.

