



An ISO 9001:2000 Certified Company

Nippon Technologies



TEL : 2876 5709
2872 7294
FAX : 5574 1527

Mfgs. & Designers : **Instruments, SCADA & Automation Systems, Sensors**

106, Shivsagar Indl. Estate, Opp. Kotkar Indl. Estate,
Kotkar Road, Goregaon (E), Mumbai - 400 063. India.

E-mail : nippontech@vsnl.com

Website : www.nipponinstruments.com

Temperature Sensors



ABOUT US

- We are in the field of manufacturing entire range of Temperature Sensors, Thermowells, Thermocouple Grade Extension & Compensating Cables, RTD Signal Cables & Accessories since 1993.
- The sales of more than 2,25,000 Sensors throughout India & even abroad is the testimony of Quality of our Products & Services.
- The custom-built instrumentation & Sensors is what we like the most and we can cater to any of your applicational requirements.
- We have a wide Sales/Service Network (our all Associates are Engineers) to support you throughout the country within the shortest time span.
- Our manufacturing bases are well equipped with necessary testing facilities like Calibrators, mV source, RTD source, precision multimeters, insulation/HV testers, constant temp. oil bath, high temp. furnace, gauges, dimension measuring instruments etc... They are traceable to N.P.L., Delhi and tested at E.R.T.L. / I.D.E.M.I.

Features

- Sensors in any type, size, shape and M.O.C. Each Sensor is tested and Calibrated with E.R.T.L. / I.D.E.M.I. certified Calibrators.
- Very high accuracies and very small time constants due to improved manufacturing process like Argon Welding, Brazing and High Quality Imported Components.
- Special Sensors like Duplex, Glass Embedded, skin type, multipoint assemblies, Pt46, group IIC etc... can be supplied.
- Entire Microprocessor / Microcontroller Instrumentation Range manufactured by us support these Sensors.
- Thermowells to suit any size and shape of Sensors.
- EX-STOCK DELIVERIES OF STANDARD PRODUCTS,
- SHORT DELIVERIES FOR CUSTOM BUILT SENSORS & THERMOWELLS.
- Sold more than 2,25,000 Sensors till date (Nov. 2002).

TIPS FOR SELECTION

- 1 Thermocouples are preferred due to :
 - a. Faster response
 - b. Wide Temperature Range
 - c. Lower Costs
 - d. Flexibility in Designing
 - e. Higher Mechanical Strengths
- 2 RTD's are preferred due to :
 - a. Better Accuracies
 - b. Better Stability
 - c. Repeatability
- 3 Smaller Sheath Diameters will give faster response. We can offer sheath dia. as low as 1.5 mm.
- 4 Ungrounded Junctioned Sensors, though electrically isolated have sluggish response time. Electrical Isolation better than 700 M at 500 VDC.
- 5 RTD's with 3-Wire Configuration compensates lead Length Resistance Effect on temperature measurements as compared to 2-Wire Configuration.

Thermocouple & RTD Assemblies



Sensor with PCB Termination,
built-in **2-Wire Transmitter**



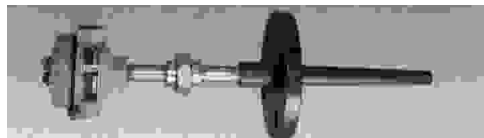
Complete assembly in stainless steel
Including head, nipple-union-nipple & thermowell



Flanged thermowell, with open end **ceramic** tube
having two drilled hole



Coted with cobalt base alloy
Tungsten carbide

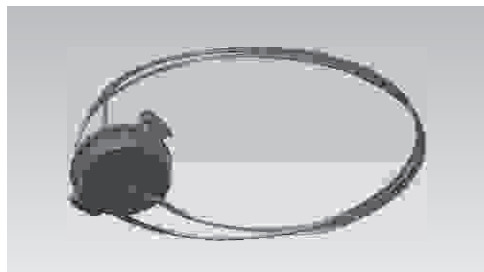


Coated with PTFE



Metal sleeve in Monel / Nickel /
Titanium / Tantalum etc...

Mineral Insulated Thermocouple, RTD's



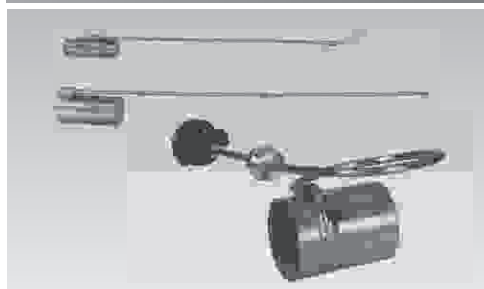
- Flexible
- SS316 / Inconel
- Simplex / Duplex
- Grounded / Ungrounded
- Flameproof (,IIA, IIB, **IIC**)
- Non Flameproof / Weatherproof
- Availabe upto 15 mtrs

Custom Engineered Sensors



- Pt46 RTD
- Steel Head
- Flanged Head
- PCB Termination

Skin Thermocouple, RTD's

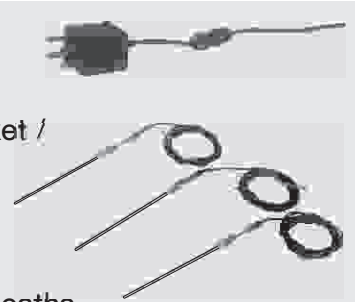


- Surface Temperature Measurement
- MI Thermocouple / RTD's with Welding Pad,
Threaded Process Connection
- Simplex / Duplex
- Grounded / Ungrounded

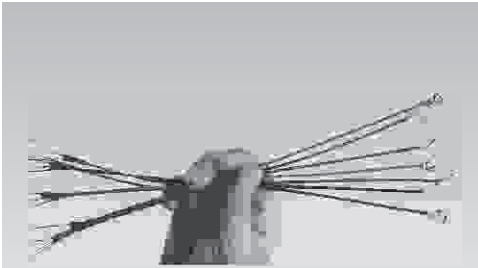
Standard Termocouple, RTD's



- J / K / T / E
- RTD's ● R / S for High Temperature
- Simplex / Duplex
- Potseal / Transition Joint / Plug Socket / Ceramic Block / Flying Leads
- Fast Response, Accurate
- Grounded / Ungrounded
- SS304 / SS316 / Inconel Sheaths
- High Temperature Ceramic Tubes Sheaths



Washer Thermocouples



- J or K
- Fibre Glass Sleeves
- S.S. Braided Sleeves
- Suitable for 1/4" Screw Size, Other Sizes on request
- Suitable upto 400 °C

Bayonet Thermocouples



- J (Fe/K) or K (Cr/Al) or T
- Wide variety of Immersion Lengths, Shapes, Sizes, Styles & Mounting Arrangements
- Single & Dual Element Probes
- Measures Temperatures at cross head, die & barrels
- Also Available for Direct Plastic-melt Temp. measurement

Characteristics

Limits of Error for Thermocouples

THERMOCOUPLE TYPE	TEMPERATURE RANGE °C	STANDARD	SPECIAL
		Whichever is Greater	Whichever is Greater
T	0-350	±1 °C or ± 0.75%	±0.5 °C or ± 0.4%
J	0-750	±2.2 °C or ± 0.75%	±1.1 °C or ± 0.4%
E	0-900	±1.7 °C or ± 0.5%	±1 °C or ± 0.4%
K	0-1250	±2.2 °C or ± 0.75%	±1.1 °C or ± 0.4%
R or S	0-1450	±1.5 °C or ± 0.25%	±0.6 °C or ± 0.1%
B	800-1700	±0.5%	---

Reference Junction 0 °C As per ANSI MC 96.1 (1982)

Limits of Error for Platinum-RTD Elements

MEASURING TEMPERATURE °C	PERMISSIBLE DEVIATIONS			
	CLASS A		CLASS B	
	Ω	°C	Ω	°C
-200	± 0.24	± 0.55	± 0.56	± 1.3
-100	± 0.14	± 0.35	± 0.32	± 0.8
0	± 0.06	± 0.15	± 0.12	± 0.3
100	± 0.13	± 0.35	± 0.30	± 0.8
200	± 0.20	± 0.55	± 0.48	± 1.3
300	± 0.27	± 0.75	± 0.64	± 1.8
400	± 0.33	± 0.95	± 0.79	± 2.3
500	± 0.38	± 1.15	± 0.93	± 2.3
600	± 0.43	± 1.35	± 1.06	± 3.3

As per DIN 43760, BS 1904

Thermowells



- Bar Stock / Fabricated
- Flanged, Threaded Well, Socket Weld
- Available with Protective coating like PTFE, Epoxy etc...



Process Fittings, Glands



- Fixed & Adjustable Process Fittings (1/4", 1/2", 3/4", 1" Standard, Others on request)
- Nipple - Union - Nipple
- Cable Glands, FLP Glands

Thermocouple Head

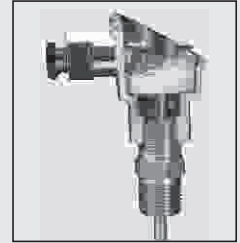


- Simplex / Duplex
- Flameproof / Weatherproof
- II-C Heads
- Steel Casted Heads

Ceramic Blocks



- 3-Wire / 6-Wire
- Spring Loaded



Male/Female Plug Sockets



- Quick Disconnect Mating Connectors
- Colour Coded
- Heavy Duty
- High Purity Thermocouple, Alloy Pins & Sockets

Cable



- Compensating Grade
- Extension Grade
- Wide Variety of Insulation



nippon's SALES OFFICES

Surat : Road No. 6, Udhna.
Surat , Gujarat.
Tel : (0261) 2278422 / 6544180
Fax : (0261) 2279423
E-mail : darsh20@satyam.net.in
Pune : (9520)24376245

Bardoli : 09824111394
Kolkata : 09831057357 / 9831152530
Hyderabad : (040)27173714 / 24
Goa : (0832)2312710 / 6702 / 7399
Allahabad : (0532)2613746
Bangalore : 09341875222

Durg : (0788)2211212 / 3105117 / 9827111400
Delhi : (011)26903568 / 26340095 / 96 / 97
Gwalior : (0751)2231951 Fax : 0751-2344889
Chennai : 9382744155 Telefax.: 044-22292383
Jamshedpur : (0657)2420672 Fax : 0657-2433977
Visakhapatnam : (0891)2702415 / 9441944947