

NOBLE METAL THERMOCOUPLE WITH TERMINAL HEAD AND PROTECTION TUBE

How to build a part number:

To order an Applied Sensor Technologies temperature sensor, select the requirements for the categories listed below and fill in the corresponding boxes with your selection. Don't see exactly what you need? Give us a call!

SENSOR TYPE	STYLE	PROTECTION TUBE CONFIGURATION	CALIBRATION	WIRE GAUGE	BEAD MATERIAL	PRIMARY TUBE LENGTH	OPTIONS
BTC	81N	00A1	R	24	A	L12	PM02

SENSOR TYPE

BTC – Beaded construction

STYLE

81N – Noble metal element with primary protection tube only; threaded connection between head and tube; NEMA 4 aluminum terminal head and ceramic terminal block; 3/4" NPT conduit connection; gasketed screw cover with stainless steel chain

PROTECTION TUBE CONFIGURATION

(e.g., **00A6** = 3/8" O.D. tube with 6" nipple and 1/2" NPT connection. See page 2 for available combinations of OD and thread size)

Protection tube diameter

- 0** – 3/8" O.D.
- 1** – 1/2" O.D.
- 2** – 11/16" O.D.
- 3** – 3/4" O.D.

Process thread size and material

Carbon Steel

- 0** – 1/2" NPT
- 1** – 3/4" NPT
- 2** – 1" NPT

316 Stainless steel

- 3** – 1/2" NPT
- 4** – 3/4" NPT
- 5** – 1" NPT

Protection tube material

- A** – Alumina (98.8% aluminum oxide)
- M** – Mullite (not recommended over 1200°C)

Connection Length ("CL")

- 1** – hex fitting only
- #** – length of nipple

CALIBRATION

Single junction

- R** – Platinum and Platinum/13% Rhodium
- S** – Platinum and Platinum/10% Rhodium
- B** – Platinum/6% Rhodium and Platinum/30% Rhodium

Dual junctions

- RR**
- SS**
- BB**

WIRE GAUGE

24 – 24 AWG

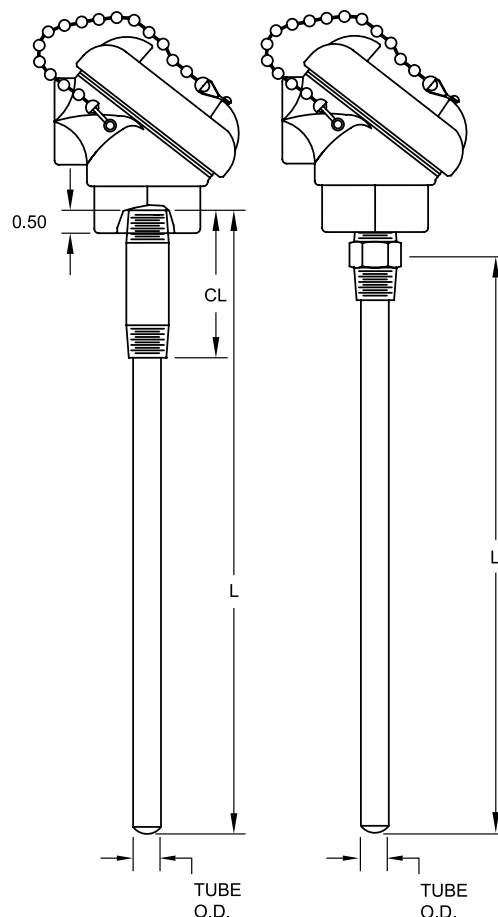
BEAD MATERIAL

A – Alumina beads (0.125" OD for single junction, 0.188" for dual)

PROTECTION TUBE LENGTH

L# – (e.g., L12 = 12" protection tube length)

OPTIONS – see page 2

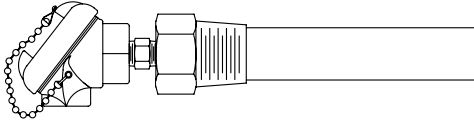


GENERAL OPTIONS

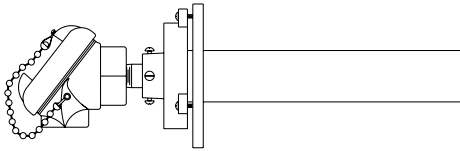
- PM02 Stainless steel tag and wire
 PM30 Misc. special text
 PM33 Calibration, NIST traceable; specify calibration point(s)

For additional Noble Metal Thermocouple styles, see:

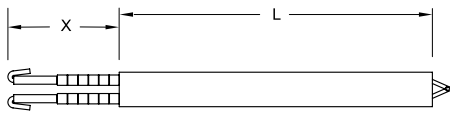
Style 81B – Secondary tube with mounting bushing



Style 81F – Secondary tube with slip flange mounting



Style 51 – Replacement Sensor



TERMINAL HEAD OPTIONS

OPTION CODES	PROCESS CONNECTION	CONDUIT CONNECTION	MAX. TEMPERATURE
Cast Aluminum (std. style 81 head is 1/2" x 3/4")			
PH01	1/2"	1/2"	750°F
Cast Iron			
PH04	1/2"	1/2"	750°F
PH05	1/2"	3/4"	750°F
Aluminum, heavy duty head			
PH07	1/2"	1/2"	750°F
PH08	1/2"	3/4"	750°F
Cast Iron, heavy duty head			
PH10	1/2"	1/2"	750°F
PH11	1/2"	3/4"	750°F
Aluminum head, hinged cover			
PH45	1/2"	3/4"	600°F
Aluminum head, used with transmitter			
PH46	1/2"	3/4"	300°F
316 Stainless Steel			
PH47	1/2"	3/4"	300°F

Notes:

- For epoxy-coated, NEMA 4X head, add suffix "E" to part numbers PH01 through PH11.
- See Accessories section for outline drawings and additional specs.

Notes:

- Not all materials and process thread sizes are compatible with all tubing O.D.'s. Use the chart below as a guide for the possible combinations.

PROCESS THREAD (NPT)

TUBE O.D.	Carbon steel			316 Stainless		
	0 (1/2")	1 (3/4")	2 (1")	3 (1/2")	4 (3/4")	5 (1")
0 (3/8")	Yes			Yes		
1 (1/2")	Yes	Yes		Yes	Yes	
2 (11/16")		Yes			Yes	
3 (3/4")		Yes	Yes		Yes	Yes

- Applied Sensor Technologies recommends alumina protection tubes when using platinum thermocouples. Mullite, although less expensive when compared to alumina, can contaminate the platinum, causing drift.
- In many cases platinum thermocouples can be recycled, thereby reducing the long-term overall cost. Please contact Applied Sensor Technologies for further information.
- Applied Sensor Technologies offers many other temperatures sensor designs and technologies, including base metal thermocouples, RTDs, thermistors and Integrated Circuit chips, along with a full line of accessory items such as thermowells, transmitters, etc. Please visit our website or contact us for further information.