



NTC THERMISTORS: TYPE AB6

DESCRIPTION:

Type AB6 thermistor assemblies consist of small Thermoprobes or Thermobeads which are welded to insulated extension leads. The Thermobeads or Thermoprobes are hermetically sealed in glass and have fine diameter (.0007" to .004") platinum alloy leads. The platinum leads are cut short and welded to insulated extension leads and the joints are covered in one of several insulation types depending upon the application or environment. The assembly is then ready for insertion into hypodermic needles, catheters or other small housings which require extended leads. Any of the Thermobeads or Thermoprobes listed in Table I may be used in a Type AB6 assembly. Please consult the data shown for specific electrical or mechanical properties for the thermistor selected.

APPLICATIONS:

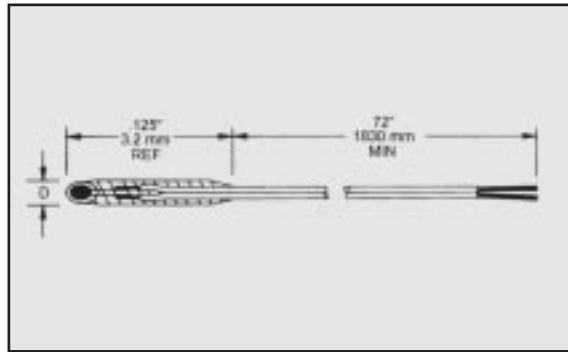
Thermobead and Thermoprobe assemblies are used where the small thermistor must be further connected to longer leads, for insertion into deep wells and cavities, or threading into long tubes. They may also be used, as is, for applications which require fast response measurements in confined spaces. With these assemblies, the fast response of the small thermistor is available without sacrificing handleability. The added leads and insulation allows the minute assemblies to be handled in further assembly operations, such as insertion into catheter lumens. The same electrical characteristics that apply to the selected thermistor: resistance value, resistance ratio, stability; are unaltered in the assembly.

TYPE A INSULATION AB6A8

Thermistor welded to 38 gauge, nickel alloy 200, bifilar heavy isomid insulated extension leads, 6 1/2 ft ± 1/2 ft long. Liquid epoxy resin web over weld joints provides some strain relief.

For insertion into plastic tubing or other insulators.

Maximum continuous operating temperature is 105°C.

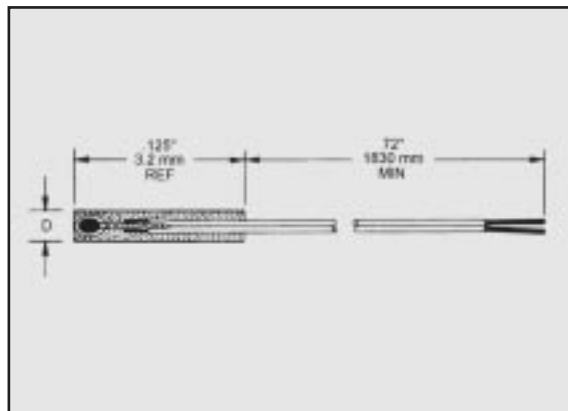


TYPE B INSULATION AB6B2

Thermistors welded to 38 gauge, nickel alloy 200, bifilar, heavy isomid insulated extension leads, 6 1/2 ft ± 1/2 ft long. Polyimide sleeve is epoxied over weld joints and thermistor, for strain relief and insulation.

For insertion into metal housings or tubings. Bead covered for maximum strain relief and protection.

Maximum continuous operating temperature is 175°C.

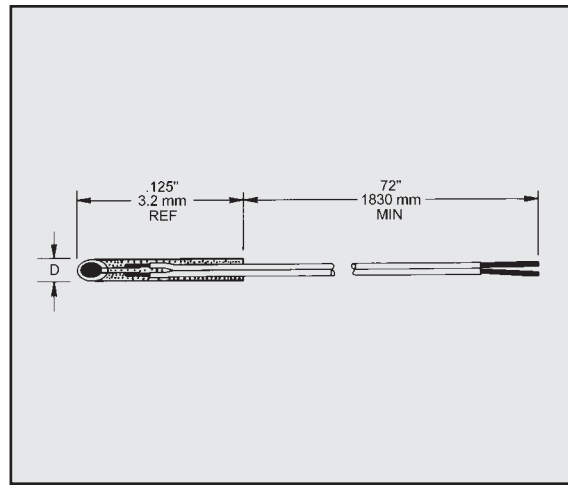


TYPE B INSULATION AB6B4

Thermistor welded to 38 gauge, nickel alloy 200, bifilar, heavy isomid insulated extension leads, 6½ ft. ±½ ft. long. Polyimide sleeve is epoxied over weld joints and up to back of thermistor bead, for strain relief and electrical insulation.

For insertion into metal housings or tubings with close tolerances. Bead exposed as much as possible for faster response.

Maximum continuous operating temperature is 175°C.

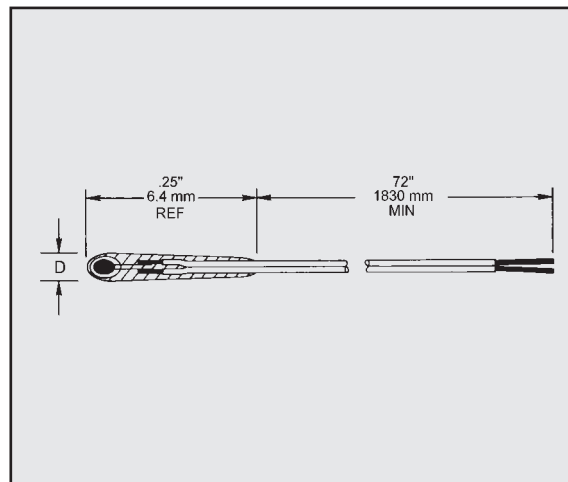


TYPE C INSULATION AB6C8

Thermistor bead welded to 38 gauge, nickel alloy 200, bifilar, heavy isomid insulated extension leads, 6½ ft. ±½ ft. long. Multiple conformal dipcoats of liquid epoxy resin for complete insulation when immersed in fluids.

For use where fastest response times are required and assembly will be fully immersed in conductive fluids.

Maximum continuous operating temperature is 105°C.

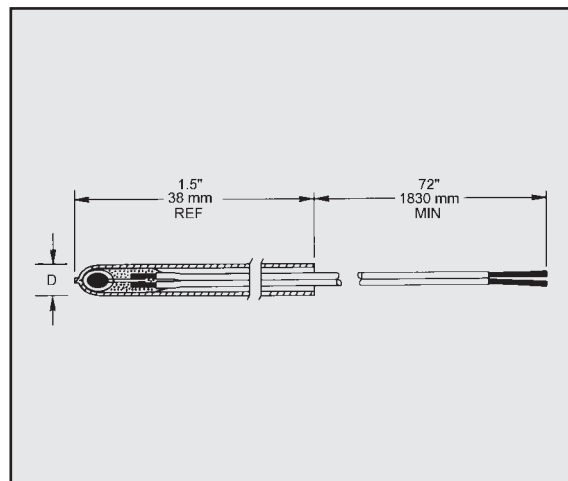


TYPE D INSULATION AB6D2

Thermistor welded to 38 gauge, nickel alloy 200, bifilar, heavy isomid insulated extension leads, 6½ ft. ±½ ft. long. Small web of epoxy painted over weld joints for electrical isolation and strain relief, heat sealed mylar sheath over bead.

For fast response times, limited depth of immersion, and best long term immersion qualities.

Maximum continuous operating temperature is 125°C.

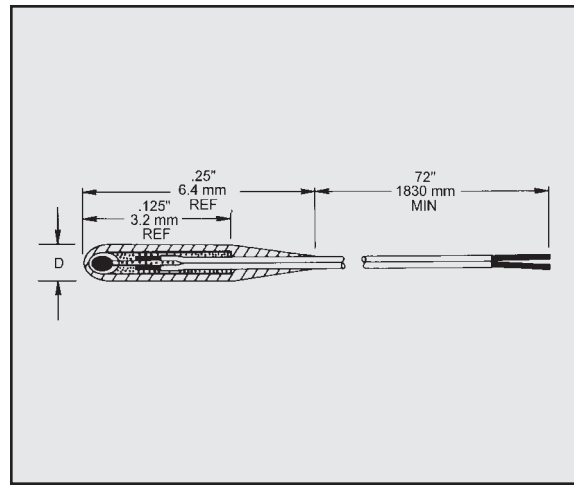


TYPE E INSULATION AB6E3

Thermistor welded to 38 gauge, nickel alloy 200, bifilar, heavy isomid insulated extension leads 6 $\frac{1}{2}$ ft. \pm 1/2 ft. long. Polyimide sleeve is epoxied over welds for strain relief and electrical insulation, multiple conformal dip coatings of liquid epoxy resin for complete immersibility in conductive fluids.

For use in applications where fast response, good strain relief and full immersion are required.

Maximum continuous operating temperature is 105°C.

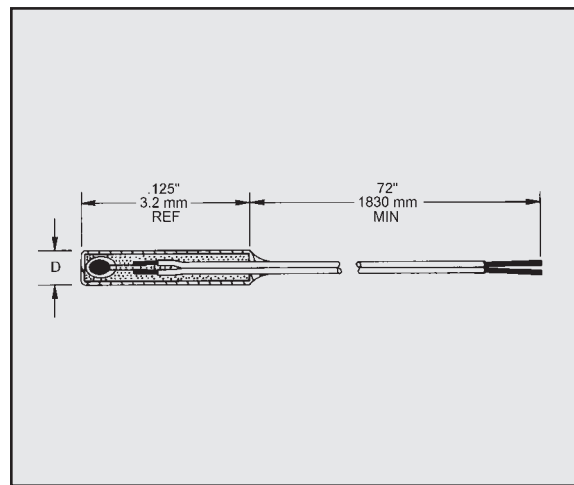


TYPE E INSULATION AB6E5

Thermistor welded to 38 gauge, nickel alloy 200, bifilar, heavy isomid insulated extension leads, 6 $\frac{1}{2}$ ft. \pm 1/2 ft. long. Polyimide sleeve is epoxied over bead and weld joints for strain relief and insulation. Liquid epoxy resin conformal dipcoats applied for moisture sealing.

For use where assembly will be subjected to limited fluid immersions and where maximum strain relief is also required with minimum outside diameter.

Maximum continuous operating temperature is 105°C.



TYPE E INSULATION AB6E8

Thermistor welded to 38 gauge, nickel alloy 200, bifilar, heavy isomid insulated extension leads 6 $\frac{1}{2}$ ft. \pm 1/2 ft. long. Polyimide sleeve is epoxied over welds and thermistor for strain relief and electrical insulation, multiple conformal dip coatings of liquid epoxy resin for complete immersibility in conductive fluids.

For use in applications where superior strain relief and full immersion are required.

Maximum continuous operating temperature is 105°C.

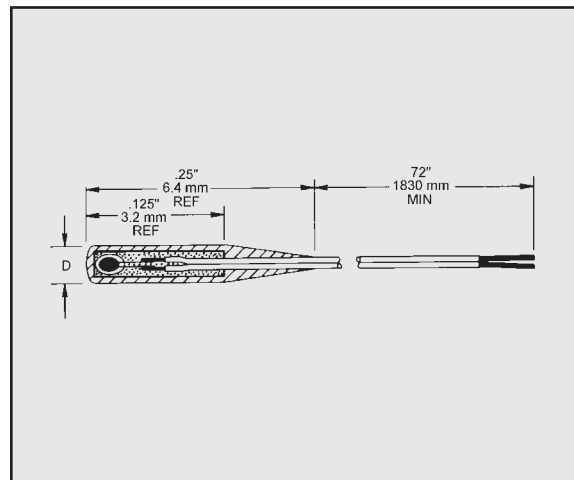


TABLE I - STANDARD SIZES OF TYPE AB6 THERMISTOR ASSEMBLIES

Thermistor Type	Maximum Thermistor Diameter	A8	Maximum Diameter of Assembly						
			B2	B4	C8	D2	E3	E5	E8
B05	.0065	.013	.016	.014	0.21	.033	.020	.019	.022
B07	.0085	.013	.016	.014	.021	.033	.020	.019	.022
B10	.0115	.013	.018	.014	.021	.033	.020	.022	.024
B14	.016	.016	.021	.016	.024	.036	.022	.025	.027
B35	.042	.042	0.50	.042	.050	.062	.048	.054	.056
B43	.050	.050	.056	.050	.058	.070	.056	.060	.062
BR11	.012	.014	.018	.014	.022	.034	.020	.022	.024
BR14	.016	.016	.021	.016	.024	.036	.022	.025	.027
BR16	.017	.017	.022	.017	.025	.037	.023	.026	.028
BR23	.025	.025	.032	.025	.033	.045	.031	.036	.038
BR32	.033	.033	.040	.033	.041	.053	.039	.044	.046
BR42	.046	.046	.053	.046	.054	.066	.052	.057	.059
BR55	.060	.060	.070	.060	.068	.080	.066	.074	.076
P20	.020	.020	.026	.020	.028	.040	.026	.030	.032
P25	.025	.025	.031	.025	.033	.045	.031	.035	.037
P30	.030	.030	.036	.030	.038	.050	.036	.040	.042

CODING:

- 1) Select the appropriate thermistor bead or small probe from one of the thermistor types shown in Table 1. Refer to the appropriate catalog page for electrical and mechanical properties of the thermistor selected and specific ordering information for that thermistor.
- 2) Select one of the assembly types shown and use the assembly prefix listed for that type followed by the thermistor part number.

Example: AB6A8 - BR16KA103N

This assembly uses a .016" nominal diameter, ruggedized Thermobead (Type BR16, pages 00-00) with adjacent cut leads, 10k ohms ± 25% at 25° C nominal resistance, welded to standard 6½ ± 1/2 foot long, 38 gauge, nickel alloy 200, bifilar, heavy isomid insulated extensions leads with epoxy resin web between the welded joints for strain relief.

SPECIAL CODING:

The assembly types shown represent the most standard selections of the many combinations of thermistors and materials which THM manufactures. These selected types are suitable for many applications, however, there are always special requirements which need to be satisfied for some applications. A partial listing of alternate materials and options is given below to assist the designer for applications in which the standard units shown are not suitable. If assistance is required in the selection of materials or design of the assembly, please contact our applications Engineering Department and detail the exact requirements or specifications desired.

ALTERNATE MATERIALS SELECTION

The alternate materials listed are available for Type AB6 thermistor assembly orders. Other materials may be available to the designer or user upon special order. Please allow additional time for the completion of special assembly orders.

TYPE A INSULATIONS

A web of insulating material is put over the weld joints for strain relief. Available insulating materials with maximum temperature ratings;

VINYL	(60° C)
POLYURETHANE	(105°C)
SILICONE RUBBER	(260°C)
EPOXIES	(FROM 105°C to 260° C) - specify max temperature required.

TYPE B INSULATIONS

A polyimide sleeve is epoxied over the weld joints for improved strain relief and electrical insulation. The bead may be covered for maximum strain relief or exposed for faster response. Epoxies are generally used to fill the polyimide sleeve and have temperature ratings from 105°C to 260°C.

TYPE C INSULATIONS

Multiple conformal dip coats over the thermistor and welds are used in order to provide fully immersible assemblies. Any of the type A insulating materials may be used for the conformal dip coatings depending upon the application or environment.

TYPE D INSULATIONS

A thermoplastic tubing is heat sealed over the bead or probe thermistor. A small amount of insulating material is applied over the weld joints for electrical isolation. The assembly is not fully immersible over the back end of the tubing. Available heat sealed tubing materials with maximum temperature ratings:

POLYETHYLENE	(80° C)
MYLAR	(125°C)

TYPE E INSULATIONS

A polyimide sleeve is epoxied over the weld joints (as in the type B insulations) and then multiple conformal dip coatings are applied (as in the type C insulations) for fully immersible assemblies. The same insulating material options are available.

INSULATED EXTENSION LEADS

The standard insulated extension lead sub assembly would have 38 gauge (.004" dia.), nickel alloy 200, bifilar, heavy isomid insulation over conductors and a length of $6\frac{1}{2} \pm \frac{1}{2}$ feet. The various options available are listed below. Unless otherwise specified parameters listed in boldface type are used. Other options, including any specified by the customer, are available upon special order.

Wire Gauges

#38 GA (.004"), #40GA (.0031")

Conductors

NICKEL ALLOY 200, nickel alloy 270

Insulation

HEAVY ISOMID for use to 180°C, excellent abrasion resistance, our standard coating.

POLYURETHANE - for use to 105°C, easily stripped, excellent solderability.

POLYIMIDE - for use to 230°C, excellent thermal and dielectric properties, (not recommended for water and certain other conductive fluids)

Construction

BIFILAR parallel conductors, our standard

SINGLE - individually insulated lead-wires

TWISTED PAIR - 0.1 inch lay typical

Length

$6\frac{1}{2} \pm \frac{1}{2}$ feet is standard, specify other lengths as desired. All lengths over one foot are supplied on a plastic bobbin with the wires wrapped so that the thermistor end is removed last.

BOWTHORPE THERMOMETRICS

Crown Industrial Estate, Priorswood Road
Taunton, Somerset TA2 8QY UK
Tel +44 (0) 1823 335200
Fax +44 (0) 1823 332637

THERMOMETRICS, INC.

808 US Highway 1
Edison, New Jersey 08817-4695 USA
Tel +1 (732) 287 2870
Fax +1 (732) 287 8847

KEYSTONE THERMOMETRICS CORPORATION

967 Windfall Road
St Marys, Pennsylvania 15857-3397 USA
Tel +1 (814) 834 9140
Fax +1 (814) 781 7969