



## Features & Options

- Slows/Buffers Temperature Changes in Coolers & Freezers (Caused by Opening and Closing of Cooler/Freezer Door)
- Fluid-Filled Chamber to Mimic Core Temperatures
- Easy Wall Mount or Wire Shelf Hanger
- Decreases False High Limit Alarms
- Available in Stainless Steel or Aluminum

The BAPI Thermobuffer Temperature Sensor is used to simulate more closely the refrigerator contents rather than the refrigerator air temperature. The fluid-filled chamber allows for slower reaction to abrupt temperature changes, yet still maintains long-term accuracy if the change remains permanent. It eliminates the temperature spikes due to frequent refrigerator or freezer door opening and decreases false alarms.

The Thermobuffer comes in three buffer sizes 1", 2" and 4" and is designed to save valuable shelf space by mounting to the wall or by hanger in a refrigerator or freezer. The buffer chamber is machined in 304 Stainless Steel or aluminum and accommodates a variety of temperature sensors or transmitters to interface with all BAS systems.

## Blü-Test Bluetooth® Wireless Temp & Humidity Probe

Commissioning just got easier with BAPI's Bluetooth temp and humidity probe. No need to carry an extra meter because the Blü-Test communicates to your Bluetooth-enabled Smart Phone or Tablet.

**For more info, see the Accessories section.**



### Refrigerator (1" Hanging Bracket) BA/#-TB-M304-1-HB



### Walk-in Freezer (BAPI-Box w/ 4" Cylinder) BA/#-TB-M304-4-BB



### Chest Freezer (BAPI-Box 2 with 2" Probe) BA/#-TB-M304-2-BB2

\*All Passive Thermistors 20KΩ and smaller are CE compliant.

## Specifications

**Sensor:** Thermistor, RTD or Transmitter

**Probe:** Stainless steel

**Wire:** 22 awg stranded, 2 or 3 wires

**Insulation:**

Etched Teflon, PVC or FEP Jacketed

**Buffer Chamber Construction:**

M304..... Bar stock 304 Stainless Steel

MAL ..... Bar stock Aluminum

**Chamber Fluid:** Customer supplied

Glycol mix..... Food grade required

1" Chamber..... ~7 ml of fluid

2" Chamber..... ~24 ml of fluid

4" Chamber..... ~32 ml of fluid

**Enclosure Rating:**

BB..... BAPI-Box, NEMA 4, IP66

BB2..... BAPI-Box 2, NEMA 4, IP66

HB..... Open Hanging Bracket

**Enclosure Material:**

BB & BB2.... Polycarb., UV rated, UL94 V-0

HB..... SS bracket w/steel clip

**Environmental Operating Range:**

Temp. Sensor..... -40 to 185°F (-40 to 85°C)

Temp. Transmitter.... -4 to 158°F (-20 to 70°C)

Humidity..... 0-100%RH, Condensing

**Encl. Dimensions:**

**H x W x D**

BAPI-Box (BB) 5 x 4.1 x 2.5" (127 x 104 x 63.5mm)

BAPI-Box 2 (BB2) 4.9 x 2.8 x 2.35" (125 x 71.6 x 60mm)

(For enclosure dimension drawings, turn to the end of the section.)

**Agency:** \*CE (≤ 20kΩ thermistor's), UL94V-0, RoHS

*Note: Unit requires food grade glycol antifreeze for proper operation.*

**For detailed specifications on the Sensors & Transmitters, see the "Sensors" section.**



Rev. 02/25/15

# Thermobuffer

## Temperature Sensors

**A61**

Ordering Information		Thermobuffer Temperature Sensor		
BA/	Sensor Type (Required) Use the designator number (shown to the left in bold) to indicate the sensor or transmitter			
#	<b>THERMISTORS</b>		<b>RTDs</b>	
	<b>1.8K</b>	1.8K $\Omega$ @ 25 °C	<b>1K[375]</b> 1K $\Omega$ Platinum @ 0 °C, 3.75 $\Omega$ /°C temp. coeff.	
	<b>2.2K</b>	2.2K $\Omega$ @ 25 °C	<b>1K[Ni]</b> 1K $\Omega$ Nickel @ 21°C, 5 $\Omega$ /°C temp. coeff.	
	<b>3K</b>	3K $\Omega$ @ 25 °C	<b>1K</b> 1K $\Omega$ Platinum @ 0 °C, 3.85 $\Omega$ /°C temp. coeff.	
	<b>3.25K</b>	3.25K $\Omega$ @ 25 °C (T30 type)	<b>2K</b> 2K $\Omega$ Silicon @ 20 °C, 8 $\Omega$ /°C temp. coeff.	
	<b>3.3K</b>	3.3K $\Omega$ @ 25 °C		
	<b>10K-2</b>	10K $\Omega$ @ 25 °C		
	<b>10K-3</b>	10K $\Omega$ @ 25 °C		
	<b>10K-3[11K]</b>	5,238 $\Omega$ @ 25 °C	<b>SEMICONDUCTORS</b>	
	<b>20K</b>	20K $\Omega$ @ 25 °C	<b>334</b> LM334 Semiconductor	
	<b>47K</b>	47K $\Omega$ @ 25 °C	<b>592</b> AD592 Semiconductor, 273 $\mu$ A @ 0 °C	
	<b>50K</b>	50K $\Omega$ @ 25 °C	<b>592-10K</b> AD592 Semicond. w/ 10 k $\Omega$ shunt resistor, 2.73 V @ 0 °C	
	<b>100K</b>	100K $\Omega$ @ 25 °C		
		<b>TEMPERATURE TRANSMITTERS</b> <i>Must include a "range" figure. Requires an enclosure.</i>		
	<b>T1K[range]</b>	1K Platinum RTD, 1,000 $\Omega$ @ 0 °C with 4 to 20 mA Output		
	<b>T1KM[range]</b>	1K Platinum RTD, 1,000 $\Omega$ @ 0 °C with MATCHED 4 to 20 mA Output*		
	<b>T10K[range]</b>	10K Thermistor, 10,000 $\Omega$ @ 25 °C with 4 to 20 mA Output**		
	<b>T10K5[range]</b>	10K Thermistor, 10,000 $\Omega$ @ 25 °C with 0-5 VDC Output**		
	<b>T10K10[range]</b>	10K Thermistor, 10,000 $\Omega$ @ 25 °C with 0-10 VDC Output**		
		<b>TEMPERATURE TRANSMITTER RANGES</b>		
	Custom temperature transmitter ranges are available. Common ranges are listed below			
	<b>30 TO 81F</b>	<b>-1 TO 27C</b>	<b>32 TO 212F</b>	
	<b>0 TO 100F</b>	<b>-18 TO 38C</b>	<b>0 TO 100C</b>	
	<b>20 TO 120F</b>	<b>-7 TO 49C</b>	<b>40 TO 240F</b>	
	<b>32 TO 134F</b>	<b>0 TO 57C</b>	<b>4 TO 116C</b>	
			<b>10 TO 121C</b>	
<b>Thermobuffer Probe (Required)</b>				
	<b>-TB</b>	Probe Fitting made of 304 Stainless Steel		
		<b>Buffer &amp; Probe Length</b>	<b>Must Select One</b>	
		<b>-M304-1</b>	1 Inch Sensor and 304 Stainless Steel Cylinder Buffer (Overall buffer length 1.9")	
		<b>-M304-2</b>	2 Inch Sensor and 304 Stainless Steel Cylinder Buffer (Overall buffer length 4.33")	
		<b>-M304-4</b>	4 Inch Sensor and 304 Stainless Steel Cylinder Buffer (Overall buffer length 6.3")	
		<b>-MAL-2</b>	2 Inch Sensor and Aluminum Cylinder Buffer (Overall buffer length 4.33")	
		<b>-MAL-4</b>	4 Inch Sensor and Aluminum Cylinder Buffer (Overall buffer length 6.3")	
		<b>Optional Hanging Bracket Probe Mounting</b>		
		<b>-HB</b>	Hanging or Screw Mounted Bracket (30" FEP jacketed cable standard)	
		<b>Enclosure Style (Required)</b>		
		<b>-BB</b>	BAPI-Box Enclosure - IP66 rated, UV-resistant polycarbonate. Comes with 18" etched teflon leads.	
		<b>-BB2</b>	BAPI-Box 2 Enclosure - IP66 rated, UV-resistant polycarbonate. Comes with 18" etched teflon leads.	
		<b>-NB</b>	No Box - 1/2" threaded buffer w/ probe only. Includes 20" FEP-jacketed cable leads. (*If using a Temp. Transmitter and "-NB" option, see note below.)	
		<b>Custom Lead Length</b>		
		<b>-5</b>	5 feet of FEP Jacketed Cable	
		<b>-10</b>	10 feet of FEP Jacketed Cable	
		<b>-25</b>	25 feet of FEP Jacketed Cable	
		<b>Options BB or BB2 enclosure is required</b>		
		<b>-TB</b>	Test & Balance Switch (BB or BB2 required, includes a Terminal Strip Connection, not available with Temp. Transmitter)	
		<b>-TS</b>	Terminal Strip Connection (BB or BB2 required for units with a Thermistor, RTD or Semiconductor)***	
<b>EXAMPLE</b>				
BA/	<b>10K-2</b>	<b>-TB</b>	<b>-M304-2</b>	
			<b>-BB</b>	
Part Number: BA/10K-2-TB-M304-2-BB				
<b>Your Part Number:</b>				

Call BAPI if you have questions about the above ordering grid or the configuration of the product you are ordering.

\*MATCHED Transmitter use Class A RTD's & are matched at 25%, 50% & 75% of calibrated scale limited to within -25°C to 150°C.

\*\*Range is limited to -40 to 185°F (-40 to 85°C)

\*\*\*TS option is not available with the 592-10K Semiconductor sensor or the T10K transmitters.

†If you're using a Temperature Transmitter and the "-NB" option and you would like an enclosure for the transmitter, you must order a BAPI-Box or BAPI-Box 2 enclosure separately. See the Accessories section to order the BB or BB2 enclosure.



Building Automation Products, Inc. • 750 North Royal Avenue, Gays Mills, WI 54631 USA

Tel: +1-608-735-4800 • Fax: +1-608-735-4804 • Email: sales@bapivac.com • Web: www.bapivac.com