



TB4000 Temperature Controller



Instruction Manual



Read and understand this material before operating or servicing these heating tapes. Failure to understand how to safely operate these heaters could result in an accident causing serious injury or death. These heaters should only be operated by qualified personnel.

Table of Contents

Introduction2
Safety Alert Symbol2
Important Safety Instructions3
Installation Instructions4
Operating Instructions.....6
Troubleshooting Guide.....7
Warranty Information7

INTRODUCTION

BriskHeat[®] TB4000 bulb and capillary temperature controllers are designed for general purpose use in outdoor or indoor environments to control temperatures on applications requiring automatic control.

SAVE THESE INSTRUCTIONS!

Additional copies of this manual are available upon request

**SAFETY ALERT SYMBOL **

The symbol above is used to call your attention to instructions concerning your personal safety. It points out important safety precautions. It means “**ATTENTION!** Become Alert! Your Personal Safety is involved!” Read the message that follows and be alert to the possibility of personal injury or death.



Immediate hazards which **WILL** result in severe personal injury or death



Hazards or unsafe practices which **COULD** result in severe personal injury or death



Hazards or unsafe practices which **COULD** result in minor personal injury or property damage

IMPORTANT SAFETY INSTRUCTIONS**⚠ DANGER**

A person who has not read and understood all operating instructions is not qualified to operate this product.

⚠ WARNING**End User Must Comply to the Following:**

- Only qualified personnel are allowed to connect electrical wiring.
- All electrical wiring must follow local electrical codes and highly recommend following NEC Article 427.
- Final installation / wiring is to be inspected by the authority who has jurisdiction in the area that the heater and temperature controller is installed.
- The end-user is responsible for providing a suitable disconnecting device.
- The end-user is responsible for providing suitable electrical protection device. It is highly recommended that a ground fault circuit breaker is used.

Failure to observe these warnings may result in personal injury or damage to the heater.

⚠ CAUTION

- Inspect all components before use.
- Do not repair damaged or faulty controller
- Do not crush or apply severe physical stress on any component of system, including cord assembly.
- Do not use controller and heater if any component is damaged.

Failure to observe these warnings may result in personal injury or damage to the heater.

⚠ DANGER

- Do not immerse or spray any component of the control system with liquid.
- Keep volatile or combustible material away from controller when in use.
- Keep sharp metal objects away from heater.
- Use controller only ordinary (non-hazardous) locations

Failure to observe these warnings may result in electric shock, risk of fire, and personal injury.

INSTALLATION INSTRUCTIONS

Mounting:

The enclosure should be mounted in a suitable location. Be sure that the bulb will reach the desired sensing area. The mounting holes can be turned to aid in installation if necessary.

⚠ WARNING

DO NOT BEND, KINK, OR CRIMP THE BULB AND CAPILLARY - This will cause loss of calibration and might render the controller inoperative. All warranties will be void if bulb or capillary is damaged.

Sensor Location:

Position and attach bulb temperature sensor directly on top of the heater or touching the edge of the heater while also contacting the surface being heated. Temperature sensing bulb must be in close proximity of heater for accurate temperature control and to prevent over-heating. Use appropriate temperature- rated adhesive tape to attach bulb or for large tanks and vessels use a bulb bracket (available from BriskHeat®). If you have questions concerning your application please contact your local distributor or BriskHeat® at 1-800-848-7673 (U.S. & Canada), 1-614-294-3376 (World wide), or bhtsales1@briskheat.com.

Electrical Connections:

Holes for conduit and fittings may be made using a standard hole saw. Take care to avoid damaging components when making holes.

Heater Connections:

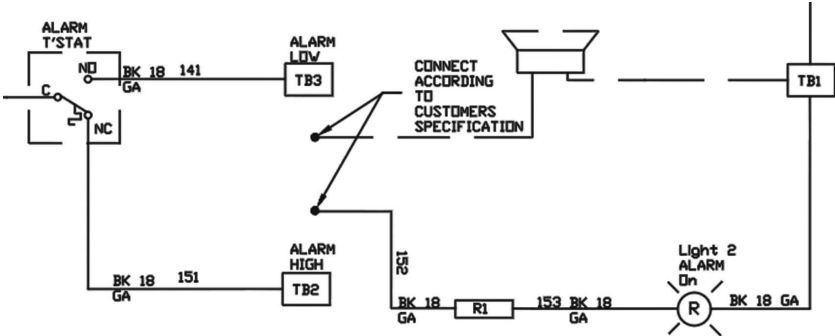
Connect heater wires to the proper terminals. Proper over-current protection should be located in the supply lines. Contact your local distributor or BriskHeat® at 1-800-848-7673 (U.S. & Canada), 1-614-294-3376 (World wide), or bhtsales1@briskheat.com for additional assistance.

Alarm Connections (If applicable):

On all models with the alarm feature, the loose wire must be connected to the proper terminal on the terminal block for the light to function in the proper manner. Refer to the electrical diagram on the next page.

On some models, a transformer may be supplied or retrofitted to avoid running a second alarm supply. Consult the factory for assistance with your specific installation/application.

Alarm Connection Wiring Diagram



OPERATING INSTRUCTIONS

WARNING

Read and understand this entire manual before operating this controller.

Controller Operation:

Set the dial for the desired temperature to be maintained. If the sensed temperature is below the set-point, power is applied to the heater and the indicator light next to the set-point dial is illuminated. After the set-point temperature is reached, the indicator light next to the set-point dial shuts off and heater power is removed. The control cycles as necessary to maintain the desired temperature.

Alarm Operation:

The alarm may be used as a high or low alarm, depending on the connections used.

In the high temperature alarm mode, the alarm light illuminates and the external device (if applicable) operates when the sensed temperature is above the alarm point.

NOTE: To verify alarm operation, turn the alarm point dial to a setting lower than the sensed temperature. Validate the alarm light illuminates. Return dial to the desired alarm point to continue operation.

In the low temperature alarm mode, the alarm light illuminates and the external device (if applicable) operates when the sensed temperature is below the alarm point.

NOTE: To verify alarm operation, turn the alarm point dial to a setting greater than the sensed temperature. Validate the alarm light illuminates. Return dial to the desired alarm point to continue operation.

TROUBLESHOOTING GUIDE

Please read this guide prior to contacting BriskHeat®. This guide is designed to answer the most commonly asked questions. If you are unable to identify the problem or need additional assistance, please contact your local distributor or BriskHeat at **1-800-848-7673 (U.S. & Canada)**, **1-614-294-3376 (World wide)**, or **bhtsales1@briskheat.com**.

PROBLEM	SOLUTION(S)
Heater does not warm up	Check set-point Verify heater is connected to proper voltage Check power source: Using a voltmeter, test the power source and assure correct voltage is present Check to see if there is a resistance reading (not an open circuit) in heater using an ohm meter
Heater does not turn off	Check set-point Ensure correct bulb placement Check bulb and capillary for any holes or kinks
Heater will not reach desired temperature	Check set-point Ensure correct bulb placement
Power source circuit breaker trips	Validate that the circuit breaker is capable of handling the amperage requirement of heater(s) Examine system for any damage

Warranty Information

BriskHeat® warrants to the original purchaser for the period of eighteen (18) months from date of shipment or twelve (12) months from date of installation, whichever comes first. Contact factory at 1-800-848-7673 (U.S. & Canada) or 1-614-294-3376 (World wide) for complete details.

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