



## SDC Benchtop Digital Temperature Controller

### Instruction Manual



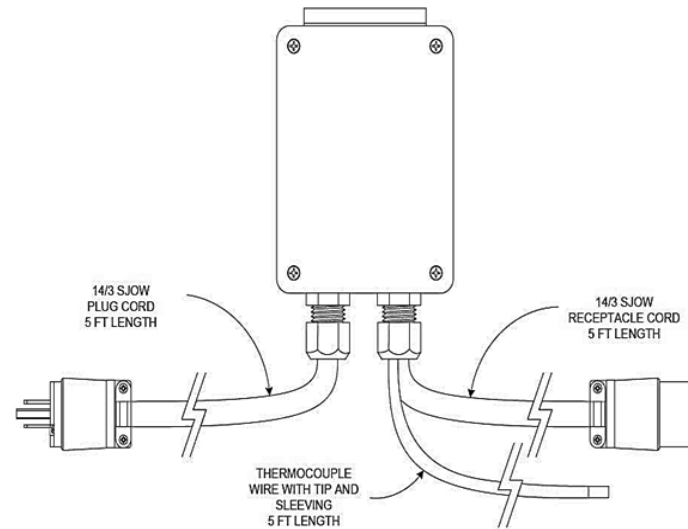
Read and understand this manual before operating or servicing this temperature controller. Failure to understand how to safely operate this controller could result in an accident causing serious injury or death. Only qualified personnel should operate or service this controller.

### Table of Contents

Introduction.....	2
Safety Alert Symbol.....	3
Important Safety Instructions.....	3
Specifications.....	4
Parameters.....	5
Parameter Descriptions.....	6
Setting the Set Point.....	7
Code Protected Parameters.....	7
Indicators.....	8
Warranty.....	8

### Introduction

BriskHeat<sup>®</sup>'s SDC Benchtop Digital Temperature Controller is designed for general-purpose use in indoor environments to control temperatures on applications requiring automatic control. For successful operation of this controller, read and understand these instructions prior to use.



**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.

### **⚠ DANGER**

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

### **⚠ WARNING**

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

### **⚠ CAUTION**

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

### **⚠ DANGER**

A person who has not read and understood all operating instructions is NOT qualified to operate

### **⚠ DANGER**

- Do not immerse or spray any component of the temperature controller in liquid.
- Keep volatile or combustible material away from controller when in use.
- Keep sharp metal objects away from controller.
- If the equipment is used in a manner not specified by the manufacturer, the protection provided by the equipment can be impaired.
- The unit must be connected to Protective Earth Grounding.

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

### **⚠ CAUTION**

- Inspect all components before use.
- Do not use controller if any component is damaged.
- Do not repair a damaged or faulty controller.
- Do not crush or apply severe physical stress on any component of system, including cord assembly.
- Unplug controller when not in use.
- Only use power cords provided by BriskHeat®

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

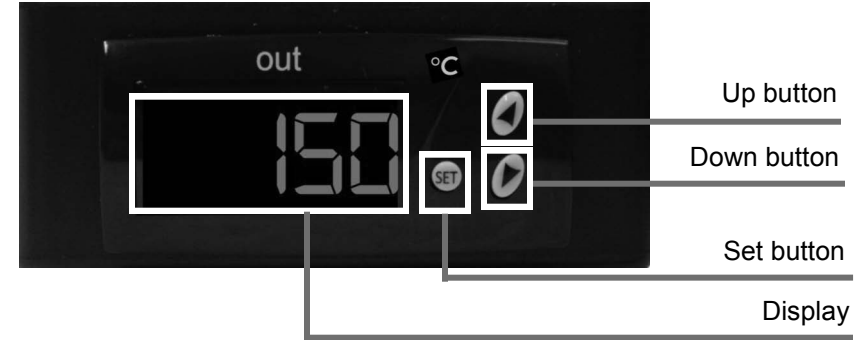
### **⚠ WARNING**

#### End User Must Comply with the Following:

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

### ATTENTION

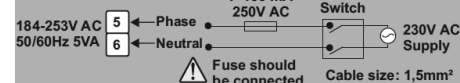
- Unit must be mounted away from vibration, impacts, water and corrosive gases.
- DO NOT INSTALL PROBE CABLE NEAR POWER CABLES.
- The box containing the controller should be stored indoors in a dry, protected area. Under no circumstances should condensation, rain, snow or water be allowed to come in contact with the box or the controller while in storage.



### Specifications

Input Type	Temperature Range		Accuracy
	°C	°F	
J-type Thermocouple (P5)	0 - 700°C	32 - 999°F	±1% FS
K-type Thermocouple (P5)	0 - 999°C	32 - 999°F	±1% FS
S-type Thermocouple (P5)	0 - 999°C	0 - 999°F	±1% FS
<b>Conditions</b>			
Storage Temperature	(-)20 to 80°C	(-)4 to 176°F	
Temperature Limits: Ambient	0 to 80°C	32 to 158°F	
Weight	2.3 oz (65 g)		
Output	16A SPDT relay @ 250VAC resistive		
Horsepower Rating	1 HP		
Control Type	ON/OFF		
Power Requirements	110VAC, 230VAC, 12VAC/VDC or 24VAC/DC		
Display	3-digit, red, 1/2" (12.7mm) digits, plus sign		
Resolution	1°		
Memory Back-up	Nonvolatile		

#### NOTE :



Note 1) Mains supply cords shall meet the requirements of IEC 60227 or IEC 60245.  
2) In accordance with the safety regulations, the power supply switch shall bring the identification of the relevant instrument and it should be easily accessible by the operator.

**Parameters**

	Description	Units	Range
<b>SP</b>	Set Point	Degrees	r1 to r2
<b>r0</b>	Differential or Hysteresis	Degrees	1 to 999°
<b>r1</b>	Low Value Set Point	Degrees	0 to 999°
<b>r2</b>	Higher Value Set Point	Degrees	0 to 999°
<b>d0</b>	Heating or Cooling Control	Option	Ht/Co
<b>c0</b>	Min. Stop Time for Load	Minutes	0 to 59
<b>c2</b>	Load Status During Probe Error	0/1	Off/On
<b>P1</b>	Ambient Probe Adjustment	Degrees	-30° to +30°
<b>P5</b>	Ambient Probe Type	Option	J, K, S
<b>P6</b>	Probe Response	Numeric	0 to 3
<b>H5</b>	Parameter Access Code	Numeric	0 to 255(factor set 0)
<b>A0</b>	Alarm 1 Hysteresis	Degrees	1 to 999°
<b>A1</b>	Alarm 1 Threshold	Degrees	0 to 999°
<b>A2</b>	Alarm 1 Exclusion Time	Seconds	0 to 999°
<b>A3</b>	Alarm 1 Configuration	Option	Off, Lo, Hi
<b>A4</b>	Alarm 2 Hysteresis	Degrees	1 to 999°
<b>A5</b>	Alarm 2 Threshold	Degrees	0 to 999°
<b>A6</b>	Alarm 2 Exclusion Time	Seconds	0 to 999°
<b>A7</b>	Alarm Configuration	Option	Off, Lo, Hi

**Setting the SP**

- Set point (SP) is the only parameter the user can access without code protection.
- Press SET and the SP text will appear on the display.
- Press SET again and the real value is shown on the display
- The value can then be modified with the UP and DOWN arrows.
- Press SET to enter any new values.
- Press SET and DOWN at the same time to quit programming or wait one minute and the display will automatically exit programming mode.

**Parameter Descriptions**

**SP**= Set Point-Desired Regulation Temperature

**r0**= Differential or Hysteresis

**r1**= Lower Set Point Limit

**r2**= Higher Set Point Limit

**d0**= Heating or Cooling Control-regulation cycles only performed, neither defrosting nor continuous cycles exist. **Heating:** To choose heating control: Set d0=Ht (The output is active when TS1 (temperature of ambient probe) is less than or equal to set point.)  $TS1 \leq SP$ . It then disconnects when  $TS1 > SP - r0$ . **Cooling:** To choose cooling control: Set d0=Co (The output is activated when  $TS1 > SP + r0$ .) The display will switch off when  $TS1 \leq SP$ .

**c0**= Minimum Time Between Start to Stop

**c2**= Load Status during Probe Error. In the event of an open or short-circuited probe, the unit will connect or disconnect the load as defined by this parameter.

**P1**= Ambient Probe Calibration. Offset degrees to adjust ambient probe. If the probe is not placed in the exact point that is to be measured, use a standard thermometer and adjust the difference with parameter.

**P5**= Ambient Probe Type. Select between J, K, or S type thermocouple.

**P6**= Probe Response Rate (0 = 8 sec, 1 = 4 sec, 2 = 2 sec, 3 = 1 sec.)

**H5**= Access to Probe Parameters.

**A0**= Alarm 1 Hysteresis. The differential associated with A1 parameter.

**A1**= Alarm 1 Threshold. Number of degrees to the working set point that initiates an alarm condition.

**A2**= Alarm 1 Exclusion Time. The amount of time the alarm is disabled from instrument activation.

**A3**= Alarm 1 Configuration. Determines the alarm type: A3=0 alarm is disabled; A3=1 alarm is activated if the ambient temperature  $\geq SP + A1$  and deactivated if  $< SP + A1 - A0$ ; A3=2 alarm is activated if the ambient temperature  $\leq SP + A1$  and deactivated if  $> SP + A1 - A0$ .

**Parameter Descriptions (continued)**

**A4**= Alarm 2 Hysteresis. The differential associated with A5 parameter.

**A5**=Alarm 2 Threshold. Number of degrees to the working set point that initiates an alarm condition.

**A6**= Alarm 2 Exclusion Time. The amount of time the alarm is disabled from instrument activation

**A7**= Alarm 2 configuration. Determines the alarm type: A7=0 alarm is disabled; A7=1 alarm is activated if the ambient temperature  $\geq$ SP+A5 and deactivated if  $<$ +SP+A5-A4=2 alarm is active if the ambient temperature  $\leq$ SP+A5 and deactivated if  $>$ +SP+A5-A4.

**Indicators**

**Buzzer**—In the event of alarm or error condition, the internal buzzer is activated. To silence the buzzer, press and hold the SET and DOWN keys.

**LED Indications**—OUT – This indicates the load is connected. The system waits for the programmed minimum stop time of the load.

**Display Messages**— In normal operation, the probe temperature will be shown on the display. In case of alarm or error, the following messages will be shown:

ER= Memory Error

--= Short-Circuit Probe Error (output determined by c2)

oo= Open Probe Error (output determined by c2)

**Access to all code protected parameters**

- Press SET for 8 seconds. The access code value 00 is shown on the display. (Unit comes with code set at 00 from factory).
- With the UP and DOWN arrows, set code to 118. Press SET.
- Move to the desired parameter with the UP and DOWN keys.
- Press SET to view the value on the display.
- The value can be modified with the UP and DOWN arrows.
- Press SET to enter the value and exit to text parameter.
- Repeat until all necessary parameters are modified.
- Press SET and DOWN at the same time to quit programming or wait one minute and the display will automatically exit programming mode.

**Warranty Information**

BriskHeat<sup>®</sup> 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 the factory at 1-800-848-7673 toll free, (U.S. / Canada) or 614-294-3376 for complete details.

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