

SDT140

DIGITAL THERMOMETER

One Key (On/Off)

● FEATURES

- 0.1 Basic Resolution
- Large, easy-to-read LCD display
- K type Thermocouple
- Low battery indication
- On/Off button and auto power off

● SPECIFICATIONS

(Option : °C / °F)

- Temperature Range
K type : -112 °F to 1832 °F (-80 °C to 1000 °C)
- Resolution
0.1 Resolution : -112 °F to 299 °F (-80 °C to 299 °C)
1 Resolution : 300 °F to 1832 °F (300 °C to 1000 °C)
- Accuracy
-58 °F to 299 °F (-50 °C to -300 °C) : ±0.5% of reading + 1 °C (1.8 °F)
-112 °F to -58 °F (-80 °C to -50 °C) : ±1% of reading + 2 °C (3.6 °F)
300 °F to 1832 °F (300 °C to 1000 °C) : ±0.5% of reading +5 digits
- Size
(H x L x W) : 45.5 mm x 154 mm x 75.5 mm
- Weight (with boot) : 204g
- Battery : Alkaline LM03 (AAA SIZE) 1.5V x 2 (3V)

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I. PREFACE

1. Thank you

Thank you for purchasing Brighton Electronics test equipment. The thermometer you have purchased is simple to operate and will give you years of dependable service. Your meter carries a 3 year limited warranty. Please complete and return your warranty registration card.

2. Description

The Brighton 140 series thermometer offer versatility, speed, and accuracy. They utilize K or J type thermocouple temperature probes, have large easy to read displays and are water and drop resistant. The Brighton-W series are waterproof rated to IEC529 IP67 standards. The SDT141 and SDT142 series thermometers have an auto power off feature that helps extend battery life.

3. Applications

Applications include but are not limited to:

- Food service.
- Air temperature in heating and air conditioning applications.
- Surface temperature of machines and equipment.
- Superheat measurements. (SDT142S)

4. Agency Listings

Waterproof models are IP67 rated to ICE standard 529.

II. GENERAL TESTING GUIDELINES

⚠ WARNING : *When making measurements, always follow the manufacturers test procedures of the item under test. Completely clean the probe shaft and tip prior to insertion into food products.*

- ➡ Completely clean the probe tip and shaft prior to insertion into food products.
- ➡ When making measurements, always follow the manufacturers test procedures of the item under test.
- ➡ Inspect the temperature probe for opens or shorts prior to use.
- ➡ Make sure the temperature probe is securely connected to the thermometer.
- ➡ Allow the temperature probe to cool prior to touching it after testing.
- ➡ Do not insert the temperature probe into an electrically charged medium

III. CONTROLS AND FUNCTIONS

1. Push buttons

SDT140S

Button	Function Performed
	Turns your meter on and off.

SDT141S/L/LB

Button	Function Performed
	Turns your meter on and off.
HOLD	Turns data hold on and off.
REC	Activates record mode.
K/J	Selects K-Type or J-Type thermocouple.
0.1/1	Selects resolution. (SDT141 series automatically selects 1° above 999.9°)
MAX/MIN	Cycles through the maximum and minimum recorded reading.
°C/°F	Selects Fahrenheit or Celsius display.

SDT142S

Button	Function Performed
	Turns your meter on and off.
HOLD	Turns data hold on and off.
REC	Activates record mode.
K/J	Selects K-Type or J-Type thermocouple.
T1 T2 $\frac{\Delta T}{\Delta T}$	Cycles the display through T1(Input 1), T2(Input 2), and T1-T2.
MAX/MIN	Cycles through the maximum and minimum recorded reading.
°C/°F	Selects Fahrenheit or Celsius display.

2. Input Jacks

Part Number	Description of input Jack
SDT140S	Sub-miniature thermocouple connector. Industry standard connector allows use of any K or J type probe with the same type connector.
SDT141S	standard connector allows use of any K or J type probe with the same type connector.
SDT142S	Dual sub-miniature thermocouple connector. Industry standard connector allows use of any K or J type probe with the same type connector
SDT141L	Lemo connector. Quick couple type connector.
SDT141LB	Lumberg connector. Screw collar type connector.

3. Display Annunciators

<u>Annunciator</u>	<u>Description</u>
oPEn	Displayed when no probe or a probe with a bad connection is connected to the meter.
K	Displayed when K-Type thermocouple input is selected.
J	Displayed when J-Type thermocouple input is selected.
REC	Displayed when record mode is enabled.
MIN	Displayed when the minimum recorded reading is displayed.
MAX	Displayed when the maximum recorded reading is displayed.
HOLD	Displayed when display hold is enabled.
°C	Displayed when Celsius reading is enabled.
°F	Displayed when Fahrenheit reading is enabled.
T1	Displayed when input 1 is selected.
T2	Displayed when input 2 is selected.
T1-T2	Displayed when T1-T2 mode is selected.
Err	Displayed when T1-T2 mode is selected and no probe is connected to the meter.
BAT	Displayed when a low battery condition is detected.

IV. USING YOUR METER

1. Turning your Meter On and Off

The green button marked is used to turn your meter on and off.

1. To turn the meter on press and release the button.

SDT140 Press and hold the button until the meter beeps and the display turns on then release.

2. To turn the meter on and disable auto power off press and hold the °C/°F button down then press and release the button. (SDT141/SDT142)
3. A beep will sound and all segments of the display will turn on.
4. If a probe has not been inserted the display will read oPEn(SDT141/142) or OFL(SDT140).
5. Pressing the button again will turn the meter off.

2. Connecting a Probe to Your Meter

Depending on the meter you have, follow these steps for connecting a probe to your thermometer.

SDT140S
SDT141S
SDT142S Observing polarity markings, insert the male sub-miniature connector into the thermometer input jack. Make sure the connector is pushed all the way into the meter. The SDT142S can accept two probes. To remove probes, grasp the connector and pull out.

SDT141L Align the probe connector with the input jack on the thermometer. Apply slight downward pressure while rotating the connector until it locks in place. To remove the probe, grasp the connector collar and pull out.

SDT141LB Align the probe connector “key” with the key way or notch in the input jack on the thermometer. Press the connector into the jack. Screw the collar down to secure the connection. To remove the connector unscrew the collar and pull the connector out.

3. Selecting a Probe Type(SDT141/SDT142)

The correct thermocouple input type must be selected in order for your meter to read properly. Pressing the K/J button allows the meter to be set to read K-Type or J-Type thermocouples.

1. Identify the type of probe being used.
 - a) K-Type Yellow probe cord and/or connector
 - b) J-Type Black probe cord and/or connector
2. Pressing the K/J button will toggle between K-Type and J-Type input.
3. When K-Type is selected the “K” annunciator will be displayed.
4. When J-Type is selected the “J” annunciator will be displayed.

4. Selecting Celsius or Fahrenheit Display(SDT141/142)

Your thermometer can display readings in either Celsius or Fahrenheit. Pressing the C/F button selects the required display.

1. With the meter on and a probe connected, press the C/F button to toggle between Celsius and Fahrenheit readings.
2. When Celsius is selected the “C” annunciator will be displayed.
3. When Fahrenheit is selected the “F” annunciator will be displayed.

5. Selecting Display Resolution(SDT141/142)

Your thermometer can display reading in 0.1° or 1° resolution from -328°F(-200°C) to 999.9°F and °C.

1. With the meter on and a probe connected, press the 0.1/1 button to toggle between 0.1° and 1° resolution.
2. Any temperature above 999.9° will be displayed with 1° resolution.

6. Taking a Temperature Measurement

⚠ WARNING : Never insert the temperature probe into an electrically charged medium. Make sure the probe tip and shaft are thoroughly clean prior to insertion in food products.

1. Turn the meter on.
2. Connect a temperature probe to the thermometer.
3. Select K or J type depending on the probe being used.
(SDT141/142)
4. Select Fahrenheit or Celsius display.(SDT141/142)
5. Select 0.1° or 1° resolution.(SDT141/142)
6. Insert the temperature probe tip into or onto the item under test.
7. Allow the reading to stabilize.
8. The temperature reading can be seen on the display.

Depending on the model, the SDT series thermometers have additional features that can be useful while performing tests. Please see "Additional Features".

V. ADDITIONAL FEATURES

1. Using Record (SDT141/142)

Record mode allows you to view the minimum and maximum recorded reading over a period of time. Once activated the meter will begin recording and the actual reading will still be displayed. Pressing the MAX/MIN button allows you to cycle through the minimum and maximum recorded reading.

1. Follow the steps outlined in "Taking Measurements".
2. Press the REC button to begin recording. The REC annunciator will be displayed.
3. Press the MAX/MIN button to display the minimum recorded reading. The MIN annunciator will illuminate when the minimum reading is displayed.
4. Press the MAX/MIN button to display the maximum recorded reading. The MAX annunciator will illuminate when the minimum reading is displayed.
5. Press the MAX/MIN button and the meter will return to normal display mode.
6. To stop recording press the REC button. The REC annunciator will turn off.

NOTE: If recording for more than 20 minutes, auto power off must be disabled. Please see "Turning Your Meter On and Off".

2. Using Hold(SDT141/142)

Hold allows the reading on the display to be frozen.

1. Follow the steps outlined in “Taking Measurements”.
2. Press the HOLD button to freeze the display. The HOLD annunciator will illuminate.
3. Press the HOLD button again to return to normal operation.

3. Using MAX/MIN(SDT141/142)

The MAX/MIN button allows the recorded minimum and maximum reading to be displayed. This feature is used with record mode as explained earlier.

1. Follow the steps outlined in “Taking Measurements”.
2. Press the MAX/MIN button to display the minimum reading recorded. The MIN annunciator will be displayed.
3. Press the MAX/MIN button to display the maximum reading recorded. The MAX annunciator will be displayed.
4. Press the MAX/MIN button again to return to normal operation.

4. Using $\frac{T1 T2}{\Delta T}$ (SDT142)

ΔT

$\frac{T1 T2}{\Delta T}$

The $\frac{T1 T2}{\Delta T}$ button allows the display to be cycled through input 1 (T1), input 2 (T2) and input 1-input 2 (T1-T2).

1. Follow the steps outlined in “Taking Measurements”.
2. Make sure probes are inserted into input jacks one and two of the SDT142.
3. The thermometer will read input 1. The T1 annunciator will be displayed.
4. Press the button. The thermometer will display input 2. The T2 annunciator will be displayed.
5. Press the button again and the thermometer will display T1-T2. The T1-T2 annunciator will be displayed.
6. Press the button again to return the display to input 1.

VI. TECHNICAL INFORMATION

1. Specifications

General

Power Supply	9 Volt Alkaline Battery(SDT140:AAA size 1.5V x2)
Battery Life	100hrs. Typical(SDT140:400hrs)
Auto Power Off	After 20 minutes
Size(H xL xW)	1.8" x6" x3" (45mm x 154 mm x 75.5mm)
Weight	7.2oz (204g)

Accuracy

SDT140

K-Type Thermocouple(Yellow probe cord and connector)

SDT141/142

K-Type Thermocouple(Yellow probe cord and connector)

Range	Resolution	Accuracy
-328° F to 2462° F	0.1° F (-328° F to 999.9° F) 1° F (1000° F to 2462° F)	±0.3% of reading ±1.8° F
-200° C to 1350° C	0.1° C (-200.0° C to 999.9° C) 1° C (1000° C to 1350° C)	±0.3% of reading ±1° C

J-Type Thermocouple(Black probe cord and connector)

Range	Resolution	Accuracy
-328° F to 1832° F	0.1° F (-328° F to 999.9° F) 1° F (1000° F to 1832° F)	±0.3% of reading ±1.8° F
-200° C to 1000° C	0.1° C	±0.3% of reading ±1° C

VII. ACCESSORIES

1. Standard Accessories

Part Number	Description
BA9A	9V Alkaline Battery Carrying case
SAK11L	Standard K-type chisel probe (SDT141L)
SAK11LB	Standard K-type chisel probe (SDT141LB)
STP129	Standard K-type bead tip probe (SDT140S/SDT141S)(SDT142S x 2)

2. Optional Accessories

Brighton Electronics offers a full line of temperature probes for most applications. Please contact your distributor or Brighton Electronics for information on optional probes.

VIII. TROUBLE SHOOTING AND MAINTENANCE

Problem	Possible Cause
Will not power up	Dead battery Battery not completely connected to battery snap Broken or frayed wire from battery to circuit board
All reading are high	Low battery. Battery may be so weak the low battery indicator won't turn on.
Powers off while trying to record	Auto power off not disabled. Please refer to "Turning your meter on/off"
Incorrect or no readings	Low or dead battery Bad probe Probe connected to meter incorrectly Meter set to the incorrect thermocouple type

Battery replacement: Your meter will display BAT when the internal battery voltage drops to a predetermined low level. The meter will still function properly for approximately 1 hour, but the battery should be replaced as soon as possible. To replace the battery follow these steps:

1. Disconnect the temperature probe from the thermometer.
2. Remove the six screws from the back cover.
3. Carefully pull the back housing away from the front housing.
4. Remove the old battery and install the new battery.

5. Carefully attach the back housing to the front. Make sure the battery leads are not pinched between the two housings.

6. Insert and tighten the six back screws.

Cleaning your meter: Only use a mild detergent and a damp cloth to clean your meter and rubber boot.

Calibration: Brighton Electronics recommends your thermometer be checked for proper calibration once per year. This can be performed by a calibration laboratory or by returning your meter to Brighton Electronics, Inc..