SP341 K-Type Temperature Smart Probe

Test Products International, Inc.

- Uses any K-Type probe with sub-mini connector
- Connects to smart phone and uses the TPI Smart Probe App
- Perform differential temperature measurements with one instrument
- Up to 6 SP341 smart probes can connect to a single mobile device (most devices)
- Auto field calibrate to +/-1°F system accuracy in the range of 30°F to 120°F using field calibrate mode
- 3 Year Limited Warranty

Use standard K-type thermocouple probes with sub mini input jack. GK41M included. Other probes sold separately.

Test the TPI Advantage

Visit www.testproductsintl.com

TABLE OF CONTENTS

A. INTRODUCTION

1. Congratulations: Thank you for purchasing TPI products. The SP341 is easy to use and built to last. It is backed by a 3 year limited warranty.
2. Product Description: The SP341is a K-Type thermocouple thermometer “Smart Probe”. It connects to your mobile device and uses the TPI Smart Probe App to display temperature readings. Data can be exported to a CSV file as well.

B. SAFETY CONSIDERATIONS

1. Never attach the SP341 to a hot surface.
2. Always make sure the temperature probe used has the proper range for the application.
3. Always use K-Type thermocouples only.
4. Do not expose the unit to damp environments for extended periods of time.

C. SPECIFICATIONS

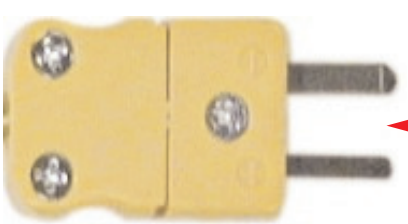
SP341 Smart Probe K-Type Thermometer Specifications	
Input Type	K-Type thermocouple with sub-mini connector
Measurement Range	-58°F to 2462°F (-50°C to 1350°C)
Accuracy	±3.2°F (-58°F to 32°F) ±1.6°C (-50°C to 0°C) ±(0.3% of reading, + 2°F) (32°F to 1000°F) ±(0.3% of reading, + 1°C) (0°C to 600 °C) ±(0.4% of reading, + 2°F) (>1000°F) ±(0.4% of reading, + 1°C) (>600°C) Capable of +/-1°F within 30°F to 120°F range when auto field calibration is performed.
Resolution	0.1°F / °C (-19.9°F / °C to 999.9°F / °C) 1°F / °C (> -20°F / °C / >999.9°F / °C)
Operating Temperature	-4^{0}F to 122^{0}F (-20^{0}C to 50^{0}C)
Communication	Bluetooth version 4.2 (Use with TPI Smart Probe App) FCC ID: QOQBGM113 IC: 5123A-BGM113 209-J00204
Battery Type	AAA x 3
Battery Life	60 hours typical

CE

D. INSTRUMENT OVERVIEW

1. Input connection for K-Type probes. Connector is recessed and polarized (marked + and -). Ensure the K-Type probe is connected properly (see below).
2. SP341 status LED indicator.
   Orange and blinking = Bluetooth not connected
   Green and blinking = Bluetooth connected
   Blinking Red with either of the above = Low battery
3. Power Key. Press and hold to turn the instrument on. Press and hold to turn the instrument off.

4. Built-in magnet. Attach to metal surfaces for hands free operation. Ensure surface is not hot.
5. Serial number location. Last three digits are the product identification number and marked in bold. Use this number to distinguish between models when several SP341's are connected to a phone or tablet.
6. Screw to open battery compartment. Turn the screw counter clockwise until it is just above the compartment door. Lift on the screw to open the compartment.



K-Type probe connectors are polarized and made so one prong is wider than the other. This ensures connection with the proper polarity is made. They are marked + and - just like the SP341 connector.

E. TAKING A MEASUREMENT

1. Download and install the TPI Smart Probe App onto your mobile device. Run the App. The “Main-Real Time” screen will be displayed.

   The App will say “No Devices” until a smart probe has been connected.

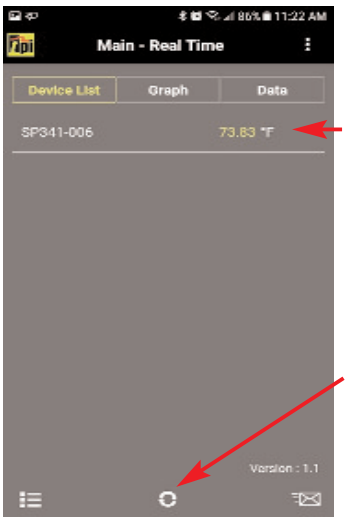
2. Press and hold the SP341 On/Off key down until it turns on. The LED indicator will initially be orange and blink.

   The SP341 will auto connect to your mobile device. The LED indicator will turn Green and blink to indicate a link has been established. The App will display the model and ID number of the smart probe connected.

   If the SP341 does not auto connect tap refresh on the App.

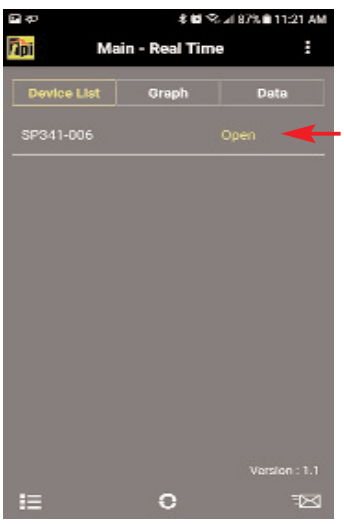
   Connect a probe to the SP341 and the temperature reading will be displayed.

   If no probe is connected the display will read Open.



Displays the measured temperature if a probe is connected

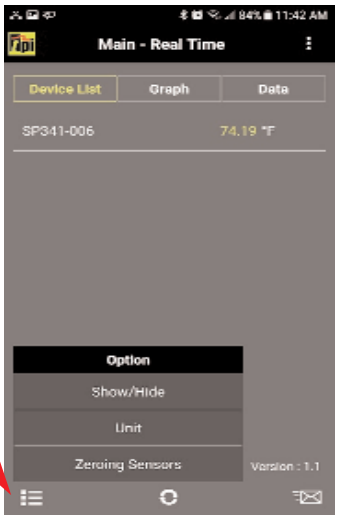
Refresh
This also clears any data accumulated.



Displays Open if no probe is connected.

Note: Open will also be displayed if a probe is bad (break in the probe or connector).

3. Tapping the list icon allows optional functions to be accessed. These include Show/Hide, Unit, and Zeroing Sensors.



Show/Hide : Allows a device to be seen or hidden. Useful when multiple devices are connected.

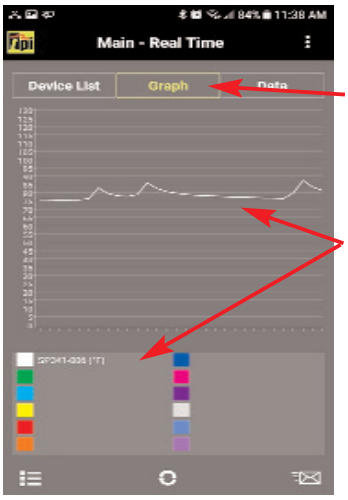
Unit : Switch between °C and °F.

Zeroing Sensors: Field calibration mode. See page 7 for more information.

F. ADDITIONAL APP FEATURES

1. Tapping “Graph” switches the display to graph mode. The temperature will be displayed as a line graph.

   If multiple SP341’s are being used, each will have a different color in the App.

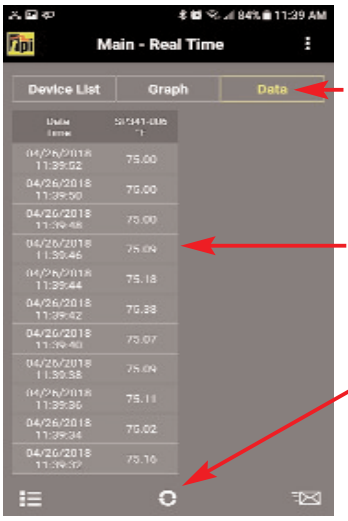


Tap “Graph”.

Each SP341 is displayed in a different color in the line graph.

2. Tapping “Data” switches the display to show the measured data in a list format.

   Each reading in the list will be dated and time stamped.

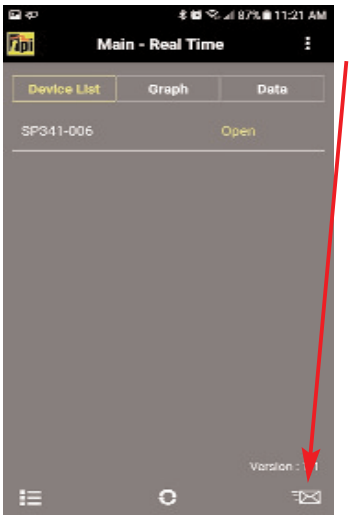


Tap “Data”.

The measurement data is shown in a list with a date and time stamp.

Tapping the Refresh icon clears this data.

3. Tapping the mail icon enables test data to be exported in a CSV file via email.



Tap the mail icon.

Test data will be exported in a CSV file via email.

4. Exported data in the CSV file display with the date and time stamp.

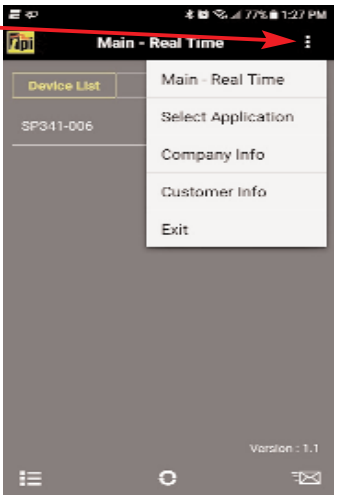
   If a company and customer name has been entered they will be exported too. See page 5 for setting up the customer and company name.

Company Name : Test Products Intl.		
Customer Name : Sample Customer		
Customer Address : 1111 Sample Way		
Building Name : Bldg 3		
Building Address : 1222 Sample Ave		
Date	Time	SP341-006
4/25/2018	12:33:04	75.33
4/25/2018	12:33:02	75.36
4/25/2018	12:33:00	75.36
4/25/2018	12:32:58	75.36
4/25/2018	12:32:56	75.43
4/25/2018	12:32:54	75.47
4/25/2018	12:32:52	75.45

G. DROP DOWN MENU

The Smart Probe App has a Drop Down menu allowing access to additional app features.

1. Tap the Drop Down Menu icon to access additional features.



Main - Real Time: Tapping this returns you to the main screen.

Select Application: Tapping this pulls up sub applications for variious smart probes. These include Temperature differential (SP341), Air Volume Calulation (SP565), and Tightness Test (SP620). Note: There are no sub applications for the SP1000.

Company Info: Allows you to enter your information to show up on the CSV file report. You can enter your company name, address, and email.

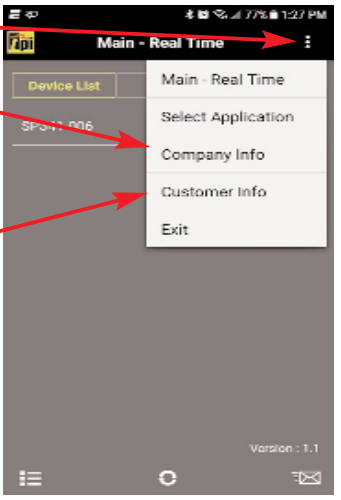
Customer Info: Allows you to enter the information of the customer the tests are being performed for. You can enter the customer name, address, and email. You can also enter the building information in cases where the tests are being performed somewhere off-site from the customer.

Exit: Closes the Smart Probe App.

H. ENTERING COMPANY AND CUSTOMER INFORMATION

The Smart Probe App allows you to enter your company information and the customer information who the test is being performed for. This information will be exported in the CSV file (see page 4).

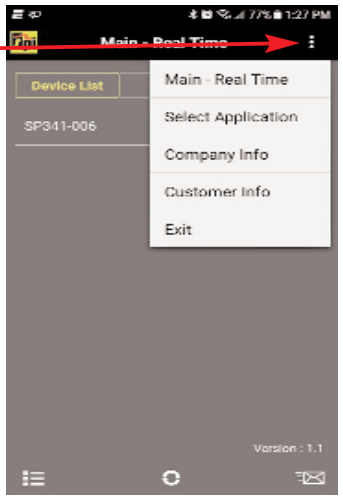
1. Tap the Drop Down Menu icon to access additional features.
2. Select “Company Info” to enter your information to show up on the CSV file report. You can enter your company name, address, and email.
3. Select “Customer Info” to enter the information of the customer the tests are being performed for. You can enter the customer name, address, and email. You can also enter the building information in cases where the tests are being performed somewhere off-site from the customer.



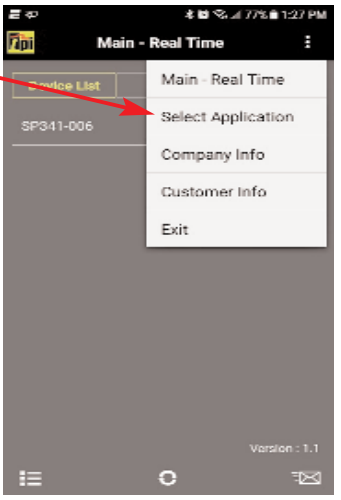
I. PERFORMING DIFFERENTIAL TEMPERATURE MEASUREMENTS

The Smart Probe App allows you to perform differential temperature measurements with one or two smart probes.

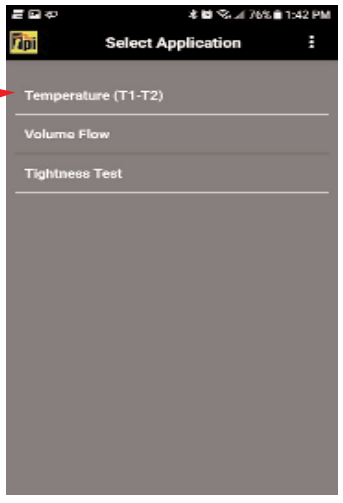
1. Tap the Drop Down Menu icon to access additional features.



2. Tap “Select Application”.



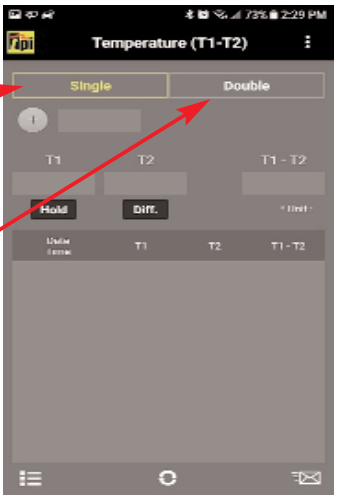
3. Select “Temperature (T1-T2).



Note: The other applications shown are for different model smart probes and do not work with the SP341.

4. If one SP341 is being used tap on “Single”.

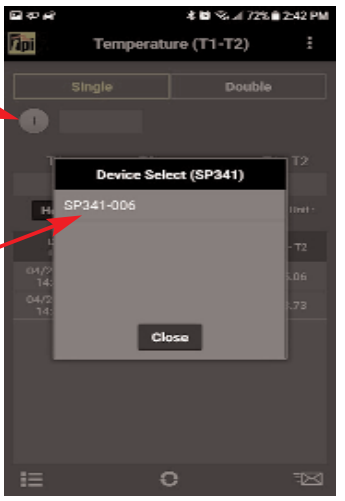
   If two SP341’s are being used tap on “Double”.



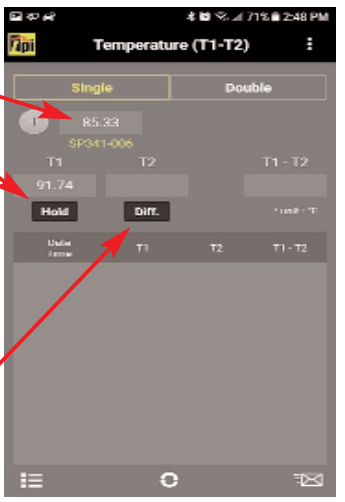
PERFORMING DIFFERENTIAL TEMPERATURE MEASUREMENTS (cont)

One SP341being used

1. Tap the + icon to select the SP341 to use for the measurement.
2. Tap the SP341 being used.



3. The temperature will be displayed.
4. Tap “Hold”. This is the T1 temperature.
5. Move the SP341 to probe to the next area.
6. Tap “Diff.”. This is the T2 temperature.



T1, T2, and T1-T2 is displayed.

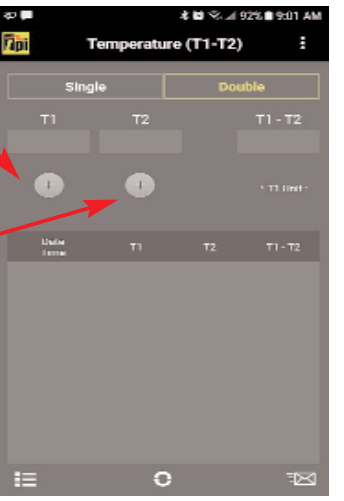
Date and time stamp information is displayed and can be exported via email.

7. Repeat as necessary.

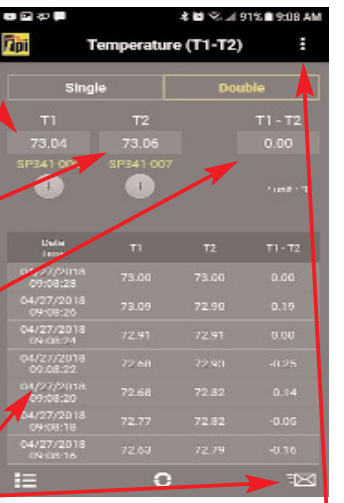
8. Use the Drop Down Menu to return to the Main Real Time Reading display as necessary.

Two SP341being used

1. Tap the + icon to select the SP341 to use as T1 for the measurement.
2. Tap the other + icon to select the SP341 to use as T2 for the measurement.



3. The T1 temperature will be displayed.
4. The T2 temperature will be displayed.
5. The T1-T2 differential temperature is displayed.



Date and time stamp information is displayed and can be exported via email.

7. Use the Drop Down Menu to return to the Main Real Time Reading display as necessary.

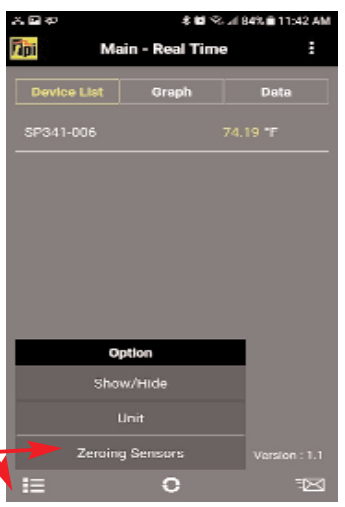
J. PERFORMING FIELD CALIBRATION (Zeroing Sensors)

The Smart Probe App allows you to perform field calibration. This function enables a system accuracy (SP341 and Probe) of +/- 1°F (0.5°C) accuracy in the range of 30°F to 120°F (0°C to 48°C).

Preparation for Field Calibration:

Fill a plastic or metal container with crushed ice and add clean water to a depth of at least 4 inches. Stir the ice and water for 2 to 3 minutes prior to performing calibration to ensure the water is completely chilled. Make certain there is plenty of ice in the mixture and always use clean water. Distilled water works well. The temperature of an ice bath is approximately 32°F (0°F).

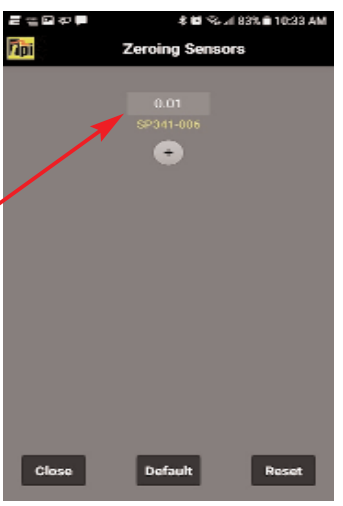
1. Connect a temperature probe to the SP341.
2. Tap the list icon to bring up the options menu.
3. Select "Zeroing Sensors" to bring up the field calibration screen.



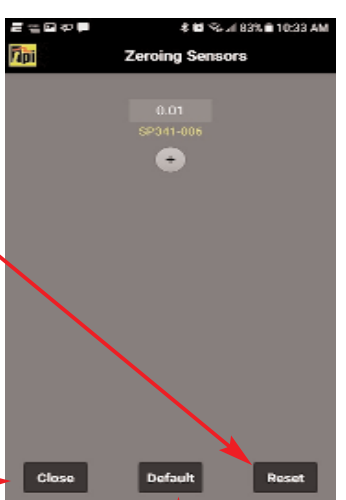
4. Tap the + icon to select the SP341 to be field calibrated.
5. Tap the SP341 to be field calibrated.

6. Insert the temperature probe into the ice water bath and allow the temperature reading to stabilize at or near 32°F (0°C).

   Note: The displayed temperature must be within ±5.4°F (±3°C) of 32°F (0°C) for field calibraton to take effect.



7. Tap the Reset icon to set the temperature to 32°F (0°C). Field calibration is complete.
8. Tap Close to return to normal operation.



Note: To return the SP3431 to factory default calibration tap the Default icon.

K. MAINTENANCE

1. Clean the surface of the instrument with a damp cloth.
2. Replace the three AAA batteries when the low battery indicator appears.

L. TROUBLE SHOOTING

Symptom	Probable Cause
Temperature seems inaccurate.	• Check thermocouple probe for incorrect wiring or open connection. • Low battery. • Non K-Type probe being used. • Ensure connection with phone is working.
SP341 does not turn on.	• Dead or low batteries. • Not holding down power switch until unit turns on. • Defective POWER ON switch.
SP341 displays "OPEN".	• No probe connected. • Temperature probe is bad.
SP341 measures temperature backwards.	• Thermocouple probe wired backwards. • Probe connected with reverse polarity.

M. ACCESSORIES

Included Accessories

Part Number	Description
A341SP	Soft pouch
GK41M	General purpose temperature probe

Optional Accessories

Part Number	Description
A925	Carrying case for 4 smart probes
A926	Carrying case for 1 or 2 smart probes

Test Products International offers a variety of K-Type thermocouple probes for many applications. Visit www.testproductsintl.com for additional information.

N. WARRANTY

This product is warranted to the purchaser against defects in material and workmanship for three years from the date of purchase.

Covered by Warranty: Repair parts and labor; or replacement of the product at company's option. Normal transportation charges to the purchaser are also covered.

Not Covered by Warranty: Damages to the product which are the result of abuse, improper use or maintenance are not covered. Any other expense, consequential damages, incidental damages, or incidental expenses including damages to property are not covered. Transportation expenses to the company are not covered.

Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitations or exclusions may not apply to you.

To Obtain Warranty Performance: Include with the product: your name, address, phone number, written description of the problem and proof of purchase date. Carefully package and return to:

TPI, Inc.
9615 SW Allen Blvd.
Beaverton, OR 97005
USA
503-520-9197
www.testproductsintl.com

TPI Canada
342 Bronte Rd. S., Unit 6
Milton, Ontario L9T 5B7
Canada
905-693-8558
www.tpicanada.com

TPI, Europe Ltd..
Longley House, International Drive
Southgate Crawley
West Sussex RH10 6AQ England
44(0) 1293 530196
www.tpieurope.com

Implied Warranties: Any implied warranties including implied warranties of merchantability and fitness for a particular purpose, are limited in duration to three years from date of purchase. To the extent any provision of this warranty is prohibited by federal or state law and cannot be preempted, it shall not be applicable. This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

O. REPLACING BATTERIES

1. Turn the battery compartment screw counter clockwise until it is just above the compartment door. Lift on the screw to open the compartment.

2. Replace the three AAA batteries.

3. Re-install the battery cover and tighten the screw by turning it clockwise.

NOTES

NOTES

NOTES

Test Products International, Inc.
9615 SW Allen Blvd., Ste. 104
Beaverton, OR 97005
Tel: 503-520-9197
www.testproductsintl.com

Test Products International, Ltd.
342 Bronte Road South, Unit #6
Milton Ontario Canada L9T 5B7
Tel: 905-693-8558
www.tpicanada.com

Test Products International Europe Ltd.
Longley House, International Drive
Southgate, Crawley, West Sussex RH10 6AQ
Tel:: +44 (0) 1293 530196
www.tpieurope.com