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FLUKE®

80PK-25

SureGrip™ Piercing Temperature Probe

Instruction Sheet

⚠⚠Warning

To avoid electrical shock, do not use this probe when voltages exceeding 24 V ac rms or 60 V dc are present. The probe tip is electronically connected to the output terminals.

Introduction

The 80PK-25 SureGripTM Piercing Temperature Probe is designed for use in liquids, gels, soft, and semi-hard materials. The probe is made of 316 stainless steel, which is suitable for food service use. The thermocouple junction of the probe is protected from tip to handle by the stainless steel sheath. The 40-inch (1-meter) cable is terminated with a Type K miniature thermocouple connector with 0.792-mm (.312-inch) pin spacing. The 80PK-25 can be used with any temperature-measuring instrument that is designed to accept Type K thermocouples and has a miniature connector input.

Specifications

Type

K, Standard grade Ni-Cr vs Ni-Al (Chromel vs Alumel)

Measurement Range of Stainless Steel Probe

-40 °C to 350 °C (-40 °F to 662 °F)

Accuracy

(With respect to ANSI MC96.1 Standard Limits of Error)

Note

All error calculations should be done in °C*, then scaled to* °F*.*

Range	Accuracy (% of reading)
-40 °C to 0 °C (-40 °F to 32 °F)	±2.2 °C
0 °C to 350 °C (32 °F to 662 °F)	±1.1 °C

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Output

@ 25 °C (77 °F) =1.00 mV (reference junction at 0 °C)

Seebeck Coefficient

@ 25 °C (77 °F) = 40.50 µV / °C

Measurement Time

(Time Constant): 3.0 seconds in 100 °C still water at sea level pressure (5 time constants = 1 complete step change, i.e., 15 seconds)

Maximum Voltage

24 V ac rms or 60 V dc
Maximum Temperature of Tip 816 °C (1500 °F)

Sheath

Material: 316 Stainless Steel Dimensions

Diameter: 3.4036 mm (.134 in)

Length: 10.16 cm (4 in)

Tip: 25 ° conical

Grounding

Junction welded to sheath

Cable

Length: 40 inches (1 meter)

Insulation

Material: PVC

Maximum Temperature: 105 °C (221 °F)

Jacket Color: Gray

Food Service Limitation: The cable should not come in contact with food.

Conductors

Type: K

Size: AWG #24 stranded (7 strands of #32)

Handle

Material: Hytrel (food service grade)

Maximum Temperature of Food in Contact with Handle: 65 °C (150 °F)

Connector

Type: Mini-thermocouple connector with .792 mm (.0312 in) pin spacing

Material: Yellow Hytrel (food service grade)

Maximum Temperature: 125 °C (257 °F)

Overall Probe Length

22.23 cm (8.75 in) from tip to end of cable strain relief

Protection

Class 3. Relates solely to insulation and grounding properties defined in IEC 348.

Measurement Considerations

Instrument Compatibility

The 80PK-25 is compatible with any temperature-measuring instrument that accepts Type K thermocouples, has a miniature thermocouple connector, and has cold reference junction compensation. Accuracy of the temperature-measuring instrument must be considered along with the 80PK-525 accuracy specification to determine the overall accuracy of the combination.

Temperature Limitations

The tip of the 80PK-25 has a continuous temperature rating of 816 °C (1500 °F). However the opposite end of the sheath nearest the handle should not be subjected to temperatures greater than 125 °C. This is the maximum temperature limitation of the Hytrel handle. See Food Service Limitations.

Exposure Limitations

The sheath material of the 80PK-25 is stainless steel. It should not be exposed to halides or sulfides.

Food Service Limitations

The 316 stainless steel probe is suitable for contact with hot or cold foods within the specified temperature range of the probe. However the handle is made of Hytrel 5556 which is suitable for repeat food contact only under the following conditions: food temperature under 65 °C (150 °F), food alcohol content under 8 %. Food may be wet, dry, or fatty. Also, the cable should not come in contact with food.

Operation

Use the 80PK-25 as follows:

Connect the 80PK-25 to a compatible Type K measuring instrument using the miniature (0.312 inch spacing) thermocouple connector.

Turn on the measuring instrument, and select the appropriate range and scale.

Check the read out on the measuring instrument. With no heat or cold source applied to the bead, the measuring instrument should display the ambient (room) temperature. If the instrument does not read out properly, refer to “Troubleshooting”.

Measuring Technique

The 80PK-25 Piercing Probe should be inserted at least 31.75 mm (1.25 in) into the substance to be measured to minimize the shunting effect of the sheath.

Troubleshooting

With no heat or cold applied to the probe, the measuring instrument should display the ambient temperature. If the measuring instrument does not read out properly, try the following:

Verify that the measuring instrument is designed to be used with Type K thermocouples. The measuring instrument should have a yellow input connector and / or be marked with a “K”.

Check for an open circuit indicator on the measuring-instrument. Some temperature-measuring instruments

have a built-in circuit to indicate if the connected probe is open. (All Fluke temperature-measuring instruments have this feature.) Refer to the owner's manual accompanying the measuring instrument to see if this feature is available.

Short the two input pins of the measuring instrument with a piece of wire. If the instrument is functioning, it should indicate the ambient temperature.

If you suspect a broken connection, use an ordinary ohmmeter to read the continuity of the probe from pin to pin. The ohmmeter should read 20 Ω or less if there is continuity.

Scale Conversions

Use the following equation to convert °C to °F:

$$(°C \times 1.8) + 32 = °F$$

Use the following equation to convert °F to °C:

$$(°F - 32) \times 0.5556 = °C$$

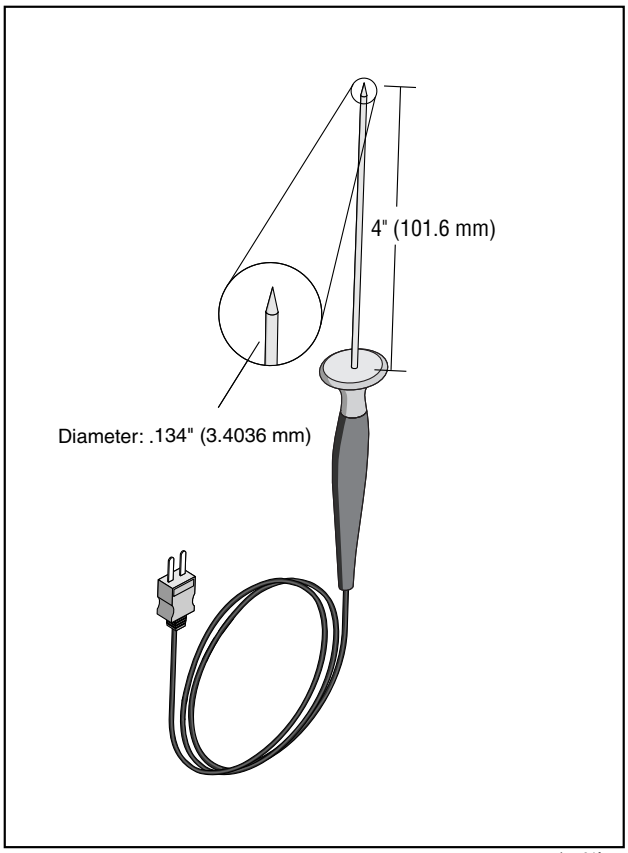

Figure 1. 80PK-25

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