

# Temperature Calibration Procedure

## Thermometer Calibration Procedure Fixed Points 0 and 100°C

Calibrating a thermometer is essential to ensure accurate temperature measurements. The calibration process may vary depending on the type of thermometer you are using. Below is a general procedure for calibrating a thermometer, but please note that specific instructions may differ based on the thermometer's design and intended use. Always refer to the manufacturer's guidelines for the most accurate information.

Materials needed:

Certified reference thermometer or calibration device

Ice water

Boiling water

Container for ice water

Container for boiling water

Stirring utensil

Gloves (to handle hot and cold objects)

Procedure:

Prepare the ice water bath:

Fill a container with ice cubes.

Add a small amount of water to create a slushy ice bath.

Calibrate at the ice point:

Immerse the thermometer probe into the ice water without touching the sides or bottom of the container.

Stir gently and allow the temperature reading to stabilize.

Adjust the thermometer if necessary to match the expected temperature of 0°C (32°F).

Prepare the boiling water bath:

Boil a pot of water.

Once boiling, reduce the heat to maintain a steady boil.

Calibrate at the boiling point:

Immerse the thermometer probe into the boiling water without touching the sides or bottom of the container.

Stir gently and allow the temperature reading to stabilize.

Adjust the thermometer if necessary to match the expected temperature of 100°C (212°F) at sea level. Adjust for altitude if necessary.

Verify mid-range calibration (if applicable):

If your thermometer has a mid-range point, you may calibrate it at that temperature using a reference source with a known, stable temperature.

Adjust the thermometer:

### Petrik Naval SL Spain

ESB21507207

Carretera Acceso Central Termica SN

Torres de Hercules

Los Barrios 11379

Cadiz Spain

### Engineering

Automation

Electronics

Safety systems

Pollution prevention

Gas detection

Metrology

### Petrik Naval Gibraltar Ltd

World Trade Center

6 Bayside, Unit 1.02

GX11 1AA

Gibraltar

### Partners

Calgaz UK

Pro-Face

Schneider Electric

Krohne

Endress+Hauser

MMC

Some thermometers have a calibration screw or dial that can be adjusted. Follow the manufacturer's instructions for making adjustments.

Document the calibration:

Record the readings at the ice point and boiling point, along with any adjustments made.

Include the date and any relevant details.

Regular calibration checks:

Calibrate your thermometer regularly, especially if it is subjected to harsh conditions or frequent use.

Always follow the specific calibration instructions provided by the thermometer manufacturer, as procedures may differ based on the type of thermometer (e.g., mercury, digital, infrared). If you are unsure or encounter difficulties, consult the manufacturer's guidelines or seek assistance from a professional calibration service.

### **Dry Well Temperature Calibrator Calibration Procedure**

Calibrating a dry well temperature calibrator involves ensuring that it accurately produces and maintains the desired temperature. Here is a general procedure for calibrating a dry well temperature calibrator, but always refer to the manufacturer's guidelines for the most accurate information:

Materials needed:

Dry well temperature calibrator

Certified reference thermometer or calibration device

Temperature bath or other stable heat source

Gloves (to handle hot objects)

Documentation tools (notebook, pen, etc.)

Procedure:

Preparation:

Ensure that the dry well temperature calibrator is clean and in good working condition.

Verify that the reference thermometer or calibration device is calibrated and traceable to a national standard.

Stabilization:

Allow the dry well temperature calibrator to stabilize at room temperature.

Turn on the unit and let it reach thermal equilibrium.

Setpoint Verification:

Set the dry well temperature calibrator to a specific temperature (e.g., 50°C).

Allow the calibrator to stabilize at the setpoint temperature.

Reference Thermometer Placement:

Place the reference thermometer or calibration device into the dry well calibrator, ensuring it is properly inserted and making good thermal contact.

Comparison at Low Temperature:

If your dry well calibrator has a low-temperature capability, set it to a low temperature (e.g., 0°C).

#### **Petrik Naval SL Spain**

ESB21507207

Carretera Acceso Central Termica SN

Torres de Hercules

Los Barrios 11379

Cadiz Spain

#### **Engineering**

Automation

Electronics

Safety systems

Pollution prevention

Gas detection

Metrology

#### **Petrik Naval Gibraltar Ltd**

World Trade Center

6 Bayside, Unit 1.02

GX11 1AA

Gibraltar

#### **Partners**

Calgaz UK

Pro-Face

Schneider Electric

Krohne

Endress+Hauser

MMC

Allow sufficient time for stabilization.

Compare the temperature displayed on the dry well calibrator with the reference thermometer.

Comparison at High Temperature:

If your dry well calibrator has a high-temperature capability, set it to a high temperature (e.g., 100°C).

Allow sufficient time for stabilization.

Compare the temperature displayed on the dry well calibrator with the reference thermometer.

Adjustment (if necessary):

Some dry well calibrators may have adjustment controls. If there's a discrepancy, follow the manufacturer's instructions to make any necessary adjustments.

Intermediate Temperature Points:

If applicable, set the dry well calibrator to intermediate temperature points and repeat the comparison process.

Document Results:

Record the temperatures displayed by the dry well calibrator and the reference thermometer at each setpoint.

Include the date, time, and any relevant details.

Certificate of Calibration:

If required, request or generate a certificate of calibration from the dry well calibrator. This document should include the calibration results and any adjustments made.

Regular Calibration Checks:

Schedule regular calibration checks for the dry well calibrator according to the manufacturer's recommendations or industry standards.

Always follow the specific calibration instructions provided by the dry well calibrator manufacturer. If uncertainties arise or adjustments are needed, consult the manufacturer's guidelines or seek assistance from a professional calibration service.

**Petrik Naval SL Spain**

ESB21507207

Carretera Acceso Central Termica SN

Torres de Hercules

Los Barrios 11379

Cadiz Spain

**Engineering**

Automation

Electronics

Safety systems

Pollution prevention

Gas detection

Metrology

**Petrik Naval Gibraltar Ltd**

World Trade Center

6 Bayside, Unit 1.02

GX11 1AA

Gibraltar

**Partners**

Calgaz UK

Pro-Face

Schneider Electric

Krohne

Endress+Hauser

MMC