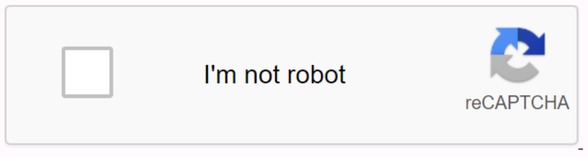

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Cen-tech infrared thermometer calibration

Calibration vs. verificationThe thermometer calibration process can only be completed in a controlled laboratory environment. The ETI Calibration Laboratory uses industrial black bodies to calibrate infrared thermometers with certification traced in accordance with national standards. UKAS-accredited certification of IR thermometers can be obtained from ETI on application and quote. The verification process, where the tool is checked for accuracy, is what is described here. If the readings of the device are found to be inaccurate when checked with a calibrated thermometer, it should be sent to the laboratory for repair or recalibration. Why the temperature check on the infrared instrument differs from the calibration of the penetration probeInfracras thermometers only measure the surface temperature and therefore should be used only as a quick guide. This is because the accuracy of measurement is influenced by many factors and variables, such as surface emission, material type, transparency, color, and reflectivity (read our complete guide to accurate IR readings here). The infrared thermometer must be tested on a laboratory calibrated master thermometer at a known temperature source. The best way to control emissions and surface temperature is by ensuring that you get a true infrared thermometer reading, using a solid black body. This minimizes most external factors and prevents temperature changes too fast. Emissivity As seen in this blog on accuracies and infrared limitations, emission plays a huge role in calibrating infrared thermometers. Depending on what you point your infrared thermometer at you are going to get a change in the infrared energy emitted. Emission is a measure of the material's ability to emit infrared energy. It is measured on a scale of 0.00 to 1.00. As a rule, the closer the material emission rating is to 1.00, the more the material tends to absorb reflected or ingrained infrared energy and emit only its own infrared radiation. Click here to learn more about emissions. What equipment is required to test the accuracy of the ETI INFRA tool, we have specifically assigned laboratories to calibrate infrared thermometers. We have invested a lot of time and resources in ensuring that the temperature and humidity are right to start each process. We also controlled the hot and cold black body sources in order to achieve the accuracy stated in the product specification. We can provide a traceable calibration certificate on all ETI infrared thermometers. In order to check the accuracy of the IR thermometer in the field, a thermometer comparator and high precision, a calibrated master thermometer such as a reference thermometer is required. The thermometer comparator consists of an aluminum cup with a solid matte black base. The base includes two holes to make the internal temperature base using a master thermometer. An infrared thermometer can be held above the entrance to the cup to take the surface temperature of the base. How to check the temperature on the infrared toolIn addition to ensuring that the comparator and infrared thermometer are clean and free of any debris or substances that might affect reading (read our complete guide to cleaning and storing your infrared device here). Place the thermometer comparator on a flat surface. Insert the thermometer's reference probe into one of the base test holes and let it stabilize. This can take any amount of time, depending on the response time of the inserted probe. If the IR device has an adjustable emission, make sure it is set at 0.95, the correct setting for the matte black surface of the Comparator.Point thermometer straight down at the bottom of the comparator and take measurements. The device should be at around 1 degree Celsius from the reference thermometer at 22 degrees Celsius, depending on the accuracy of the thermometer. What temperature the infrared instrument can check at the accuracy of the infrared thermometer can be checked with a comparator at any stable temperature. However, to reduce the probability of temperature difference between the inner surface and the base test hole, it is more accurate at 22 degrees Celsius, which is ambient at room temperature. Thermal stability at an IR thermometer at high or cold temperatures will increase the likelihood of thermal instability. For every 1 degree Celsius environment above or below 22 degrees Celsius (ambient temperature), the adjustment factor must be added to the accuracy of the device to ensure heat instability. Typically, it is 0.05 degrees Celsius for RayTemp thermometers. Other infrared thermometers may have a different meaning. Here's a table showing the values you need to consider when using rayTemp 2 in cold or hot conditions. Dos and don'tsDo calibrate at ambient temperature about 22 degrees Celsius if possible. Do not change the temperature surrounding the comparator before checking, or the surface temperature may differ from the internal temperature. Be aware of external factors that affect proper IR reading from a comparator, such as humidity, frost and debris. Don't crucify the infrared thermometer too far, or at an angle, when taking the comparator temperature as this can provide inaccurate reading. Take measurements as quickly as possible to prevent surface temperature changes. Don't forget that thermometers take time to acclimatize to a different environment. You View all our temperature blog posts related to thermometer use, check and care by clicking here. A comparator for infrared thermometers ±. The 0 to 100 degrees Celsius calibration certificate meets the European standard EN 13485 displays the ambient temperature that records the maximum/minute temperature developed in the UK More... VAT 60.00 euros inc VAT Available soon from stock RayTemp 8 thermometer kittwo thermometers in one includes differential and average temperature target ratio of 12:1 pocket size and easy to use RANGE IR -60 to 500 Probe range -64 to 1370 degrees Celsius Read more... , simple calibration checks the mug is constantly printed with detailed instructions portable and light double wall insulation More... 10.00 ex VAT 12.00 euros inc VAT on stock 1 2 3 4 5 6 7 8 Content Table 9 To calibrate infrared thermometer with ice bath: Step 1: Fill a large glass at the top with ice (crushed ice is preferable, but not required). Step 2: Add very cold water until the water reaches about half an inch (1 centimeter) below the top of the ice. Note: If the ice generally floats up the bottom of the glass, the ice bath is likely warmer than 32.0 degrees Fahrenheit (0.0 degrees Celsius). Drain the excess water. Step 3: Gently stir the ice mixture and let it sit for a minute or two. Step 4: Create a well of open water where no ice floats or tamp the ice down so layer open water at the top of the glass. Step 5: Make sure your infrared thermometer is set to issue a setting of 0.95 or 0.97.Step 6: Hold an infrared thermometer so that the lens or hole is right above and perpendicular to the surface of the ice bath. Note: If you hold the infrared thermometer too far from the surface of the ice bath or hold it at an angle, your measurement will include the sides of the glass or container or even the table on which it rests and will give you inaccurate reading. Step 7: Taking extra care to make sure that the field of view (the size and shape of the surface is measured) is well inside the sides of the glass or container, press the button on the infrared thermometer to make a measurement. If you perform the test correctly and your infrared thermometer is properly calibrated, it should read within the stated accuracy of your device specification of 32.0 degrees Fahrenheit (0.0 degrees Celsius). Infrared thermometers usually cannot be calibrated at home, but they are known for their low drift. If the results of the ice bath test are within the listed specifications of the manufacturer of your device, you can go. If, however, i.e. outside of the listed accuracy specifications, you should contact the manufacturer. Feel free to contact ThermoWorks Calibration Laboratory (calibration@thermoworks.com) with any further questions. Questions.