

TECH BULLETIN

Title: Weller ® Soldering Systems Calibration

Model (s): Weller® Model WES51 and WESD51 Series Soldering Stations

Date: March 5, 2014

Description:

As with all Weller® tools, our Model WES51 and WESD51 Soldering Systems are designed and manufactured to the highest quality specifications. We precisely calibrate our Weller® Soldering Systems with microprocessor temperature control technology so adjustments aren't necessary. Unlike conventional technologies, which require the use of Potentiometers (Pots) to make adjustments to the control parameters for general analog circuitry, the Weller® series of Soldering and Rework Systems have stored microprocessor control parameters that do not require adjustments.

We use Type "K" Thermocouple Sensors and Ni-Chrome Wound Heating Elements in our soldering hand-pieces. Such features extend the life of the product and allow you to achieve accurate temperature readings at specific points over the range of the unit (350 – 850° F / 177 – 454° C). The inclusion of the Thermocouple Sensor means that the system is not designed to be linear over the entire range of the unit.

Weller® Model WES51 and WESD51 Soldering Systems meet or exceed the Temperature Stability Requirements for MIL-STD-2000 ($\pm 10^{\circ}$ F / $\pm 6^{\circ}$ C) and IPC/EIA J-STD-001C / D / E – Appendix A / B ($\pm 9^{\circ}$ F / $\pm 5^{\circ}$ C) for the idle tip temperature. These requirements address the capability of the soldering system to control the stability of the tip temperature under an idle condition (i.e., not under a load or heat sink condition).

We also provide an individual manufacturer's specification for Temperature Accuracy and a standard Absolute Accuracy statement: "Average tip temperature

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can be ,’Offset’ to $\pm 9^{\circ}$ F ($\pm 5^{\circ}$ C).” This refers to specific set point temperatures and not the full range of the product.

When you’re testing for extremely high degrees of accuracy on the Weller Model WES51 Analog station, the temperature “set pot” should be adjusted higher than the desired temperature setting and adjusted in a CCW (counter-clockwise) direction to the desired temperature setting. This eliminates the inherent backlash that is present in mechanical potentiometers.

Keep in mind that the offset feature is not a requirement for calibration, but rather another way to provide a greater means of accuracy for you.

If an unintended “offset” temperature is installed into a Weller® Soldering System, the Weller® Model WES51 and WESD51 Series products can be reset to the factory default values. Just initiate the “factory reset” feature of the station (see Instruction Manual for initiating this feature).

As you know, tip temperature accuracy depends greatly on the measurement method you use. We recommend using the Weller® Model WA2000 Soldering Tool Analyzer for temperature accuracy and/or stability measurements. We also recommend using the Weller K111 Thermocoupled Tip Assembly for the highest degree of accuracy (Weller® Models WES51 / WESD51 / PES51 Stations and Irons).

Questions? We’re here for you.