



User manual

DENSITY KIT
for BL 224



Density Determination Feature

The scale can determine the density of an element, using the **Density Kit** accessory (sold separately).

Density Determination

To calculate the density, it is necessary to know the type and temperature of the liquid in which the sample will be immersed.

- Make sure you have selected the “F Den” function in the user menu.
- Press the <UNIT> key until “Den” appears in the display.
- Press and hold the <UNIT> key to open the “Temperature-Liquid” setting menu.

Temperature Setting

- Using the ▲ key go to “Temp” and press <TARE> to confirm.
- Using the ▲ and ► keys set the liquid temperature value and press <TARE> to confirm.

Liquid Selection

- Scroll to “Liquid” with the ▲ key and press <TARE> to confirm.
- Scroll through the various options with the ▲ key (“H2O”, “Ethanol” and “Other”) and select the correct one with the <TARE> key.

Mode Selection

- Go to “Mode” with the ▲ key and press <TARE> to confirm.
- Scroll through the various options with the ▲ key: (“Compensated”, “Uncompensated” and “Purity of Gold”) and select the desired one with the <TARE> key.
- Press and hold <TARE> to save the settings and return to measurement.

Notes: Factory settings: T= 25 °C - H2O - Compensated. Gold purity is expressed in carats. The temperature setting is only activated if the set liquid is H2O or ethanol. For other types of liquids, no temperature setting is possible. The appropriate optional accessory is required for density determination.

- Mount the density determination kit on the scale.
- Calibrate the scale by pressing the <TARE> key.
- Press the <UNIT> key until “Den” appears on the display.
- Press the <CAL> key to start the density determination procedure.
- The scale asks for the weight of the sample in air (“Wt.Air”). Place the sample on the plate of the density determination kit and when the measurement is stable press <CAL> to confirm.
- You are now asked for the weight of the sample in liquid (“Wt.Liqd”). Immerse the sample in the liquid, and when the measurement is stable confirm with the <CAL> key.
- The scale shows the result according to the selected mode (compensated, uncompensated and gold purity).

Density calculation

With air density compensation (*Compensated*)

p = Sample density

A = Sample weight in air

B = Sample weight in auxiliary liquid

p0 = Density of auxiliary liquid

pl = Air density (0,0012 g/cm³)

$$p = \frac{A * (p0 - pl)}{(A - B)} + pl$$

Without air density compensation (*Uncompensated*)

$$p = \frac{A}{(A - B)} * p0$$

