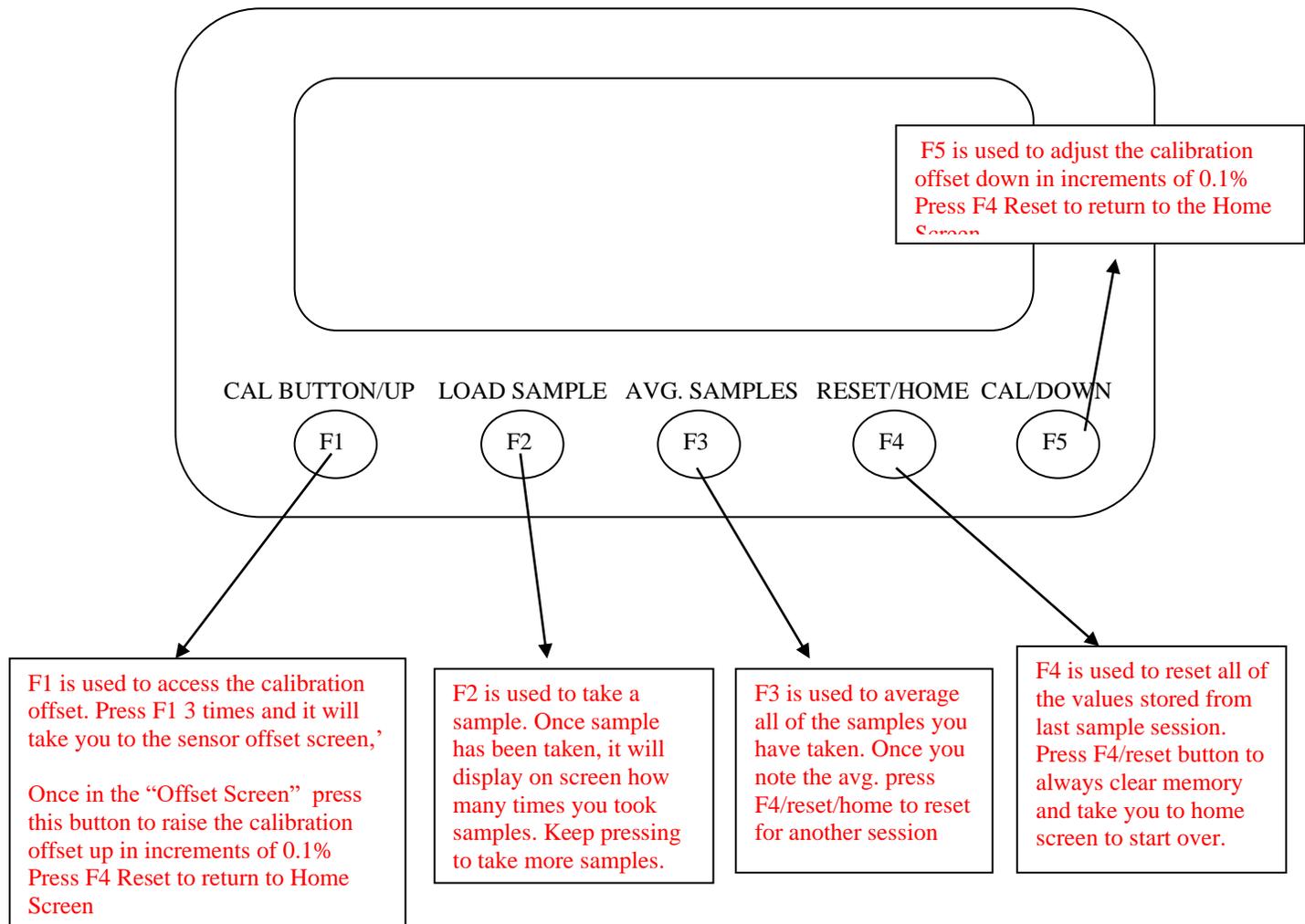


How To Operate and Maintain the DL-6000

Version: 3.0

MOIST-VU DL6000 Display



STEP 1:

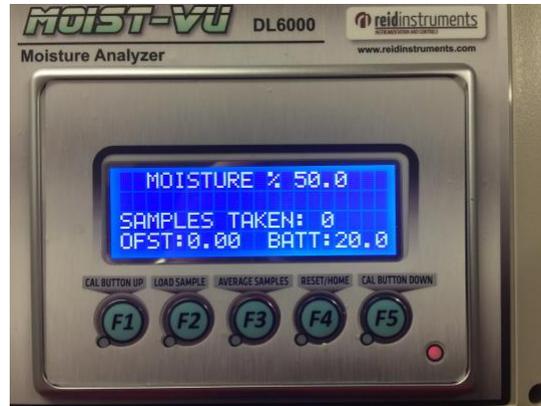
- Always power up the probe while it is sitting in the stand. The unit will **beep for up to 45 seconds** while performing a zero calibration.

- The probe must rest still in the stand during “start-up” with no objects in front of or close to the probe measurement faceplate.
- During this time you will see the display starting up and reminding you too keep sensor clear.



STEP 2:

- After the “Self Air Calibration Power-up Beep Stops” the probe is ready for use. The LCD will now change display and bring you to the main home screen. The screen should show a value between 6.0% and 7.0% for **Hops** or 4% to 5% for **HEMP** (This is normal)
- First line displays Moisture Content.
- Second line is empty unless you have a low battery and then it will display "LoBattery"
- Third line will display how many samples you have taken since you last pressed the average button.
- Fourth Line Displays sensor offset, and batt: voltage.
- The battery voltage should indicate between 15 & 18 volts, Alarm will display "low battery" Do not operate if the voltage drops below 15 volts, shut off power, place the probe back in the stand & plug in the charger.” A fully charged battery supply will operate the probe a minimum of 6 hours of continuous use. The probe will fully charge in 2 hours, but can be used much sooner as long as the battery voltage remains above 15.0 volts.



STEP 3:

- A measurement session should include at least 10 samples across the KILN. Most users prefer to enter the KILN and take samples in a “X” pattern across the KILN.

STEP 4:

- Plunge the probe into the hops until it rests on the “Depth STOP PLATE” give the probe a quick shake to left and right to help seat the probe against the hop cones. Most users prefer to plunge the probe about 1 foot below the top surface. You may vary this plus or minus a few inches using the depth stop plate.

STEP 5:

- Once the reading has stabilized, press the “LOAD SAMPLE” button. This will take one sample and will display how many samples you have taken since you last pressed "Average Samples"

STEP 6:

- Continue to take several more readings across the KILN. This is important to achieve a good average value. Take your readings near the end of the drying cycle at the same time this was done using your existing “Touch And Feel” method.

STEP 7:

- After taking at least 10 readings, press the “Average Samples” button to display an average of all readings.

Pressing the Average button will lock in the average value. It will not change until either the power is switched off or the “Reset/Home Button” is pushed.

STEP 8:

- If you are satisfied with the average reading, shut off power to the probe & return the Probe to its stand. When not using, put the probe and stand in a room or area outside the kiln area if possible. Do not leave the probe sitting in direct sunlight or allow it to get splashed with water or rain.

STEP 9:

- If you are not satisfied with the average reading, press the Reset Button. This will return the unit to measurement mode & clear all previous readings. You can now proceed to take another measurement session.

Calibration Offset

The Reid Instruments Moist-vu Hops Moisture Meters are embedded with Ultrasonic Frequency Sensors manufactured by **Hydronix** in the UK. We take these industrial grade sensors and calibrate them for loose “Uncompacted” hops while they are drying in drying beds and kilns. After much testing, a final calibration was achieved in 2007. All meters since then have been shipped with this “Standard Calibration”. It’s important to understand that physical structure and the compression or compactness of the sample tested also influences the frequency shift and thus, the meter output. There are many different varieties of hops, whose size and organic structure vary between types and region grown. Many years of use and testing here in the Pacific North West has shown that an **offset** or **deviation** from the standard calibration can occur as much as plus or minus 3%. Also here in the Northwest, the growers dry in large kilns and vary the depth of the hops from 24 to 36 inches. The growers using the portable meters in large kilns determine what that “offset” is after an initial few days of drying and comparing their Kiln Readings via the meter and the final Bale Reading via the hay bale meter. As an example, you may find that your average meter reading may need to be 9.25% in order to achieve the desired 10.0%

value in the bale as measured with the final Hay Bale Tester. The Ver 3.0 meter allows for that “offset” to be corrected in the display. This is not required if the user wishes to not use this function. You can simply record and note what the offset is for each variety and take that into consideration when drying.

Because of the many variables as described above, it is recommended that the user test the final product with other known and accepted standard meter types. In the case of large North West Growers, the hops are hydraulically compacted into 400 lbs bales. Because the hops are now highly compacted, a simple “Hop Bale Meter” is used to get a finished reading. These inexpensive prong type resistance meters work well in compacted material but will not give acceptable results in loose non compacted hops while drying. After the hops are determined to be dry enough they are pushed off the kiln and onto the floor to sit for approx 8 hrs before going to the baler. The compressed bale moisture is tested with a probe type "Hay Bale Meter. "The grower wants to get as close to 10% moisture as possible. Our portable meter was designed to help you determine when to stop drying to reach that "Target Moisture" 8 hours later in the Bale. The user should understand that there are several variables between hop varieties and drying methods and times that will result in an "Offset" deviation between what average meter reading is in the kiln, and what the final moisture reading result is in the compacted bale.

As an example if the hops are being laid deeper in the kiln, the average meter reading will be higher and just the opposite if the hops are at less depth than 28 inches. Different varieties have slightly different "Organic Structure" which can also have affect on the meter reading.

Growers report to us that it takes several kilns to determine what their average meter reading should be to achieve their desired **target value** in the bale. Experience has shown it can vary anywhere between approx 8.0 to 11.0% meter reading. This is called the OFFSET.

When the meters are shipped they will read approx 6.5% after doing a self zeroing in the stand on start-up. The portable meter DL-6000 V3.0 now has an off-set or calibration adjustment via 4 line display user interface. See page 1 for Display Instruction

Maintenance And Cleaning

- Clean the residue build-up on the probe after a few uses. Do not use any aggressive solvents around the measurement faceplate. We recommend using simple ipa rubbing alcohol to the clean probe.
- When cleaning, do not press hard against the measurement faceplate.
- A non-stick cooking spray (PAM) can be applied to the probe to help reduce residue build-up. If this is used, be sure and dry off any of the spray on the measurement faceplate before using
- Always sit the probe in the stand by resting on the middle battery enclosure, not the depth stop plate

SPECIFICATIONS

| | |
|-------------------|---|
| Supply Voltage | 15.6 vdc |
| Battery Supply | 2000mah 13 Cell NiMH Internal Battery Pack Rechargeable @ 500 ma max |
| Current Draw | 150 ma. |
| Fuse | 1.5 amps |
| Measurement Range | Defined using Hydro-COM Software |

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