1. FEATURES

* Be a powerful and versatile instrument for measuring and diagnosing dampness in grains. Widely used for fast and accurate measurement of moisture in the process of allotment, acquisition, storage, machining of packed grains.
* Digital display gives exact reading with no guessing or errors while a colour coded light (LED) indicates the moisture condition of the material. This combined presentation of moisture measurement helps the user to map the extent of problems and monitor changes in condition precisely and reliably.
* Used the exclusive Micro-computer LSI circuit and crystal time base to offer high accuracy measurement. It can obtain automatically the temperature corrected moisture value.
* Wide measuring range and high resolution.
* Automatic power off to conserve power.
* Can communicate with PC computer for statistics and printing by the optional cable and software for RS232C interface.

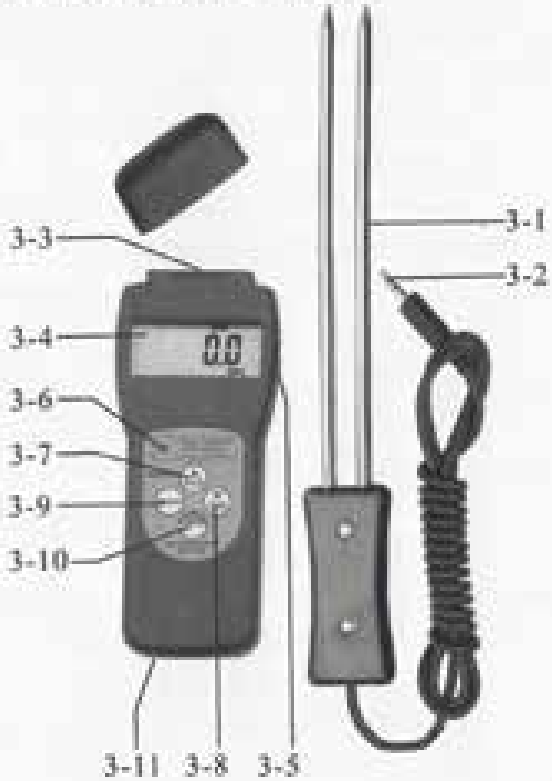
2. SPECIFICATIONS

Display: 4 digits, 10 mm LCD
With colour coded LEDs indication

Green LED represents a safe, air-dry state.
Yellow LED represents a borderline State.
Red LED represents a damp state.

Range: average 6-30%(Refer to Appendix on Page7)
Accuracy: ±0.5%n or ±0.5%
Whichever is the greater
PC interface: RS232C interface
(Cable and software is not included)
Power supply: 4x1.5 AAA size
(UM-4) battery
Power off : 2 modes
Manual off at any time
Auto power off after 5 minutes from last key operation
Operating conditions:
Temperature : 0-50 ℃
Humidity : below 90% RH
Dimensions:
Unit 165x62x26mm or
6.5x2.4x1.0 inch
Probe 368x44x25 mm or
14.5x1.7x1.0 inch
Weight: 320g
(not including batteries but including the probe)
Standard accessories included :
Carrying case. . . . . 1 pc.
Operation manual. . . . . 1 pc.
Probe. . . . . 1 pc.
Optional accessory
Cable and software for RS232C

3. FRONT PANEL DESCRIPTIONS



3-1 Probe
3-2 Probe plug
3-3 Probe jack
3-4 Display
3-5 RS232C interface
3-6 Color coded LED
3-7 Plus/Hold key
3-8 Minus/Zero key
3-9 Function key
3-10 Power key
3-11 Battery compartment/ Cover

4. MEASURING PROCEDURE

4.1 Depress the power key and release to power on the meter.

4.2 To check if the grain code is right by pressing and releasing the Function key. Such code can be changed by the Plus/Hold key or Minus/Zero key when the `cdxx` is on the display. Here `cd` is the abbreviation for `code` and `xx` is the grain code no. If keep depressing the Plus/Hold or Minus/Zero key, the material code will step into next code about every second and releasing it till the grain code is right.

4.3 Grain code selection

The grain codes are listed in the table on page 7. if the grain to be measured is not listed in the table, please ascertain its grain code among `cd01` and `cd36` by the standard oven-drying method, that is by oven-drying of commercial samples of the grain to be measured. Write down the code for later use.

4.4 Insert the plug (3-2) of the measurer into the probe jack (3-3).

4.5 Insert the needles into the grain to be measured. The reading on the display is the moisture content. Read the moisture level value from the display and note the moisture condition of the grain from the colour coded LED. Please note that reading will change if needles stay in grain longer.

4.5 To hold the max. value during measurements,

just depress the △/HOLD key till the symbol `max` appears on the display. To display the instant values, just depress the △/HOLD key again till the symbol `max` disappears on the display.

4.6 Zero calibration

The zero feature enable the user to compensate for the effect of changes in both temperature and humidity. When the probe does not touch anything except air, the reading on the display should be `0` or `0.0` . If not, please depress and release the zero key to carry out zero calibration.

5. ALARM LIMITS

5.1 There is a coded coloured LED indicating the status of moisture. It is controlled by 2 alarm limits. The factory settings are as follow.

AL1 =13 and AL2 =18

If the reading<AL1, the green LED is on.

If the reading>AL2, the red LED is on.

If the reading lies between AL1 and AL2, the yellow LED is on.

Users can change the alarm limits as per their intention.

5.2 How to set the alarm limits

5.2.1 Depress Power key and not release it till 'AL1'or 'AL2 ' appears on the Display. It is about 7 or 9 seconds from starting depressing Power key.

5.2.2 Such value can be changed to your intended

Value by depressing the plus key or minus key. Depress the function key to return to the state of measurement. If the second limit AL2 is less than the first limit AL1, the setting is invalid and the factory settings for AL1 and AL2 are restored to AL1=13 and AL2=18 automatically.

6. CONSIDERATIONS

6.1 This instrument is of very high input resistance. Every part has good insulation. Please keep it in a dry, dustproof place.

6.2 It is very, very difficult to accurately measure the moisture content of grains. This is because any grain is of organic body. The same kind of grain in different regions or states, even in the same region or state but in different soils has different characteristics. That is why we first measure the moisture content of grain by the standard method of oven, the most accurate but less efficient method to measure the moisture content, then measure the moisture content using such instruments. By calculating the bias, we could amend the measurement value. In this case, the measurements are more accurate and more efficient.

7. BATTERY REPLACEMENT

When the battery symbol appears on the display, it is time to replace the battery. Remove the batteries and install new ones paying careful attention to polarity.

Appendix: Code/Range table for Grains

[illegible]	grain	[illegible]	grain	[illegible]	grain
c001 7-31	Wheat/Rye (Whole)	c413 7-31	Coffee (Whole)	c428 5-21	Flax (Whole)
c002 7-29	Wheat/Rye (Ground)	c414 7-26	Coffee (Ground)	c429 7-27	Peas (Pengreen) (Ground)
c003 7-29	Paddy (Whole)	c415 7-27	Coffee Green (Ground)	c427 7-30	Peas (Ground)
c004 7-28	Paddy (Ground)	c416 4-13	Cocoa Beans (Whole)	c428 5-15	Ground nuts Hulled (Whole)
c005 7-29	Rice (Milled)	c417 6-27	Linseed (Whole)	c429 7-28	Grass Seed/Rye grass (Whole)
c006 7-25	Semolina	c418 7-21	Lentils (Ground/ Whole)	c430 6-25	Grass Seed/Cocksfoot (Whole)
c007 7-29	Maize/Corn (Whole)	c419 5-26	Oilseed Rape (Ground)	c431 7-28	Flour/Soft Wheat
c008 7-26	Maize/Corn (Ground)	c420 7-21	Mustard Seed (Whole)	c432 6-24	Clover/White Seed (Whole)
c009 6-28	Soya Beans (Whole)	c421 7-28	Sorghum/Milo (Whole)	c433 6-22	Clover/Red Lucerne Seed (Whole)
c010 5-22	Soya Beans (Ground)	c422 7-28	Sorghum/Milo (Ground)	c434 7-29	Buckwheat (Ground)
c011 7-29	Barley/Oats (Whole)	c423 5-25	Sunflower seed (Whole)	c435 5-15	Brassicas/Brussels Sprout (whole/ground)
c012 7-29	Barley/Oats (Ground)	c424 6-20	Sunflower seed (Whole)	c436 7-27	Brassicas/Tic/Winter (whole/ground)