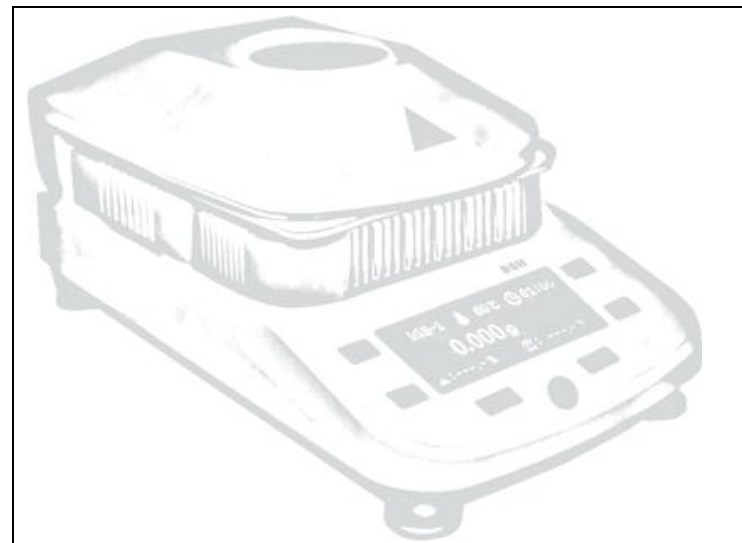


## **Intell-Lab Moisture Analyzer Series IL**

**Models: IL-50.001 & IL-50.01**



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# Contents

|                                  |    |
|----------------------------------|----|
| <b>1. Brief Introduction</b>     | 2  |
| 1.1 Safely Precautions           | 2  |
| <b>2. Installation</b>           | 3  |
| 2.1 Placement                    | 3  |
| 2.2 Components                   | 3  |
| 2.3 Power Connection             | 4  |
| <b>3. Operation</b>              | 4  |
| 3.1 Level Adjustment             | 4  |
| 3.2 Display                      | 5  |
| 3.3 Operation Panel              | 6  |
| 3.4 Operation Mode               | 7  |
| 3.5 Test Procedure               | 9  |
| <b>4. Testing</b>                | 9  |
| 4.1 Temperature & Time           | 9  |
| 4.2 Weight of Sample             | 9  |
| 4.3 Sample Preparation           | 10 |
| 4.4 Types of Sample              | 10 |
| <b>5. Maintenance</b>            | 10 |
| 5.1 Calibration                  | 10 |
| 5.2 Problems & Solutions         | 11 |
| <b>6. Parameter</b>              | 12 |
| 6.1 Specifications               | 13 |
| 6.2 Interface                    | 13 |
| <b>7. Standard Configuration</b> | 13 |

Thanks for choosing our Intell-Lab series Moisture Analyzer!

## 1. Brief Introduction

Moisture Analyzer is used for determination moisture in samples.

### 1.1 Safely Precautions

For safe and dependable operation, please comply with the following instructions:

- This Moisture Analyzer is used for determination moisture in the samples. Any improper operation can endanger personnel and damage the instrument or other equipment.
- Please confirm the input voltage on label and plug type matches your local AC supply. This Moisture Analyzer is supplied with a 3-pin power cable with an equipment grounding conductor. Disconnecting grounding conductor is prohibited.
- Make sure power cable will not be an obstacle or cause any tripping risk.
- Never use this Moisture Analyzer in hazardous, wet or unstable environment.
- Please unplug the power before cleaning the instrument.
- Never convert power during a test. (E.g. from 110V to 220V or vice versa)
- Ensure sufficient free space around the instrument. (Approximately 3 ft free space above the unit)
- This Moisture Analyzer must be operated by trained personnel who are familiar with the properties of the samples and with the handling of the instrument.
- You should use goggles, gloves, protective clothing and masks to operate the instrument.
- Never make any modifications or constructional alterations to the instrument.
- After-sale service is offered only by professionals authorized by our company.

**Caution:** This moisture analyzer works by utilizing a strong heat source.

·Never place inflammable materials on, below or next to the instrument as the area around the dryer unit warms up.

·Exercise caution when removing the sample. The sample itself, the sample chamber and any, sample containers may still be very hot.

·For samples with any potential danger, be careful to analyze the probable dangers. Consequences.

·Fire/Explosion: During heating, some solvents, samples of flammable or explosive materials will liberate flammable or explosive gas or steam. Avoid fire or explosion, by using such samples in a dry environment and use a low temperature.

·Toxin/Inflammability: Only dry toxic or corrosive samples in a correctly operating fume cupboard.

·Corrosion: Samples which release corrosive vapors. In the case of such samples, we advise you to work with small amounts of sample as the vapor can condense on cooler housing parts and cause corrosion.

Note: Damage to the equipment by corrosive or flammable samples is not covered by the warranty.

## 2. Installation

### 2.1 Placement

Please ensure the operation table is stable and level at all times.

·Choosing a safe and well ventilated place.

·Please avoid placing the moisture analyzer in the severe temperature fluctuations, excessive humidity, vibration, drafts, electromagnetic fields or direct sunlight.

## 2.2 Components Installation



(1) Place windshield (2) Place bracket and screw (3) Place pan on bracket.  
Be very careful not to damage the internal mechanism during this process.

## 2.3 Power Connection

Plug in at the back of moisture analyzer and attached to power outlet 120 VAC.

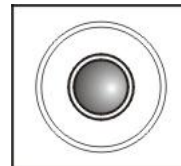


Note: For getting the best testing results, please warm-up at least 30 minutes before testing.

## 3. Operation

### 3.1 Level Adjustment

Adjusting the level with level indicator and adjustable feet. As illustrated in the pictures below:



Correct

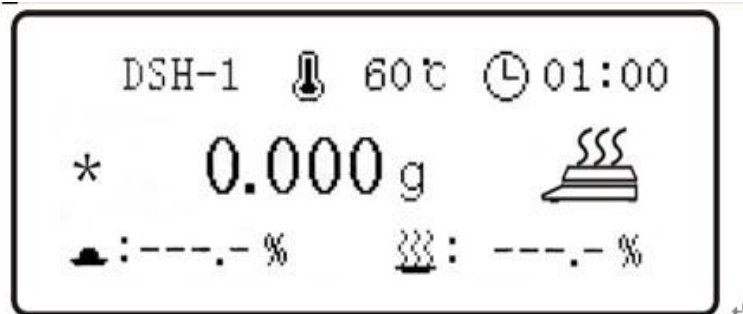


Incorrect

Note: Must re-adjust the level if location changed.

### 3.2 Display

#### Model Identification DSH (Digital Signal Halogen - Capacity & Readability)



|       |                                            |
|-------|--------------------------------------------|
| IL-50 | Model                                      |
| *     | Unstable                                   |
|       | Percentage of dry weight                   |
|       | Percentage of moisture                     |
| g     | Gram                                       |
|       | Temperature setting or Current temperature |
|       | Time setting (M / S)                       |
|       | Heating now                                |

### 3.3 Operation Panel



| Key | Title                        |               | Meanings                                           |
|-----|------------------------------|---------------|----------------------------------------------------|
|     | ON/OFF                       |               | Turn on /Turn off                                  |
|     | TARE/BACK<br>(short press)   |               | Stop the test, cancel current setting Tare the pan |
|     | TEMPERATURE<br>(short press) |               | Temperature Setting                                |
|     | TIME (short press)           |               | Time Setting                                       |
|     | UP                           | (short press) | Temperature or time rise in sequence               |
|     |                              | (long press)  | Temperature or time rise steadily                  |
|     | DOWN                         | (short press) | Temperature or time reduce in sequence             |
|     |                              | (long press)  | Temperature or time reduce constantly              |
|     | CAL/PRINT                    | (long press)  | Calibration                                        |
|     |                              | (short press) | Print                                              |
|     | TEST (short press)           |               | Begin to test                                      |

### 3.4 Operation Mode

#### Standby

Moisture analyzer is in standby mode when connected to AC power.

|                                                                                                 |                                         |
|-------------------------------------------------------------------------------------------------|-----------------------------------------|
|  (short press) | Start operation and go to weighing mode |
|-------------------------------------------------------------------------------------------------|-----------------------------------------|

#### Weighing Mode

|                                                                                                 |                                                                                                             |
|-------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------|
|  (short press) | Zero the display                                                                                            |
|  (short press) | Digits displayed, go to set temperature                                                                     |
|  (short press) | Digits displayed, go to set time                                                                            |
|  (short press) | Go to testing mode. The weight of sample must > 0.5g.<br>If < 0.5g, "< 0.5g" flash, then press it to cancel |
|  (long press)  | Begin to calibrate                                                                                          |

#### Temperature Setting

Working temperature is 50-160°C, stepping is 1° C

|                                                                                                   |                                                        |
|---------------------------------------------------------------------------------------------------|--------------------------------------------------------|
|  (short press)  | Go to temperature mode, digits flash                   |
|                | (short press) Temperature increases in sequence by 1°C |
|                                                                                                   | (long press) Temperature increases steadily            |
|                | (short press) Temperature reduces in sequence by 1°C   |
|                                                                                                   | (long press) Temperature reduces steadily              |
|  (short press) | Confirm the value and save                             |
|  (short press) | Exit without saving                                    |

#### Time Setting

Setting time from 1-99 minutes, stepping is 10 seconds.

|                                                                                                   |                                                 |
|---------------------------------------------------------------------------------------------------|-------------------------------------------------|
|  (short press) | Go to time setting mode, digits flash           |
|                | (short press) Time reduces by 10s               |
|                                                                                                   | (long press) Time reduces steadily              |
|                | (short press) Time increases in sequence by 10s |
|                                                                                                   | (long press) Time increases steadily            |
|  (short press) | Confirm the value and save                      |
|  (short press) | Exit without saving                             |

IL Series provide two easier time setting ways.

#### (1) Automatic Mode

During heating, if the weight of sample reduces < 0.001g, moisture analyzer will stop work.

#### AUTO Mode Setting

 →  or  ( Choose "AUTO" mode ) →  (confirm)

#### (2) Time Setting Mode

Setting heating time manually. Moisture analyzer will stop heating if the setting time is up.

#### Time Setting

 →  or  (choose time setting) →  (confirm) →  
→  or  (change time) →  (save and back to weighing mode)

### 3.5 Test Procedure

Temperature Setting → Time Setting → Sample Preparation → Put on Empty Pan →



(clear the weight of pan) → Put Sample on Pan ( > 0.5 g ) → Close

Shield →  (test) → Dry Weight % and Moisture % → Beeping →



(back)

Note: If heating cover opens, it will stop the heating and return to weighing mode. Test is invalid.

### 4. Testing

In the process of heating and drying, we obtain the moisture according to the weight loss of the sample.

The speed and quality of testing are affected by the following parameters. Ideal setting parameters should be confirmed by several trial tests.

The best testing results depend on the following settings:

·Heating Temperature ·Heating Time ·Sample Weight ·Sample Work ·Sample Types

#### 4.1 Heating Temperature

·Heating temperature control heating time. (e.g. Lower temperature will need more time.)

·Heating temperature must not cause any disintegration or change of chemical structure. (Generally setting is 105°C, except for special requirements of samples and industry.)

·For some samples, different moisture content will be measured at different heating temperatures. In this case, try to increase the temperature to compensate the errors of testing.

#### 4.2 Weight of Sample

The weight of sample affects testing time and repeatability of results. Max Weight is 50 g.

Larger samples, more moisture to evaporate.

### 4.3 Sample Preparation

Samples should be representative then you can get accurate and repeatable results.

When preparing the samples, make sure to place the material on the pan evenly and avoid excessive accumulation and do not use too much material.

### 4.4 Types of Samples

·Mushy, fatty and liquefiable materials

Enlarge surface area of sample with glass fiber pad. (E.g. Butter. Moisture is distributed more evenly through use of a pad. Moisture evaporates faster and more completely by enlarging surface area)

·Liquid

Liquid will become droplets and hinder fast drying. Using pad to distribute liquid evenly on a larger area to save drying time. (Pads and pans are available from your balance supplier)

·Easily encrusted, temperature-Sensitive Materials

Sample will be encrusted on its surface which will hinder testing. Using pad to cover the sample and use a suitable temperature. Then repeatability will be better.

·Sugary Materials

A sugary sample will become scorched easily. Choosing modest temperatures and making sure to distribute the sample evenly and thinly. Improving repeatability of testing with a pad will help.

Caution! The above materials may cause fire, explosion, damage or injury.

For any samples with security risks, please be careful about the possible dangers.

### 5. Maintenance

#### 5.1 Calibration

Regular calibration is important to ensure the long term validity of the sample results. Please ensure you use the supplied weight to calibrate the unit often. (Allow 30 mins warm up)

- (1) In a no load condition, a long press , until displays "cal" and "50.00 g" flashes load the supplied 50 g test weight. (Do not close the lid with the weight on the pan). When the unit displays 50g not flashing, remove the test weight and resume testing as normal.

## 5.2 Problems and Solutions

| Phenomenon                                                                                              | Reasons                                                 | Solutions                                                                                                                                    |
|---------------------------------------------------------------------------------------------------------|---------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------|
| Will not turn on                                                                                        | No connection to power                                  | Check power and voltage                                                                                                                      |
| "<0.5g" flashes on right side                                                                           | Weight of sample < 0.5g                                 | Increase the weight of the sample<br> back to weighing mode |
|  flashes on right side | Heating cover open                                      | Close cover<br>                                             |
| Low Accuracy                                                                                            | Bad calibration<br>Unstable working environment         | Calibrate correctly<br>Choose a suitable work place                                                                                          |
| No Calibration                                                                                          | Wrong calibration procedure<br>Wrong calibration weight | Calibration in correct way<br>Use Standard Calibration weight                                                                                |
| Err01                                                                                                   | Faults in Storage Circuit                               | Please contact with your distributor                                                                                                         |
| Err02                                                                                                   | Faults in Weighing Circuit                              | Please contact with your distributor                                                                                                         |
| Err03                                                                                                   | Faults in Temperature Measurement Circuit               | Please contact with your distributor                                                                                                         |
| Err04                                                                                                   | Temperature Sensor Damaged or not connected             | Please contact with your distributor                                                                                                         |
| Err05                                                                                                   | Faults in Temperature Controlled Circuit                | Please contact with your distributor                                                                                                         |
| Err06                                                                                                   | Calibration Data Lost                                   | Re-calibration required                                                                                                                      |
| Err07                                                                                                   | Temperature Sensor Lost Data                            | Please contact with your distributor                                                                                                         |
| Err08                                                                                                   | Overheated                                              | Please contact with your distributor                                                                                                         |
| Err10                                                                                                   | Incorrect power input                                   | Use correct AC power                                                                                                                         |
| No Data but Buzzer Beeps                                                                                | Display Broken                                          | Please contact with your distributor                                                                                                         |

## 6. Parameter

### Environment

The following parameters are acceptable:

Temperature: 10°C - 30°C. (50°F - 86 °F)

(The unit will still function between 5°C - 40°C. (40°F - 104°F) Under extreme temperatures, testing is less reliable).

Relative Humidity: 15 % - 80 %, RH

Warm-up: 30 mins before starting a test.

Power: Input AC: 120VAC 3A, 50Hz

Voltage Fluctuation: 120 ± 10 %

Power Load: Max. Output is 250 W

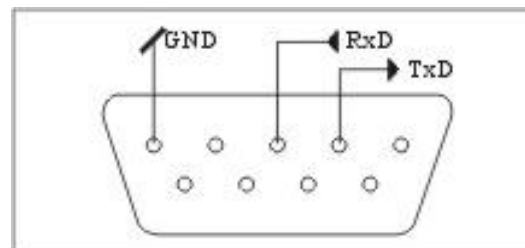
Protection: Avoid Dust, Damp, Pollution Degree: Class II

## 6.1 Specifications

|                                |                                                |          |
|--------------------------------|------------------------------------------------|----------|
| Model                          | IL-50-001                                      | IL-50-01 |
| Capacity (g)                   | 50 g                                           |          |
| Readability (g)                | 0.001 g                                        | 0.01 g   |
| Repeatability (g) ( 3g sample) | 0.2%                                           | 0.5%     |
| Min. Weight of Sample (g)      | 0.5 g                                          |          |
| Suggested Sample Weight (g)    | 0 - 10 g                                       |          |
| Heating Time (M.)              | 1 - 99 minutes (stepping is 1 m.)              |          |
| Heating                        | Standard                                       |          |
| Working Temperature (°C)       | 10° C - 30°C                                   |          |
| Interface                      | RS232C                                         |          |
| Time Control                   | Setting time by artificially or automatically  |          |
| Heating Temperature (°C)       | 50°C - 160°C (stepping is 1°C)                 |          |
| Display                        | Moisture %, Solid %, Weight, Time, Temperature |          |
| Pan (mm)                       | 100 mm                                         |          |
| Outline (mm)                   | 285×160×150 mm                                 |          |
| NW / GW                        | 6.6 lb / 9.25 lb (3 kg / 4.2 kg)               |          |
| Heating Method                 | Halogen (Digital Signal Halogen)               |          |

## 6.2 Interface

Rs232 connection via DB9



Pin 2: TxD, Transmit

Pin 3: RxD, Receive

Pin: 5: GND, Ground

Rs232 Setting (Default)

Baud rate: 9600

Data-bits: 7

Even-odd: N

Stop bit: 2

## 7. Standard Configuration

|                         |      |
|-------------------------|------|
| Main Unit .....         | 1 pc |
| Sample Pan Support..... | 1 pc |
| Power Cord .....        | 1 pc |
| Pan .....               | 1 pc |
| 50 g weight .....       | 1 pc |
| Operation Manual .....  | 1 pc |

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