TRIPLETT

MS475
# Moisture Meter/Psychrometer/IR
Thermometer

CE

Introduction

Congratulations on your purchase of the Triplett MS475 Moisture Meter, Psychrometer plus IR Thermometer. Monitor moisture in wood and other building materials with no surface damage with the Pinless Moisture sensor (Pin-type Moisture Probe included). Measure Humidity and Air Temperature with built-in probe plus non-contact InfraRed Temperature with IR design. Advanced functions provide Grains per Pound, Dew Point and Vapor Pressure calculations.

Description

Meter Description
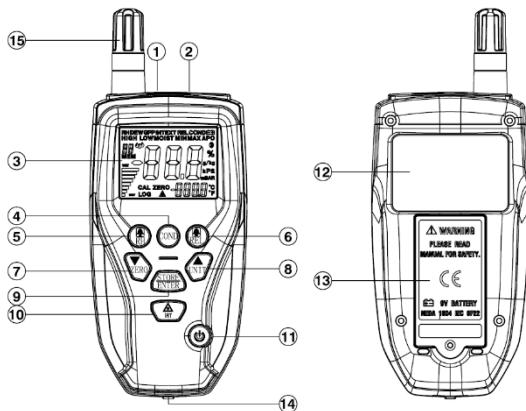
1. Laser Pointer
2. IR Temperature Sensor
3. LCD Display
4. COND (Condensation) Button
5. RH (Relative Humidity) Button
6. MOIST REL Button
7. DOWN/ZERO Button
8. UP/UNIT Button
9. Memory Store/ Enter/ALARM Set Button
10. IR Thermometer Button
11. ON/OFF Button
12. Pinless Moisture Sensor
13. Battery Cover
14. Remote Pin Probe Input Jack
15. Humidity Sensor

Display Icons Description
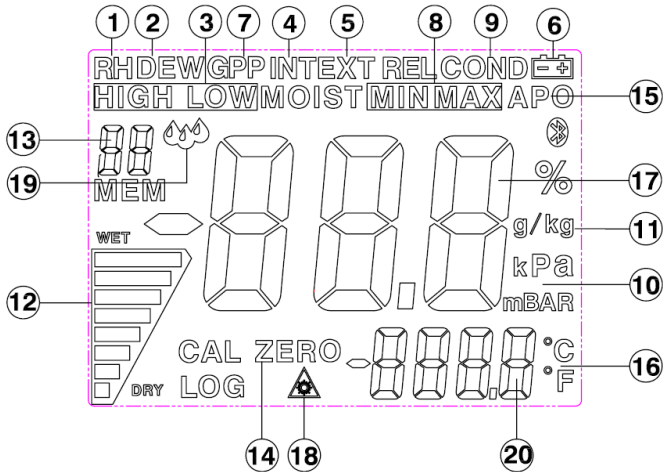
1. RH% indication – Relative Humidity Mode
2. DEW indication – Dew Point Temperature
3. HIGH/LOW alarm indication - Alarm Limits
4. Pin less moisture measure indication
5. Pin-type probe moisture measure indication
6. Low battery indication
7. GPP unit indication – Grains Per Pound
8. MAX/MIN indication
9. Condensation mode symbol
10. VPP unit indication – Vapor Pressure
11. GPP unit indication
12. Humidity bar display
13. Memory Location indication
14. Pin less moisture zero adjustment symbol
15. Auto power off indication
16. ℃/℉ symbol
17. LCD primary display
18. Laser point indication
19. Dew point temperature indication
20. LCD secondary display

Safety

Use extreme caution when the laser pointer beam is on

Do not point the beam toward anyone's eye or allow the beam to strike the eye from a reflective surface

Do not use the laser near explosive gases or in other potentially explosive areas

Avoid Exposure
laser radiation is emitted from this aperture

CAUTION

LASER RADIATION AVOID DIRECT EYE EXPOSURE
MAXIMUM OUTPUT<1mW WAVELENGTH 630-670nm
CLASS 2 LASER PRODUCT EN 60825-1:2014

Features

Quickly indicates the moisture content of materials with Pinless technology without damaging the surface;

Pin-type probe allows for moisture readings at different penetration levels (3ft/0.9m cable length);

Easy to read, large dual display with backlit feature;

Simultaneously displays % moisture of wood or material being tested and Air Temperature, IR Temperature, or Humidity

Designed with IR design to measure non-contact surface temperature; 8:1 distance to spot ratio with 0.95 fixed emissivity

Built-in Humidity/Temperature probe measures Relative Humidity,

Air Temperature plus Grains Per Pound (GPP) and Dew Point (DP)

Ambient and Surface Vapor Pressure

Automatic calculation of differential Temperature (IR -

DP) Min/Max and Data Hold

20 point internal memory

Auto power off and low battery indication

Battery Replacement

1. Turn off the meter.
2. Remove one Philips head screw and lift off the rear battery cover.
3. Replace the 9V battery.
4. Secure the rear battery cover.

Never dispose of used batteries or rechargeable batteries in household waste.
As consumers, users are legally required to take used batteries to appropriate collection sites, the retail store where the batteries were purchased, or wherever batteries are sold.

Disposal: Do not dispose of this instrument in household waste. The user is obligated to take end-of-life devices to a designated collection point for the disposal of electrical and electronic equipment.

Other Battery Safety Reminders

o   Never dispose of batteries in a fire. Batteries may explode or leak.

o   Never mix battery types. Always install new batteries of the same type.

Operation

Powering the meter

1. Remove the RH sensor protective cap before use.
2. Press the power ⏻ button to turn the meter on.
3. If the ⊞ symbol appears or the meter does not turn on, replace the battery.

Humidity (Dew point, GPP, g/kg) Measurements

1. Press the power ⏻ button to turn the meter on.
2. Press the RH button
3. Relative Humidity will be displayed in the primary display and the ambient temperature will be displayed in the secondary display.
4. Press the RH button to select a display of DEW Point Temperature (DP) or Grains Per Pound (GPP) .
5. Press and HOLD the UNITS button to toggle between °F or °C. (GPP or g/kg)

Humidity Alarm Set Procedure:

1. Press the button until the buzzer rings and Release button, the meter shall enter Humidity Alarm Set mode, the "HIGH" icon appears on the LCD.
2. Press the ▲ or ▼ button to set the high limit desired.
3. Press the STORE/ENTER button to save the value and proceed to the LOW set value.
4. With the "LOW" icon in the display, Press the ▲ or ▼ button to set the low limit desired.
5. Press the STORE/ENTER button to save the value and to return to the normal mode.
6. If the humidity measurement is higher than the LOW alarm setting, the meter will beep once every second
7. If the humidity measurement is higher than the HIGH alarm setting, the meter will beep continuously.
8. The ambient Temperature or dew point temperature shall be displayed in °F or °C by pressing ▲/UNIT button for 3 to toggle between °F/°C. (GPP or g/kg)

Pinless Moisture Measurements

1. Press the power ⏻ button to turn the meter on.
2. Press the REL button to select Moisture measurement." MOIST", and "INT" (internal pinless sensor) will appear in the display.
3. Hold the meter so that the rear sensor is away from any surface or your hand. The reading should be near 0.0. If not, press and hold the ZERO button for more than 2 second and the ZERO icon appears.
4. Place the rear sensor on the surface of the material to be tested and read the relative moisture content.

Pin Type Moisture Measurements

1. Connect the external pin probe to the jack on the bottom of the meter.
2. Press the power ⏻ button to turn the meter on.
3. Press the REL button twice to select Moisture measurement." MOIST", and "EXT" (external pin probe) will appear in the display.
4. Press the probe pins into the material and read the % moisture content in the display.

Moisture Alarm Set Procedure:

9.   With MOIST displayed, simultaneously press the REL button.
10. The "HIGH" icon will appear on the display.
11. Press the ▲or ▼button to set the high limit desired.
12. Press the REL button to save the value and proceed to the LOW set value.
13. With the "LOW" icon in the display, Press the ▲or ▼button to set the low limit desired.
14. Press the STORE/ALARM SET button to save the value and to return to the normal mode.
15. If the moisture measurement is higher than the LOW alarm setting, the meter will beep once every second
16. If the moisture measurement is higher than the HIGH alarm setting, the meter will beep continuously.

Infrared Temperature Measurements

1.   Press the power ⏻ button to turn the meter on.
2.   Press the IRT button to enable the IR thermometer and the laser pointer. The laser pointer icon will flash while the mode is active.
3.   Aim the laser pointer at the surface to be measured and read the surface temperature in the secondary display.
4.   Release the IRT button. The last temperature measured and the laser icon will remain on the display for approximately 10 seconds before returning to ambient temperature measurement.

IRT MAX MIN display:

The meter can be set to display only the maximum or minimum temperature measured during an IR scan.

1.   With the meter in the IR hold mode, press the ▼/zero button. "MIN" will appear in the display.
2.   Press the IRT button to enable the IR thermometer. The meter will display the minimum temperature measured and will update only when a lower temperature is measured.
3.   Press the ▼/zero button twice to enable the MAX mode and proceed as stated above for the maximum temperature.
4.   The MAX or MIN temperature is not stored when the function is exited. The unit automatically exits MAX/MIN mode after approximately 10 seconds.

IR Field of View

Ensure that the desired target is larger than the spot size. As the distance from an object increases, the spot size of the area measured by the meter becomes larger. The meter's field of view ratio is 8:1, meaning that if the meter is 8 inches (cm) from the target, the diameter (spot) of the object under test must be at least 1 inch (cm).

WARNING: Do not directly view or direct the laser pointer at an eye. Low power visible lasers do not normally present a hazard, but may present some potential for hazard if viewed directly for extended periods of time.

Condensation Mode

The Condensation feature alerts the user when the surface temperature as measured by the IR thermometer is close to or has reached the Dew Point temperature.

1. Press the power ⏻ button to turn the meter on.
2. Press the COND button. The "COND" icon will appear.
3. Point the meter at a surface, press the IRT button to measure the surface temperature. The small display will indicate the IR surface temperature and the large display will indicate the difference between the IR temperature and the Dew Point temperature.
4. The meter will then report the potential for condensation on that surface in the following manner

    If the temperature of the IRT is more than 14°C (25°F) above the Dew Point, the temperature difference shall be displayed, with no other warning.

    If the temperature of the IRT is 3-14°C (5-25°F) above the Dew Point, the temperature difference shall be displayed, along with a standard Condensation Indicator icon. The meter shall beep once to confirm that the reading is in the risk area.

    If the temperature of the IRT is less than 3°C (5°F) above the Dew Point, the temperature difference shall be displayed, along with a flashing Condensation Indicator icon. The meter shall beep twice to confirm that the reading is in the high-risk area.

5. Press the RH button to exit the mode.

Vapor Pressure Mode

Ambient Vapor Pressure

1. With the Condensation mode active, press the COND button to display the Vapor Pressure in mBAR (°F) or kPa (°C). Press the ▲ or ▼ button to toggle between mBAR or kPa.
2. Press the REL MOIST or RH button to exit the Vapor Pressure mode.

Surface Vapor Pressure

1. Enter the Vapor Pressure mode as described above.
2. Press the IRT button and aim the laser pointer at the surface to be measured to display the Surface Vapor Pressure in mBAR (°F) or kPa (°C).

Memory Mode

Saving Readings:

1. With the meter in the desired measurement mode, press the STORE button for 2 seconds until the unit beeps to save a reading into the internal memory. The numeric display above the MEM icon will indicate the memory location the reading is stored to.
2. When the 20 memory locations are full, the unit will overwrite old saved readings starting with memory location 01.

Recalling Stored Readings:

1. Press the ▲ and ▼ buttons simultaneously to display stored readings. The numeric display above the MEM icon will flash.
2. Use the ▲ or ▼ button to scroll through the memory locations.
3. To return to normal operating mode, press the STORE button.

Clearing Stored Data:

1. To clear stored data, press and hold the ▼/zero and STORE buttons simultaneously until CLR appears on the display.

Auto Power Off

The meter will enter a sleep mode after 30 minutes of inactivity. The meter will emit a warning beep 15 seconds before shutting down.

To disable the APO feature, press the MODE button when turning the meter ON. The "APO" icon will not appear, indicating it is disabled.

Change Temperature units from F to C or C to F – IR Temperature

1. Press the power ⏻ button to turn the meter on.
2. Press the IRT button to turn on the IR thermometer and then release the button.

   3. Press and hold the ▲/unit button to set the desired temperature

Specifications

Function	Range	Accuracy
Pinless Moisture	0 to 99.9	± 5%
Pin Type Moisture wood	6-99 %	± 5%
Pinless Depth	Up to 0.75" (19mm)	
RH Measurement	0 to 10%	± 3%RH
	11 to 90%	± 2.5%RH
	91 to 100%	± 3%RH
Air Temperature	-20 to 170°F (-29 to 77°C)	3.6 F (2.0 C)
IR Temp	-4 to 31 °F (-20 to -1°C)	± 9° F (±5°C)
D:S =8:1	32°F (0°C)	± 1.8°F (+/-1°C)
Emissivity:0.95 Fixed	33 to 392°F (1 to 200°C)	±3.6°F (±2%+2°C)

Display 3-digit primary display, 4-digit secondary display

Vapor Pressure 0 to 20.0kPA, calculated from temperature and RH measurements

Dew Point -22 to 199°F (-30 to 100°C)

Mixing Ratio 0 to 160g/kg (0-999GPP)

Sample Rate 2 per second

Backlight White LED

Memory 20 point memory

Operating Temperature 40 to 110°F (4 to 43°C)

Storage Temperature -14 to 140°F (-30 to 60°C)

Operating Humidity	90%, 32-86°F (0-30°C), 75%, 86-104°F (30-40°C), 45%,104-122°F(40-50°C)
Storage Humidity	90%
Power Supply	9V battery
Battery Life	6-8 weeks (4 hrs/day use), using alkaline batteries
Auto Power Off (APO)	After 30 minutes (nominal) inactivity. The APO function can be disabled by the user.
APO Quiescent Current	50µA maximum
Dimensions	9.6 x 2.8 x 1.8" (245 x 70 x 45mm)
Weight	8.5oz (240g)

Warranty Information
Triplett / Jewell Instruments extends the following warranty to the original purchaser of these goods for use. Triplett warrants to the original purchaser for use that the products sold by it will be free from defects in workmanship and material for a period of (1) one year from the date of purchase. This warranty does not apply to any of our products which have been repaired or altered by unauthorized persons in any way or purchased from unauthorized distributors so as, in our sole judgment, to injure their stability or reliability, or which have been subject to misuse, abuse, misapplication, negligence, accident or which have had the serial numbers altered, defaced, or removed. Accessories, including batteries are not covered by this warranty

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