User Manual

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TRIPLETT

RHT45
Digital Psychrometer


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Introduction

Congratulations on your purchase of the Triplett RHT45 Digital
Psychrometer. This meter serves as a very valuable HVAC diagnostic tool.
It measures wet bulb (WB), dry bulb (DB), percent relative humidity (RH%),
and dew point (DP) which allows for quick and easy diagnostic of airflow
problems. Specialized modes include NORMAL Psychrometer Mode,
Target Superheat Mode (TSH) and Target Evaporator Exit Temperature
Mode (TEET) .

Safety

- Do not operate the meter in environments where the following are present: explosive gases (or materials), combustible gases (or materials), steam, or dust.

- Please replace the battery immediately when the low battery symbol appears on the LCD.

- Do not touch the meter's circuit board for any reason; static electricity or contamination could damage the sensitive components.

- This instrument was designed for pollution

  degree 2. Operation Altitude: Up to 2000m

  (7000').

Description

1. Type K Thermocouple Input
2. NTC Sensor
3. MODE Button
4. Enter Button
5. OUTPUT Button
6. °F/°C Button
7. Sensor Button
8. MAX/MIN/HOLD Button
9. ON/OFF Button
10. LCD Display
11. .Air Humidity and Temp Sensor
12. .Battery Cover
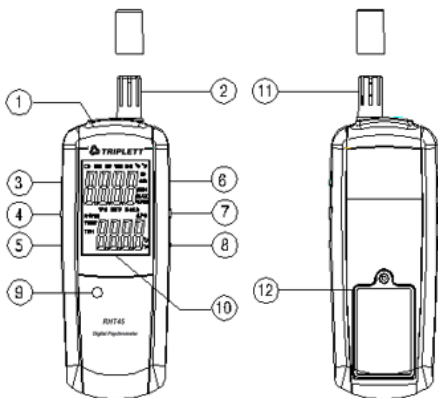
Display
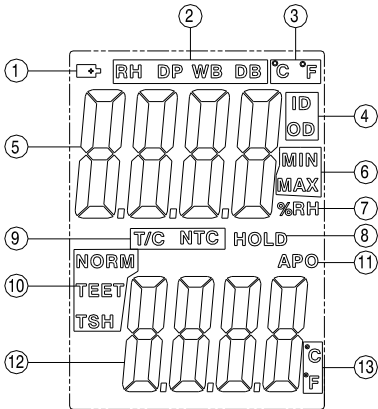
1. Low Battery Indicator
2. RH/DP/WB/DB Indicator
3. °F/°C Indicator
4. Indoor/Outdoor Indicator
5. Upper Display –Displays Measurement Value
6. MAX/MIN Indicator
7. Humidity Indicator
8. Hold Mode Indicator
9. T/C or NTC Indicator
10. Mode Select Indicator
11. APO Indiicator
12. Lower Display – Displays Target Superheat and Target Evaporator Exit Temp
13. °F/°C Indicator

How it Works:

This meter has three sensors. One for RH% and two for temperature.
Depending on where you place these sensors and how you set up the meter.
The meter will display the measurements and the results of calculations from
these inputs.
  Inside the 'cage' on the top of the meter is a thermistor, right next to the RH%
sensor. It's used to measure ambient air(DB).In addition to the thermistor, a
thermocouple can be plugged into the temperatures (including wet bulb) in hard
to reach places. such as in front or in back of the evaporator coil.
   To use this meter, you must tell it what test you want it to perform. Select the
parameter you want to measure, and choose which temperature sensor to use,
either the thermocouple (T/C) or the 'caged' thermistor (NTC). Take your
measurements. Read the results, both the directly measured readings and the
calculated results.

Operation

Normal Psychrometer Mode

- Turn the Meter ON by pressing the button ⏻ ,Select NORM by
  pressing "MODE" button until NORM is displayed in the LCD.

- Press the "SENSOR" button and holding for 2s to select
  temperature sensor: T/C for thermocouple, NTC for sensors in the
  'cage'.
- For T/C, the display will show the temperature .For NTC, press the
  "SENSOR" button to select RH, DP, WB, DB mode and the desired
  icon (RH,DP,WB,DB) is displayed. Then read the display.

Target Superheat Mode(TSH)

(1) .Turn the Meter ON by pressing the button ⏻ ,Select TSH by pressing "MODE" button until TSH is displayed in the LCD.

 *Note: blinking numbers mean you are seeing real-time measurements. Non-blinking mean the reading has been 'locked in '.Press ENTER button to unlock and take a new reading. *

(2) .The more accurate method:

 a. Wet the thermocouple A.Clip it to the front of the evaporator coil. Plug it into the top of the meter. Make sure the display show ID and WB. If not, press the "SENSOR" button. Press and holding the "SENSOR" button until T/C is displayed. Once the reading is stable, press ENTER button.

 b. Unplug the thermocouple A and plug in the thermocouple B.

 c. Clip the thermocouple B to the side of the condenser. Press "SENSOR" button until OD and DB are displayed. Once reading is stable, press ENTER.

Note: for DB, you can put the 'cage' sensors in front of the condenser and select NTC if that is easier.
The easy way: While the numbers are blinking, press and holding "SENSOR" button until NTC is displayed. Press "SENSOR" button until WB or DB is displayed. When WB is displayed, place the 'cage' sensors in front of the indoor return and press ENTER button once reading is stable. When DB is displayed, put the 'cage' sensors in front of the condenser and press ENTER button when the reading is stable.

(3) . Press OUTPUT button to display Target Superheat.

(4) . Compare Target Superheat to Actual Superheat.

(5) . Adjust refrigerant levels accordingly for a fixed restrictor system. If Actual Superheat is higher than Target Superheat, add refrigerant. If Actual Superheat is lower than Target Superheat, recover refrigerant.

Target Evaporator Exit Temperature (TEET)

(1). Turn the Meter ON by pressing the button ⏻ , Select TEET by pressing "MODE" button until TEET is displayed in the LCD.

Note: blinking numbers mean you are seeing real-time measurements. Non-blinking mean the reading has been 'locked in '.Press ENTER button to unlock and take a new reading.

(2). Wet the thermocouple A wet sock thermocouple and clip both thermocouples (thermocouple A and thermocouple B) in front of the evaporator.

(3). Plug the thermocouple A into the top of the meter.

Note: If "OL" is displayed, then the measurements are out of range. Retake the temperature measurements and ensure the temperature inputs are correct.

(4). Press "SENSOR" button until WB is displayed. Press and holding "SENSOR" button until T/C is displayed. When reading is stable, press ENTER button.

(5). Unplug the thermocouple A and plug in the thermocouple B.

(6) .Press "SENSOR" button until DB is displayed. Press and holding "SENSOR" button until T/C is displayed. When reading is stable, press ENTER button

(7) .Press OUTPUT button and read Target Evaporator Exit Temperature.

Note: If "OL" is displayed, then the measurements are out of range. Retake the temperature measurements and ensure the temperature inputs are correct.

(8) . Compare Target Evaporator Exit Temperature to Actual Evaporator Exit Temperature. The Actual Evaporator Exit Temperature is the measured temperature of the air after it has passed through the evaporator.

(9) . Adjust airflow accordingly. An Actual Evaporator Exit Temperature. That is below the Target Evaporator Exit Temperature. Is indicating a low airflow. Increasing airflow can be accomplished by eliminating restrictions in the duct system, increasing blower speed, cleaning filters or opening registers. An Actual Evaporator Exit Temperature that is above the Evaporator Exit Temperature .usually indicates low capacity. Occasionally airflow is higher than expected. Look for causes of low capacity such as refrigerant mischarge or a dirty condenser coil. If the airflow is high, correct it by lowering the fan speed.

Note: If "OL" is displayed, then the measurements are out of range. Retake the temperature measurements and ensure the temperature inputs are correct.

IMPORTANT TO NOTE::

Because everything within the system is interdependent, one adjustment can affect other parts of the system. For example, increasing airflow increases the superheat, which may require adding refrigerant. After any modifications, allow 15 minutes to stabilize and then retest. For the best results take measurements right after each other.

Select °C or °F

Turn the Meter ON by pressing the button ⏻ , Select °C or °F by pressing "C/F" button until °C or °F is displayed in the LCD. Press and holding "C/F" button for 2s to select backlight on or off.

Auto-Power-Off (APO)

This meter shall enter a sleep mode after 15 minutes of inactivity,
Pressing the "MAX/MAIN" button while turning the meter from OFF to ON shall cause the APO to be disabled, and the APO icon to be turned off.

Battery replacement

⚠	**WARNING** If the symbol " 🔋 " appears on the LCD, please replace the battery immediately

- Turn off the instrument.
- Remove the battery cover
- Replace the battery.
- Install the battery cover

Specifications

Type K. Range	-50℃ to 1372℃(-58°F to 2501°F)
Type K.Accuracy:	±[0.5% rdg +1℃(1.8°F)]
Type K. Resolution	0.1°(<1000) or 1°(>=1000)

NTC. Range	0℃ to 60℃(32°F to 140°F)
NTC.Accuracy	±1℃(1.8°F)
NTC . Resolution	0.1°
Wet Bulb and Dew Point Temp Range	32°F to 140°F (0℃ to 60℃)
Relative Humidity	0% to 100% RH range
Accuracy	±2.5%RH(10% to 90%RH) ±5%RH(0 to 10%RH or 90 to 100%RH)
Operating Temperature	32°F to 122°F (0℃ to 50℃)
Storage Temperature	14°F to 140°F (-10℃ to 60℃)

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