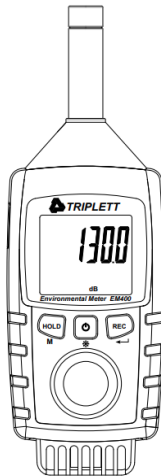


User Manual



EM400

7-in-1 Environmental Meter w/Sound



Introduction

Thank you for selecting the Triplett EM400 Environmental Meter. This instrument measures Sound Level (dBA) Light, Relative Humidity % with Air temperature, Dew Point temperature, Web bulb temperature, Type K temperature (external probe), and Heat Index temperature,. The backlit LCD includes primary and secondary displays plus a variety of intuitive status indicators

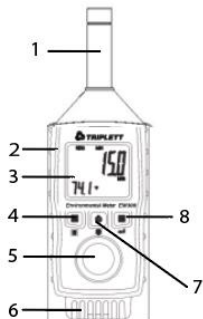
Features

- Professional environmental meter with programming menu for user-customization
- Selectable units of measure
- Sound Level readings
- Light measurements in Foot candle and LUX units
- Environmental measurements: Relative humidity % with air temperature, Dew point temperature, Wet bulb temperature, Heat Index temperature, and Type K temperature (with external probe connected)
- MAX-MIN Recording
- Display Hold freezes displayed reading for convenience
- Compact, light-weight, easy-to-use, ergonomic design with lanyard
- Backlit LCD automatically reverses orientation to match selected sensor mode

Description

METER DESCRIPTION

1. Sound Level Microphone
2. Type K Thermocouple Input
3. LCD Display
4. Display Hold / Mode Button
5. Light Sensor
6. Humidity/Temperature sensors
7. Power/Backlight button
8. MAX-MIN Record/Enter Button



Operation

Meter Power

1. Three (3) 1.5V 'AAA' batteries power the meter. The battery compartment is located on the rear of the meter secured by one flat head screw.
2. Short press the power button to switch the meter ON. The meter will begin displaying readings for the mode selected.
3. Long press the power button to power OFF the meter.

Auto Power OFF (APO)



In order to conserve battery life, the meter will automatically switch off after approximately 10 minutes of inactivity. Note that APO does not function while the meter is in the MAX -MIN Recording mode (short press the **R** button to access the MAX-MIN Recording mode).

Selecting the Operating Mode

Long press the **M** (Mode) button to scroll through the list of functions. When the desired mode is displayed, release the button. See display icons with brief descriptions below:

- **db**Sound Level(dBA)
- **rH**Relative Humidity in % and Air temperature
- **dP**Dew point temperature
- **_Et**Wet bulb temperature
- **HEAT**tHeat index temperature
- **LigHt**Light intensity measurements
- **tYP**EType K thermocouple temperature (must attach thermocouple to meter)
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Changing the Units of Measure

- Press and hold the R button until the word 'Unit' appears.
- Now short press the power button to change the units for the selected measurement mode.
- Short press  to save the selection and move to the secondary function, if applicable (temperature, for example). Short press the power button to change the secondary function units, if applicable, and then short press  to save.
- See units list below:
 - Sound dB
 - Temperature units oC, oF (for air, dew point, wet bulb, heat index, and Type K)
 - Light units Foot-candles, LUX

Reversible Backlight LCD

The LCD display automatically reverses its presentation orientation depending on measurement mode. This is to match the display orientation with the selected sensor mode (light or environmental measurements such as Wet bulb temperature).

The LCD is equipped with backlighting for easier viewing, especially in dimly lit areas. With the meter powered ON, short press the power button to turn ON the backlight. The backlight will power OFF after several seconds.

Display Hold

Short press the H (Hold) button to freeze and unfreeze the displayed reading. The Display Hold mode is not operational when using the MAX-MIN Recording mode.

MAX-MIN Record Mode

- In this mode, the meter records the maximum and minimum readings over time.
- Short press the R (Record) button to start recording MAX/MIN readings.
- Now use short presses of the R button to toggle MAX and MIN reading displays.
- Short press the H button to reset MAX and MIN memories.
- Press and hold the R button to exit the Recording mode.

Measurement Modes

Sound Level Measurement

1. With the meter ON, press and hold the **M** (Mode) button until 'db' is displayed; then release the button.
2. The meter will start measuring the sound in dB.

Light Measurements


- Press and hold the M button until 'LigHt' is displayed; then release.
- Hold the meter so that the source of light fully encompasses the light sensor dome.
- View the light reading on the LCD (light readings are displayed in reverse orientation).

Type K /Relative Humidity/Dew point/Wet bulb/Heat index Measurements

- Press and hold the M button until the desired function is displayed:
- ; rH Relative Humidity (with air temperature); dP Dew point; _Et Wet bulb; HEAt Heat index; tYPE Type K thermocouple temperature (attach thermocouple to meter)
- Place the meter or type K probe in the measurement area and view the readings on the LCD.

Maintenance

Battery Replacement

When the low battery icon  appears on the display please replace the batteries as described below.

1. Remove power from the meter.
2. Remove the flat head screw that secures the battery compartment at the back of the meter.
3. Open the battery compartment and replace the three (3) 1.5V 'AAA' batteries observing correct polarity. Re-assemble the meter before use.

Safety: Please dispose of batteries responsibly; never dispose of batteries in a fire, batteries may explode or leak. If the meter is not to be used for 60 days or more, remove the batteries and store separately.

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.

Cleaning and Storage

Periodically wipe the case with a damp cloth and mild detergent; do not use abrasives or solvents. Do not allow moisture to come in contact with any of the sensors.

Specifications

General	
Display	Backlit LCD 3.0 x 3.5 cm (1.18 x 1.38")
Sound Level	Electric condenser microphone.
Light sensor	Cosine/color-corrected photo-diode
Air Temperature sensor	PT1K ohm RTD (internal sensor)
Relative Humidity sensor	Capacitance sensor
Measurements	Sound Level, Relative Humidity with Air Temperature, Light, Dew Point, Wet Bulb, Heat Index, and Type K Temperature (requires external thermocouple)
Tripod mount	On rear of meter
Operating Humidity	80% RH Max
Operating Temperature	0 to 50°C (32 to 122°F)

Over Limit Display	"----"
Power Supply	3 x 1.5V AAA batteries
Power Consumption	Approximately 18mA DC
Weight	160g (5.6oz)
Dimensions (HxWxD)	179x 58x 25mm (7.0 x 2.3 x 1.0 inch)

Sound Level (dBA) Meter

Measurement Range	35 - 130 dB.
Resolution	0.1 dB.
Function	Data hold Record (Max., Min.).
Accuracy (23 ±5 °C)	Characteristics of "A" frequency weighting network meet IEC 61672-2013 class 2 Under 94 dB input signal, the accuracy is :

31.5 Hz	±3.0 dB
63 Hz	±2.0 dB
125 Hz	±1.5 dB
250 Hz	±1.5 dB
500 Hz	±1.5 dB
1 K Hz	±1.0 dB
2 K Hz	±2.0 dB
4 K Hz	±3.0 dB
8 K Hz	±5.0 dB

The above spec. are tested under the Environment RF Field Strength < than 3 V/M & frequency less than 30 MHz only.

Frequency	31.5 to 8,000 Hz.
Microphone type	Electric condenser microphone.
Microphone size	Out size, 12.7 mm DIA. (1/2 inch).

Relative Humidity plus Air Temperature

%RH	10 to 95	0.1	$\pm(4\%RH)$ @ < 70%RH $\pm(4\%rdg + 1.2\%RH)$ @ > 70%RH
°C	0 to 50	0.1	$\pm 1.2^{\circ}C$
°F	32 to 122	0.1	$\pm 2.5^{\circ}F$

Light (automatic ranging)

Lux	0 to 2,200	1	$\pm(5\%rdg + 8dgts)$
	1,800 to 20,000	10	
Ft-cd	0 to 204.0	0.1	
	170 to 1,860	1	

Dew Point Temperature

Unit	Range	Resolution	Accuracy
°C	-25.3 to 49.0	0.1	Calculated from temperature and humidity readings
°F	-13.5 to 120.0	0.1	

Wet Bulb Temperature

°C	-5.4 to 49.0	0.1	Calculated from temperature and humidity readings
°F	22.2 to 120	0.1	

Heat Index

°C	0 to 100.0	0.1	±2.0°C
°F	32 to 212	0.1	±3.6°F

Exposure to direct sunlight can increase heat index readings by 8°C (14°F)

Type K Thermometer

°C	-50.0 to 1300.0	0.1	±(0.4% + 0.5°C)
	-50.1 to -100.0		±(0.4% + 1°C)
°F	-58.0 to 2372.0	0.1	±(0.4% + 1°F)
	-58.1 to -148.0		±(0.4% + 1.8°F)

Accuracy is stated for meter only. Additional error is introduced by the external

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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