INSTRUCTION MANUAL

MODEL: NO9AQ

Multi-Function Environment Meter

4 IN 1

SOUND LEVEL

LIGHT

HUMIDITY

TEMPERATURE

CONTENTS

TITLE

1. INTRODUCTION

The 4 in 1 digital multi-function Environment Meter has been designed to combine the functions of a Sound Level Meter, Light Meter, Humidity Meter and Temperature Meter. It is an ideal multi-functional test instrument with scores of practical applications for professional and home use.

The sound level function can be used to measure noise in factories, schools, offices, airports, home, etc., checking the acoustics in studios, theatres and hi-fi installations.

The light function is used to measure the Lux level. It is fully cosine corrected for the angular incidence of light. The light sensitive component used in the meter is a very stable, long life silicon diode.

There is a semiconductor sensor for Humidity measurements and a K-type thermocouple for temperature measurement. This user's manual contains general information and specifications.

2. FEATURES

- 4 measuring functions: sound level, light, humidity and temperature.
- 3½" large LCD display with units of Lux, °C, ºF, ％RH and C & dB, A & dB indication.
- Easy to use
- Light measuring levers ranging from 0.01 lux to 20,000 lux.

- Sound level range:
  A LO (low) – Weighting: 35-100 dB
  A HI (High)- Weighting: 65-130 dB
  C LO (low) – Weighting: 35-100 dB
  C HI (High)- Weighting: 65-130 dB
  Resolution: 0.1 dB
- Humidity measurement from 25％RH to 95％RH with 0.1％ RH resolution and fast time response.
- Temperature measuring levers ranging from – 20.0°C～＋750°C /-4°F～＋1400°F

3. SPECIFICATIONS

Display: Large 1999 counts LCD display with function of Lux , x10 Lux, °C, °F, %RH and dB, A & dB ,C & dB, Lo & dB, Hi & dB, MAX HOLD, DATA HOLD indication.
Polarity: Automatic, (-) negative polarity indication.
Over-range: "OL" mark indication.
Low battery indication: The "BAT" is displayed when the battery voltage drops below the operating level.
Measurement rate: 1.5 times per second, nominal.
Storage temperature: -10°C to 60°C (14°F to 140°F) at＜ 80％ relative humidity
Auto Power Off: Meter automatically shuts down after approx. 10 minutes of inactivity.
Power: One standard 9V, NEDA1604 or 6F22 battery.
Dimensions/Wt.: 251.0 (H) x 63.8 (W) x 40 (D) mm/250g
Photo Detector Dimensions: 115 X 60 X 27 mm

Sound Level

Measurement range:

A LO (low) – Weighting: 35-100 dB
A HI (High)- Weighting: 65-130 dB
C LO (low) – Weighting: 35-100 dB
C HI (High)- Weighting: 65-130 dB
Resolution: 0.1 dB

Typical instrument frequency range: 30Hz-10KHz
Frequency Weighting: A, C –weighting
Time Weighting: Fast
Maximum Hold: Decay＜1.5dB/3 min
Accuracy: ±3.5 dB at 94 dB sound level, 1KHZ sine wave.
Microphone: Electric condenser microphone.

Light

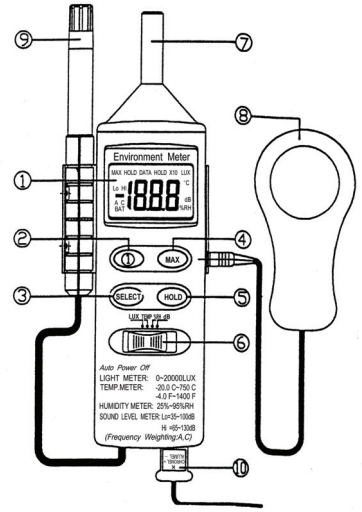
Measuring Range: 20, 200, 2000, 20,000lux
(20,000lux range reading x10)
Overrate Display: Highest digit of "1" is displayed.
Accuracy: ±5％ rdg ＋10 dgts (calibrated to standard incandescent lamp at color temperature 2856k).
Repeatability:±2％.
Temperature Characteristic: ±0.1％/°C
Photo detector: One silicon photo diode with filter.

Humidity/Temperature

Measurement Range:
Humidity 25％～95％RH
Temperature -20.0°C－＋50.0°C -4°F－＋122°F
(K-type) -20.0°C－＋200.0°C -20°C－＋750°C;
-4.0°F－＋200°F, -4°F－＋1400°F.

Resolution: 0.1％RH, 0.1°C, 1°C / 0.1°F, 1°F.
Accuracy (after calibration):
Humidity: ±5％RH (at 25°C , 35％～95％RH)
Response time of the humidity sensor: approx. 6min.
Temperature:
±3%rdg±2°C (at-20.0°C～+200.0°C)
±3.5%rdg±2°C (at-20.0°C～+750°C)
±3%rdg±2°F (at-4.0°F～ +200.0°F)
±3.5%rdg±2°F (at-4°F～+1400°F)
Input Protection: 60V dc or 24V ac rms.

4. PANEL DESCRIPTION



1. LCD display: 3½" digits with units of Lux, x10 Lux, °C, °F,%RH, dB, A, C, Lo, Hi and low battery "BAT" MAX HOLD, DATA HOLD indication.
2. Power Button: Switches unit ON or OFF.
3. Selection Button: Selects Functions and ranges.
4. MAX HOLD: If you press the MAX button, the maximum reading will be held. Pressing the button again releases the hold and allows further measurements.
5. DATA HOLD: The reading will be held when the Data Hold button is pressed. If the button is pressed again, this will release the hold and allow further measurements.
6. Function Switch: Selects measurement functions of Lux, Temperature, Humidity and Sound Level.
7. Microphone: Electric condenser microphone.
8. Photo Detector: Long life silicon photo diode.
9. Humidity and Temperature: Humidity Sensor and Semiconductor Sensor.
10. Temperature Terminal: Insert the temperature probe in this terminal.

5. OPERATING INSTRUCTION

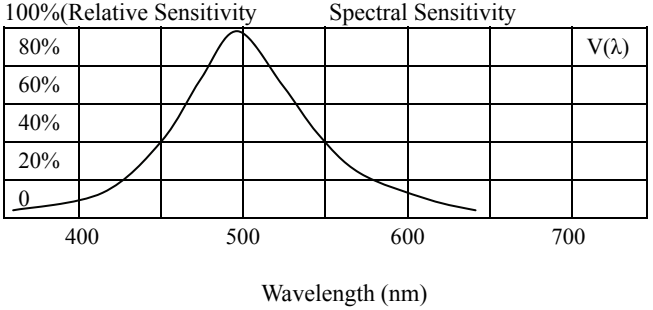
Measuring Sound Level

1. Turn the function Switch to "dB" position.
2. Point the microphone at the sound source in a horizontal position.
3. Press Select Button: Selects A & dB, C & dB, Lo & dB and Hi & dB.
4. The A, C-weighting curve is nearly uniform over the frequency range form 30 to 10kHz, thus giving an indication of overall Sound level.
5. The fast response is suitable to measure short bursts and peak values from the sound source.

6. The sound level will be displayed.
7. Note: Strong winds (over 10m/sec.) can cause mis-readings in measurements. In these conditions a wind-screen should be used in front of microphone.

Measuring Light

1. Turn the function switch to select "Lux"
2. Point the photo detector towards the light source in a horizontal position.
3. Pressing the select button, selects 20, 200, 2000, 20,000 LUX ranges.
4. Read the illuminance from the LCD display.
5. Over-range: If the instrument only displays "1" in the M.S.D. the input signal is too strong, and a higher range should be selected.
6. When the measurement is completed, remove the photo detector from the light source.
7. Spectral sensitivity characteristic: To the detector, the photo diode with filters makes the spectral sensitivity characteristic almost meet C.I.E. (International Commission on Illumination) photopia curve V (λ) as the following chart described.



8. Recommended Illumination:

Locations	Lux
*Office	
Conference, Reception room.	200 ~ 750
Clerical work	700 ~ 1,500
Typing drafting	1000 ~ 2,000
*Factory	
Packing work, Entrance passage	150 ~ 300
Visual work at production line	300 ~ 750
Inspection work	750 ~ 1,500
Electronic parts assembly line	1500 ~ 3,000
*Hotel	
Public room, Cloakroom	100 ~ 200
Reception, Cashier	200 ~ 1,000
*Store	
Indoors Stairs Corridor	150 ~ 200
Show window, Packing table	750 ~ 1,500
Forefront of show window	1500 ~ 3,000
*Hospital	
Sickroom, Warehouse	100 ~ 200
Medical Examination room	300 ~ 750
Operation room	
Emergency Treatment	750 ~ 1,500
*School	
Auditorium, Indoor Gymnasium	100 ~ 300
Class room	200 ~ 750
Laboratory Library Drafting room,	500 ~ 1,500

Measuring Humidity/Temperature

1.Humidity Measurement:

① Set the function Switch to "%RH" position.

② Then the display will show the humidity reading value (%RH) directly.

③ When the tested environment humidity value changed. It need to a few minutes to get the stable "%RH" reading.

Warning:

Don't expose the humidity sensor to direct sunlight.

Don't touch or manipulate the humidity sensor.

2.Temperature Measurement:

① Set the function Switch to "TEMP"

② Press Select Button: Selects "0.1°C or 1℃ and 0.1°F or 1°F " range.

③ The display will show the temperature reading value (°C /°F)

④ Insert the temperature probe into the K-type thermocouple socket.

⑤ Touch the end of the temperature sensor onto the area or surface of the object to be measured. The display will show the temperature reading value (°C /°F).

Warning:

Never attempt a voltage measurement with the test leads inserted into the K-type thermocouple socket. This may cause injury or damage to the meter.

6. MAINTENANCE

Battery Replacement

If the sign "BAT" appears on the LCD display, it indicates that the battery should be replaced. Open the battery case and replace the battery with 1 x 9V battery (Order code YA12N)

Patent Pending

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