YORK Survey Supply

Nothing else measures up!

Follow us!

York Survey Supply Centre

@York_Survey

@York_Survey

Prospect House
George Cayley Drive
Clifton Moor
York
England
YO30 4XE

Tel: +44 (0) 1904 692723
Fax: +44 (0) 1904 690385

E-Mail: sales@yorksurvey.co.uk

www.YorkSurvey.co.uk
…for secure online ordering of all our products!

YORK Survey Supply

Compact 4-in-1 Environment Meter

Code: 343520

Operating Instructions

Compact 4-in-1 Environment Meter

1. INTRODUCTION
The 4-in-1 digital multi-function environment meter has been designed to combine the functions of Sound Level Meter, Light Meter, Humidity Meter and Thermometer.
It is an ideal multi-function environment meter 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 acoustics of studios, auditoriums and hi-fi installations. The light function is used to measure illuminance in the field. It is fully cosine corrected for the angular in the meter is a very stable, long life silicon diode. The humidity/temperature uses a humidity/semiconductor sensor and K-type thermocouple. This operating manual contains general information and specifications.

2. FEATURES
• 4 functions measure sound level, light, humidity and temperature.
• 3½ large LCD display with units of Lux, °C, %RH and dB indication.
• Easy to use with single function switch operating, pocket size and lightweight.
• Sound level measures from 35dB to 100dB for A and C weighting checking wigh 0.01 lux to 20,000 lux.
• Humidity measurement from 25%RH to 95%RH resolution and fast time response.

3. SPECIFICATIONS
Display: 1999 counts LCD display with function of Lux, °C, %RH and dB 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%RH
Auto power off: Meter automatically shuts down after approx. 10 minutes of inactivity.
Power: 1x standard 9V NEDA 1604 or 6F22 battery
Dimensions: 121.5(H) x 60.6(W) x 40(D)mm
Weight: Approx. 280g including holster

Sound Level
Measurement range: 35-100dB
Resolution: 0.1dB
Typical instrument frequency range: 30Hz - 10Hz
Frequency weighting: A and C weighting
Time weighting: Fast
Accuracy: ±3.5dB at 94dB sound level, 1kHz sine wave
Microphone: Electric condenser microphone

Light
Measuring range: 20, 200, 2000, 20000lux
(20000lux range reading x10)
Overrate display: Highest digit of "1" is displayed
Accuracy: ±5% rdg + 10 dgts (calibrated to standard incandescent lamp at colour temperature 2856K)
Repeatability: ±2%
Temperature characteristic: ±0.1%/°C
Photodetector: One silicon photo diode with filter

Humidity/Temperature
Measurement Range:
Humidity: 25%~95%RH
Temperature: -20°C ~ +200°C, -20°C ~ +1300°C
Resolution: 0.1%RH, 0.1°C, 1.0°C
Accuracy (after calibration):
Humidity: ±5%RH (at 25°C, 35% ~ 95%RH)
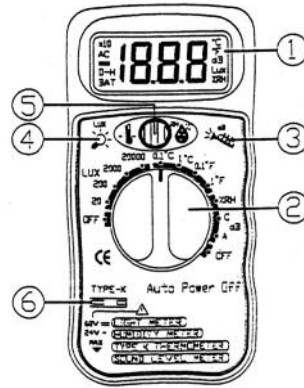Response time of the humidity sensor: approx. 6 min
Temperature:
±3%rdg ±1°C (at -20°C to +200°C)
±3.5%rdg ±2°C (at -20°C ~ +1300°C)
Input protection: 60Vdc or 24Vac rms

5. PANEL DESCRIPTION

1. LCD display: 3½ digits with units of Lux, x10 Lux, °C, %RH, dB and low battery "BAT" indication
2. Power/Function/Range Switch: turn power on (or off) and select measurement function and ranges.
3. Microphone: Electric condenser microphone inside
4. Photo Detector: Long life silicon photo diode inside
5. Humidity and Temperature: Humidity Sensor and Semiconductor Sensor inside
6. Temperature Terminal: Insert the temperature probe in this terminal

6. OPERATING INSTRUCTIONS
Measuring Sound Level
1. Turn the power/function/range switch to "dB" position.
2. Remove the meter and face the microphone to the sound source in a horizontal position.
3. The • A,C-weighting curve is nearly uniform over the frequency range from 30 to 10,000Hz thus giving an indication of overall sound level.
4. The Fast response is suitable to measure short bursts and peak values from sound source.
5. The sound level will be displayed.
6. Note: Strong wind (over 10m/sec) striking the microphone can cause misreading for measurement in windy locations, a windscreen should be used in front of microphone.

Measuring Light
1. Turn the power/function/range switch to select the "lux" scale and set the range to desired ("lux" or "x10 lux") range.
2. Remove the meter and face the photo detector to the light source in a horizontal position.
3. Read the illuminance nominal from the LCD display.

4. Over-range: If the instrument only displays one "1" in the M.S.D. the input signal is too strong and a higher range should be selected.
5. When the measurement is completed, replace the photo detector from the light source.
6. Spectral sensitivity characteristic: To the detector, the applied photo diode with filters makes the spectral sensitivity characteristic almost meet C.O.E. (International Commission on Illumination) photopia curve V(λ) as the following chart describes.

Wavelength (nm)
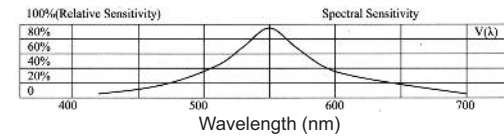
Recommended Illumination

Locations	Lux
*Office	
Conference Room, Reception Room	200~750
Clerical Work	700~1,500
Typing Drafting	1,000~2,000
*Factory	
Packing Work, Entrance Passage	150~300
Visual Work at Production Line	300~750
Inspection Work	750~1,500
Electronic Parts Assembly Line	1,500~3,000
*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
Operating Room	
Emergency Treatment	750~1,500
*School	
Auditorium, Indoor Gymnasium	100~300
Classroom	200~750
Laboratory, Library, Drafting Room	500~1,500

Measuring Humidity/Temperature
1. Humidity Measurement:
1. Set the power/function/range switch to "%RH" position.
2. Then the display will show the humidity reading value (%RH) directly.
3. When the tested environment humidity value changes, the meter requires a few minutes to get a 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 power/function/range switch to "0.1°C" or "1°C" and "0.1°F" or "1°F" position.
2. Then the display will show the environment temperature reading (°C/°F) directly.
3. Insert the temperature probe into the K-type thermocouple socket.
4. Touch the end of the temperature sensor to the area or surface of the object to be measured. The display will

show the temperature reading value (°C/°F) directly.

Warning: When function switch on temperature "0.1°C" or "1°C" and "0.1°F" or "1°F" range, never attempt a voltage measurement with the test leads inserted into the K-type thermocouple socket. You might be injured or damage the meter.

7. MAINTENANCE
Battery replacement
If the sign "BAT" appears on the LCD display, it indicates that the battery should be replaced. Remove screws on the back cover and open the case. Replace the exhausted battery with a fresh one (9V NEDA 1604, 6F22 or equivalent).