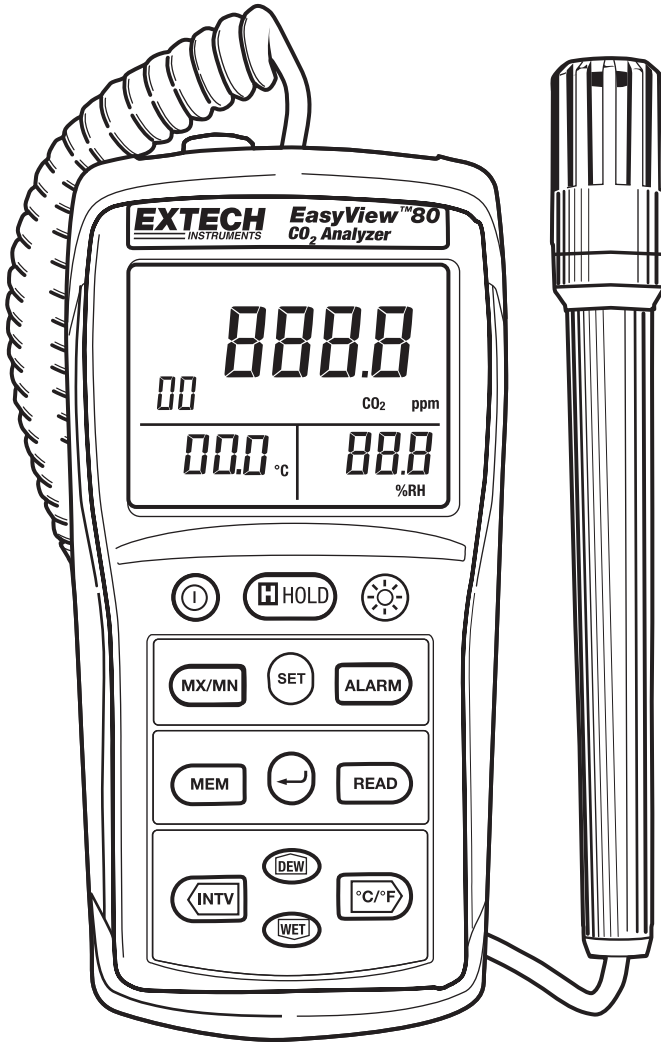


# Indoor Air Quality Meter/Datalogger Model EA80

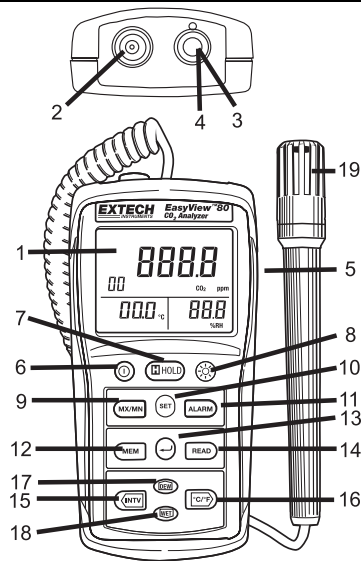


## Introduction

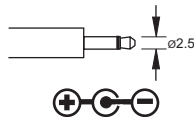
Congratulations on your purchase of the Extech EA80 Indoor Air Quality Meter. The meter measures Carbon Dioxide (CO<sub>2</sub>, ppm) levels, ambient Temperature and Relative Humidity (%RH). 20,000 readings can be logged by the meter and later transferred to a PC using the RS-232 interface. This meter is shipped fully tested and calibrated and, with proper use, will provide years of reliable service.

## Description

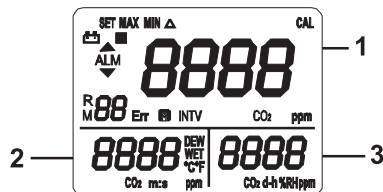
1. Display.
2. Gas exhaust.
3. Gas inlet port
4. RS232
5. AC adaptor socket (9V, 300mA).
6. Power Button
7. Data Hold Button
8. Backlight Button
9. MX/MN Button
10. SET Button
11. ALARM button
12. MEM (memory) button
13. (Enter) ↵ button :
14. READ button
15. TIME button :
16. °C/°F button :
17. DEW button :
18. WET button:
19. Temperature / Humidity sensor probe.



AC Adaptor Phono Plug



LCD Display



## Preparation for Use


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### Power Supply

The meter is powered by six AAA-size alkaline batteries or an AC adapter.

### Installing the Batteries

Insert six AAA-size batteries as indicated by the diagram located on the inside of the battery compartment.

When the battery voltage drops below the operating voltage, the “” indicator will be displayed indicating that the batteries need to be changed.

### AC Adapter

The AC adapter allows you to power the meter from a wall outlet.

When using the AC adapter, the batteries (if installed) will be bypassed. The AC adapter is not a battery charger.

### Gas Inlet

Always ensure that the meter gas inlet port and gas exhaust are not blocked.

## Operation

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**Note: Do not hold the instrument close to your face. Exhaled CO<sub>2</sub> will affect the accuracy of the reading.**

### Taking Measurements


The sensor for Temperature, Humidity, Dew Point and Wet Bulb measurements is located in the remote probe. Hold the probe in the air in the area to be tested. **DO NOT** immerse in liquid.

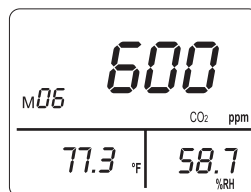
The sensor for CO<sub>2</sub> measurements is located on the top of the meter itself.

### Selecting temperature units of measure (C/F)

Press the °C/°F button momentarily to toggle the temperature units.

### CO<sub>2</sub> Measurement

1. Press  button to turn on the meter,
2. The sensor requires a 30 second warm-up before displaying the CO<sub>2</sub> measurement.
3. The meter sensor needs about 10 minutes to stabilize in still air, after that the readings can be considered accurate. Moving the meter may decrease this stabilization time.
4. Primary display shows the CO<sub>2</sub> reading. Secondary display shows temperature reading. Third display shows %RH.



### **Humidity Measurement**

1. Press the “**ⓘ**” button to power on the meter.
2. The display will show the humidity reading value (% RH) directly on the third display.
3. Hold the probe in the air in the area to be tested. Do NOT immerse in liquid.
4. Allow adequate time for readings to stabilize.
5. Read the measurements on the LCD.

### **Temperature Measurement**

1. Press the “**ⓘ**” button to power on the meter.
2. Press the “**°C/°F**” button momentarily to toggle the temperature units.
3. The display will show the Temperature reading directly on the second display.
4. Allow adequate time for readings to stabilize.
5. Read the measurements on the LCD.

### **Dew Point Temperature Measurement**

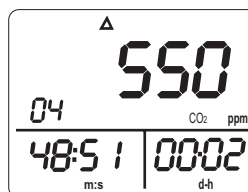
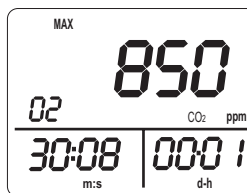
1. Press the “**ⓘ**” button to power on the meter.
2. Press “**DEW**” button
3. The display will show the Dew Point Reading on the second display.
4. Allow adequate time for the readings to stabilize
5. Read the measurements on the LCD.
6. Press “**DEW**” button again to exit dew point temperature reading.

### **Wet Bulb Temperature Measurement**

1. Press the “**ⓘ**” button to power on the meter.
2. Press “**WET**” button
3. The display will show the Wet Bulb Reading on the second display.
4. Allow adequate time for the readings to stabilize
5. Read the measurements on the LCD.
6. Press “**WET**” button again to exit the display.

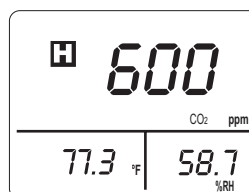
## CO<sub>2</sub> Maximum and Minimum Recording Measurement

1. Press “**MX/MN**” button to enter the maximum / minimum recording mode, the “**MAX**” icon appears on the display. The maximum CO<sub>2</sub> reading will be displayed and will be updated only when a higher reading occurs.
2. Press “**TIME**” button to enter time display mode. Displays 2 and 3 will indicate the time the maximum reading occurred.
3. Press “**MX/MN**” button again. The “**MIN**” icon will appear with the minimum value and its stamp time.
4. Press “**MX/MN**” button again. The “**Δ**” icon will appear with the current value and current time.
5. Press “**MX/MN**” button again cycle through the recorded MAX, MIN and current readings.
6. Press “**↵**” button to exit this mode.
7. Press “**TIME**” button exit the time display mode.



## Data Hold

1. Press the **H** button momentarily to freeze the displayed reading. The 'H' icon will appear on the upper left-hand side of the display.
2. Press the **H** button again to return to normal operation (the 'H' hold icon will disappear).



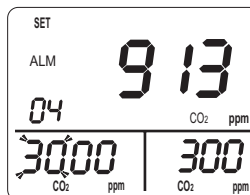
## Backlight

1. Press the “☀” button to turn the backlight on or off.
2. The backlight will turn off automatically after 30 second.

## CO<sub>2</sub> Alarm Operation

### Setting the Alarm Limit Values

1. Press “**ALARM**” button to turn on the alarm function, the “**ALM**” icon, and current value are displayed.
2. Press “**SET**” button to enter High/Low limit value setting mode, the “**SET**” icon is displayed and hundred and thousand digits of the high limit value will flash.
3. Press “▲” or “▼” button to set desired value.
4. Press “▶” button to move the cursor to set the tens and ones.
5. Press “▲” or “▼” button to enter the desired value.
6. Press “▶” button to move the cursor to the hundred and thousand digits of the low limit value.
7. Press “▲” or “▼” button to set desired value.
8. Press “▶” button to move the cursor to move the cursor to set the tens and ones of the low limit value.
9. Press “▲” or “▼” button to set desired value.
10. To change any setting, press “▶” or “◀” button to move the cursor to desired high or low limit value position.
11. Press “↵” button to store these setting and exit this mode.



### Turning Alarm On / Off

Press “**ALARM**” button to turn on the alarm function, “**ALM**” is displayed.

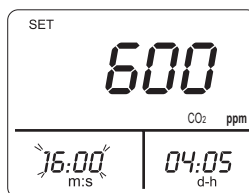
When the CO<sub>2</sub> value is below the low limit value, the meter displays “▼” mark and beeps.

When the CO<sub>2</sub> value exceeds the high limit value, the meter displays “▲” and beeps.

To exit the ALARM function, press “**ALARM**” button again.

### Setting the Real Time Clock

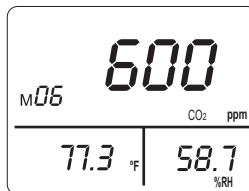
1. Press “**SET**” button to enter the real-time clock setting mode, “**SET**” is displayed and the minutes are flashing.
2. Press “▲” or “▼” button to set the minutes.
3. Press “▶” button to move the cursor to seconds.
4. Press “▲” or “▼” button to set the seconds.
5. Press “▶” button to move the cursor the days.
6. Press “▲” or “▼” button to set the day of the real time date. (Please note that this is not a calendar. Days are elapsed days up to 99 total)
7. Press “▶” button to move the cursor to the hours. (Please note that this is a 24 hour clock)
8. Press “▲” or “▼” button to set the hours.
9. To change any setting, press “▶” or “◀” button to move the cursor to desired position.
10. Press “↵” button to store the settings and exit this mode.



## Manual Dataogging

### Storing readings

Press "MEM" button. LCD will display "M" and the memory address number. Total memory size is 99 readings.



### Viewing readings.

Press "READ" button to enter READ mode. The LCD will display "R" and the memory address number.

Press "▲" or "▼" button to scroll through stored readings

Press "↵" enter button to exit this mode.

### Deleting stored data

Press "SET" button three times, the LCD will display "CLr" and enter the clear memory mode.

Press "↵" button to clear the all manually stored readings.

If you wish not to clear the memory press "SET" button two times then press "↵" button to exit the clear memory mode.

## Auto Datalogging

### Setting interval time

Press "SET" button two times, the "INTV" mark is displayed and enter to the setting interval time mode.

Press "▲" or "▼" button to select desired interval time from 1 second to 255 seconds.

Press "↵" button to store the setting value and exit this mode.

### Auto Datalogging mode

Press and hold "MEM" button for two seconds (3 beeps), the LCD will display "■" and the memory location.

"M" will flash each time a recording is made

The maximum memory capacity is **20,000** recordings and that can be divided into **99** sets.

Press "↵" button to exit this mode and stop recording.

## Deleting Logged Data

Press "SET" button four times, the "CLr" and "■" mark will be displayed

Press "↵" button to clear the auto datalogged memorized data and exit this mode.

If you choose not to clear the memory, press "SET" button again then press "↵" button to exit the clear memory mode.

# Calibration

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## CO2 Calibration

1. Press "ⓘ" button to turn the meter on.
2. Place the probe in a known CO2 reference for 10 minutes.
3. Press the "SET" button 5 times until "C-01" is displayed in the second display.
4. Press "▶" or "◀" button to select digits to adjust (flashing).
5. Press "▼" or "▲" button to adjust the display to the reference value.
6. Press "┘" to store the value and exit the calibration mode.

## Humidity Calibration

1. Press "ⓘ" button to turn the meter on.
2. Place the probe in a known humidity reference for 60 minutes.
3. Press the "SET" button 6 times until "SET" and "CAL" are displayed on the LCD.
4. Press "▼" or "▲" button to adjust the display to the reference value.
5. Press "┘" to store the value and exit the calibration mode.

## Temperature Calibration

1. Press "ⓘ" button to turn the meter on.
2. Place the probe in a known temperature reference for 60 minutes.
3. Press the "SET" button 7 times until "SET" and "CAL" are displayed on the LCD.
4. Press "▼" or "▲" button to adjust the display to the reference value.
5. Press "┘" to store the value and exit the calibration mode.



## Specifications

<b>Display :</b>	LCD triple display.
<b>Display Rate :</b>	One time per second.
<b>Low Battery Indication :</b>	The "⊕" is displayed when the battery voltage drops below the operating voltage.
<b>Power Supply :</b>	Six (6) AAA-size alkaline batteries. or Regulated AC adaptor.
<b>Battery Life :</b>	Approx. 8 hours by using alkaline batteries (without backlight or Alarm function). If datalogging over a long period of time, use an AC adaptor.
<b>Manual Data Memory Capacity :</b>	99 sets.
<b>Auto Datalogging Capacity ;</b>	20,000 sets (maximum 99 blocks)
<b>Operating Temperature Range :</b>	5°C to 50°C (41°F to 122°F)
<b>Storage Temperature Range :</b>	-10°C to 60°C (-14°F to 140°F)
<b>Operating Humidity Range :</b>	10%RH to 90%RH, non-condensing.
<b>Storage Humidity Range :</b>	10%RH to 90%RH, non-condensing.
<b>Dimensions :</b>	158 (L)x72(W)x35(H)mm, (6.22"x2.83"x1.38")
<b>Weight :</b>	approx. 255g (including batteries)
<b>Accessories :</b>	Instruction Manual, Battery, AC Adaptor, Software CD ROM & RS232 Cable.

### CO2 Specifications :

<b>Sensing Range :</b>	0 to 6000ppm
<b>Sensing Resolution :</b>	1ppm
<b>Accuracy :</b>	@ 101.4 kPa (29.92 inHg) and @ 25°C(77°F) ±3% of reading or ±50ppm, whichever is greater.
<b>Sensing Method :</b>	Dual wavelength detector with non- dispersive infrared (NDIR) sensor.
<b>Gas Sampling Mode :</b>	Diffusion.
<b>Warm up time :</b>	10 seconds.
<b>Response time :</b>	< 10 minutes in still air.
<b>Temperature Coefficient :</b>	Add ±0.36% of reading per °C (±0.2% of reading per °F) away from calibration temperature.

### Temperature & Humidity Specifications :

	Relative Humidity	Temperature
<b>Range</b>	10% ~ 95%RH.	-20°C~+60°C/-4°F~+140°F
<b>Resolution</b>	0.1%RH	0.1°C, 0.1°F
<b>Accuracy</b>	±3%RH @ 25°C(77°F), 30~95%RH) ±5%RH @ at 25°C(77°F), 10~30%RH)	±0.5°C, ±0.9°F
<b>Sensor type</b>	Precision capacitance sensor.	Thermistor
<b>Response time</b>	45%RH→95%RH≤ 1min 95%RH→45%RH≤ 3min	10°C / 2sec

## ***Maintenance***

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### **Cleaning**

Periodically wipe the case with a dry cloth or a damp cloth with mild detergent.  
Do not use abrasives or solvents to clean this instrument.

### **Battery Replacement**

When the " **LBAT**" symbol appears on the LCD, the six 1.5V 'AAA' must be replaced.

1. Turn the meter off.
2. Remove the meter's battery cover
3. Replace the batteries observing polarity
4. Affix the battery cover and secure the rear screws.

## ***RS-232 Interface, Software Installation and Operation***

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Software operational instructions are located on the software disc.

## Warranty

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**EXTECH INSTRUMENTS CORPORATION** warrants this instrument to be free of defects in parts and workmanship for **one year** from date of shipment (a six month limited warranty applies to sensors and cables). If it should become necessary to return the instrument for service during or beyond the warranty period, contact the Customer Service Department at (781) 890-7440 ext. 210 for authorization or visit our website [www.extech.com](http://www.extech.com) for contact information. A Return Authorization (RA) number must be issued before any product is returned to Extech. The sender is responsible for shipping charges, freight, insurance and proper packaging to prevent damage in transit. This warranty does not apply to defects resulting from action of the user such as misuse, improper wiring, operation outside of specification, improper maintenance or repair, or unauthorized modification. Extech specifically disclaims any implied warranties or merchantability or fitness for a specific purpose and will not be liable for any direct, indirect, incidental or consequential damages. Extech's total liability is limited to repair or replacement of the product. The warranty set forth above is inclusive and no other warranty, whether written or oral, is expressed or implied.

## Calibration and Repair Services

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Extech offers repair and calibration services for the products we sell. Extech also provides NIST certification for most products. Call the Customer Service Department for information on calibration services available for this product. Extech recommends that annual calibrations be performed to verify meter performance and accuracy.



**Support line (781) 890-7440**

Technical support: Extension 200; E-mail: [support@extech.com](mailto:support@extech.com)

Repair & Returns: Extension 210; E-mail: [repair@extech.com](mailto:repair@extech.com)

**Product specifications subject to change without notice**

For the latest version of this User's Guide, Software updates, and other up-to-the-minute product information, visit our website: [www.extech.com](http://www.extech.com)

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