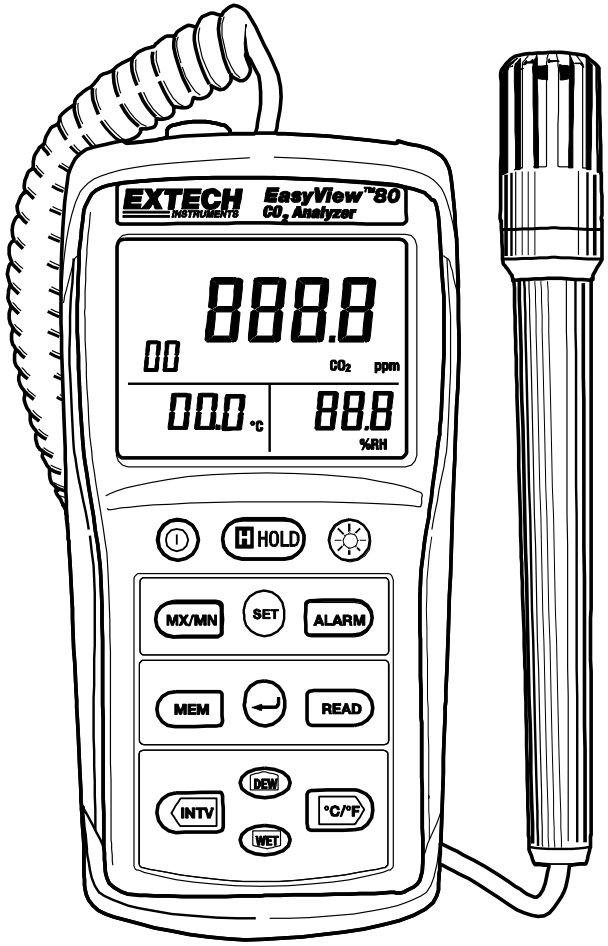
EXTECH®

User Manual

Indoor Air Quality Meter/Datalogger

Model EA80



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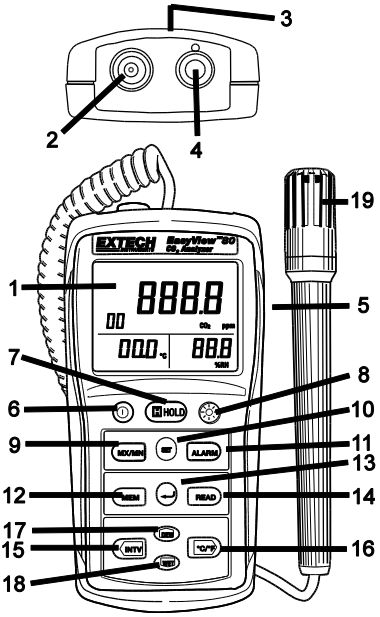
Additional User Manual Translations available at www.extech.com

Introduction

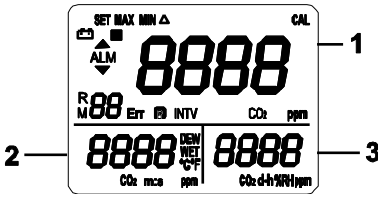
Congratulations on your purchase of the Extech EA80 Indoor Air Quality Meter. This meter measures Carbon Dioxide (CO_2, ppm) levels, ambient Temperature and Relative Humidity (%RH). 16,200 readings can be logged by the meter and later transferred to a PC. This meter is shipped fully tested and calibrated and, with proper use, will provide years of reliable service.

Description

1. Display
2. Gas exhaust
3. Gas inlet port (rear of meter)
4. PC Interface jack
5. AC adapter 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



Three Tier LCD Display



Preparation for Use

Power Supply

The meter is powered by six (6) 1.5V 'AAA' alkaline batteries or by an AC adapter.

Installing the Batteries

Insert six (6) AAA 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 the meter to be powered from a common AC 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's gas inlet port (3), the vented opening located on the rear of the meter, and gas exhaust port (2), which is located at the top of the meter, are not blocked.

Operation

Note: Exhaled CO_2 will affect the accuracy of the reading; do not hold meter near the face.

Taking Measurements

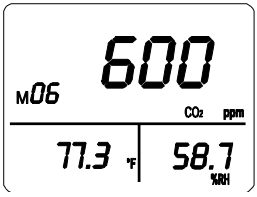
The sensor for Temperature, Humidity, Dew Point, and Wet Bulb measurements is located in the remote probe. Hold the probe in the air in the area to be tested. DO NOT immerse in liquid. The sensor for CO2 measurements is located at the top of the meter.

Selecting temperature units of measure (C/F)

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

CO2 Measurement

1. Press ⏻ button to turn on the meter,
2. The sensor requires a 30 second warm-up before displaying the CO2 measurement.
3. The meter sensor requires approximately10 minutes to stabilize in still air before the readings can be considered accurate. Moving the meter may decrease this stabilization time.



4. The primary display indicates the CO2 reading. The secondary display indicates temperature. The third display indicates %RH.

Humidity Measurement

1. Press the "⏻ " button to power the meter ON.
2. The display will indicate the humidity reading (% 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 the meter ON.
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

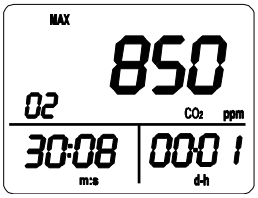
1. Press the "⏻" button to power the meter ON.
2. Press the "DEW" button
3. The display will show the Dew Point Reading on the second display.
4. Allow adequate time for the readings to stabilize
5. Read the measurements on the LCD.
6. Press the "DEW" button again to exit the dew point temperature reading.

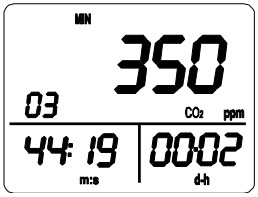
Wet Bulb Temperature Measurement

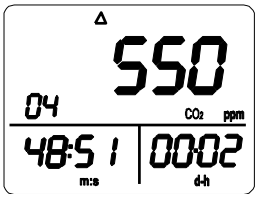
1. Press the "⏻" button to power the meter ON.
2. Press the "WET" button
3. The display will show the Wet Bulb Reading on the second display.
4. Allow adequate time for the readings to stabilize
5. Read the measurements on the LCD.
6. Press the "WET" button again to exit the display.

CO_2 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 CO2 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 "△" 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.

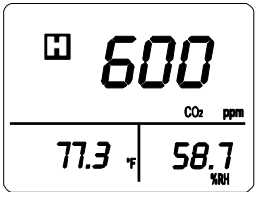






Data Hold

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).



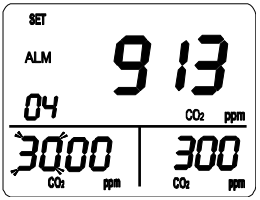
Backlight

1. Press the ☼ button to turn the backlight on or off.
2. The backlight will turn off automatically after 30 seconds.

CO_2 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 digits.

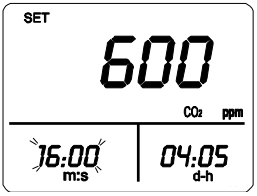


5. Press "▲" or "▼" button to enter the desired value.
6. Press "▶" button to move the cursor to the hundred and thousand digits of the low limit value.
7. Press "▲" or "▼" button to set desired value.
8. Press "▶" button to move the cursor to move the cursor to set the tens and ones of the low limit 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

1. Press "**ALARM**" button to turn on the alarm function, "ALM" is displayed.
2. When the CO_2 value is below the low limit value, the meter displays "▼" mark and beeps.
3. When the CO_2 value exceeds the high limit value, the meter displays "▲" and beeps.
4. To exit the ALARM function, press "**ALARM**" button again.

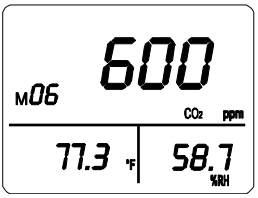
Setting the Real Time Clock



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 **to** 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 Datalogging

Storing readings



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

Viewing readings

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

Press " ▲ " or " ▼ " to scroll through the stored readings.

Press " ↵ " enter to exit this mode.

Deleting stored data

Press the "**SET**" button three times. The LCD will display "**CLr**" and the meter will enter the Clear Memory mode.

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

To abort, press the "**SET**" button twice and then press the "↵" button to exit the Clear Memory mode.

Auto Datalogging

Setting interval time

Press "**SET**" two times. The "**INTV**" mark will appear and the meter will enter the Interval Time setting mode.

Use the "▲" or "▼" button to select the desired interval time from 1 to 255 seconds.

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

Auto Datalogging mode

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

The "**M**" will flash each time a recording is made.

The maximum memory capacity is 16,200 recordings that can be divided into **99** sets.

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

Deleting Logged Data

Press "**SET**" four times, the "**CLr**" and " 🖬 " mark will be displayed.

Press the "↵" button to clear the automatically stored data and to exit this mode.

To abort, press the "**SET**" button again then press the "↵" button to exit.

PC Software

This meter has the capability to connect to and communicate with a PC.
Check the software download page of the website www.extech.com/software/downloads for the latest version of the PC software and its operating system compatibility.

Download and unzip the software. Run ExtechInstaller.exe and then refer to the instructions provided in the HELP Utility within the software program.

Calibration

CO2 Calibration

1. Press "⏻" to turn the meter on.
2. Place the meter 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 "◄" to select digits to adjust (flashing).
5. Press "▼" or "▲"to adjust the display to the reference value.
6. Press "↵" to store the value and exit the calibration mode.

Humidity Calibration

1. Press "⏻" 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 "▲" to adjust the display to the reference value.
5. Press "↵" to store the value and exit the calibration mode.

Temperature Calibration

1. Press "⏻" 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 "▲" to adjust the display to the reference value.
5. Press "↵" to store the value and exit the calibration mode.

Specifications

Display	Three Tier LCD
Display Rate	One reading per second
Low Battery Indication	The "+ −" icon is displayed when the battery voltage drops below the operating voltage
Power Supply	Six (6) AAA-size alkaline batteries or AC adapter (120V)
Battery Life	Approx. 8 hours using alkaline batteries (with backlight and Alarm functions OFF)
Manual Data Memory Capacity	99 records
Auto Datalogging Capacity	16,200 records in up to 99 data sets
Operating Temperature Range	41°F to 122°F (5°C to 50°C)
Storage Temperature Range	-14°F to 140°F (-10°C to 60°C)
Operating Humidity Range	10%RH to 90%RH, non-condensing
Storage Humidity Range	10%RH to 90%RH, non-condensing
Dimensions	6.22" x 2.83" x 1.38"; 158 (L) x 72(W) x 35(H) mm
Weight	255g (0.56lbs) approx. (including batteries)
Accessories	Instruction Manual, Batteries, AC Adaptor, and PC Interface Cable

CO2 Specifications	
Sensing Range	0 to 6000ppm
Sensing Resolution	1ppm
Accuracy	±3% of reading or ±50ppm, whichever is greater
	@ 101.4 kPa (29.92 inHg) and @ 25°C (77°F)
Sensing Method	Dual wavelength detector with non- dispersive infrared (NDIR) sensor
Gas Sampling Mode	Diffusion type
Warm up time	10 seconds
Response time	< 10 minutes in still air
Temperature Coefficient	Add ±0.36% of reading per °C (±0.2% of reading per °F) when deviating from calibration temperature

Temperature & Humidity Specifications

	Relative Humidity	Air Temperature Dew Point and Wet Bulb are calculations
Range	10% ~ 95% RH	-4°F ~ +140°F (-20°C ~ +60°C)
Resolution	0.1% RH	0.1°F (0.1°C)
Accuracy	±3%RH @ 77°F (25°C), 30~95%RH ±5%RH @ at 77°F (25°C), 10~30%RH	±0.9°F (±0.5°C)
Sensor type	Precision capacitance sensor	Thermistor
Response time	45%RH→95%RH≦1min 95%RH→45%RH≦3min	18°F (10°C) / 2sec

Maintenance

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  symbol appears on the LCD, the six 1.5V 'AAA' must be replaced.

1. Turn the meter off
2. Remove the meter's rubber protective jacket
3. Remove the flat-head screw at the rear of the meter
4. Remove the meter's battery cover
5. Replace the batteries observing polarity
6. Affix the battery cover, secure the rear screw, and re-attach the meter's rubber protective jacket

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 battery and store separately.

Two-year Warranty

Teledyne FLIR warrants this Extech brand instrument *to be free of defects in parts and workmanship for* ***two years*** *from date of shipment (a six-month limited warranty applies to sensors and cables). To view the full warranty text please visit:*
http://www.extech.com/support/warranties.

Calibration and Repair Services

Teledyne FLIR offers calibration and repair services for the Extech brand products we sell. We offer NIST traceable calibration for most of our products. Contact us for information on calibration and repair availability, refer to the contact information below. Annual calibrations should be performed to verify meter performance and accuracy. Product specifications are subject to change without notice. Please visit our website for the most up-to-date product information: www.extech.com.

Contact Customer Support

Customer Support Telephone List: https://support.flir.com/contact

Calibration, Repair, and Returns: repair@extech.com

Technical Support: https://support.flir.com