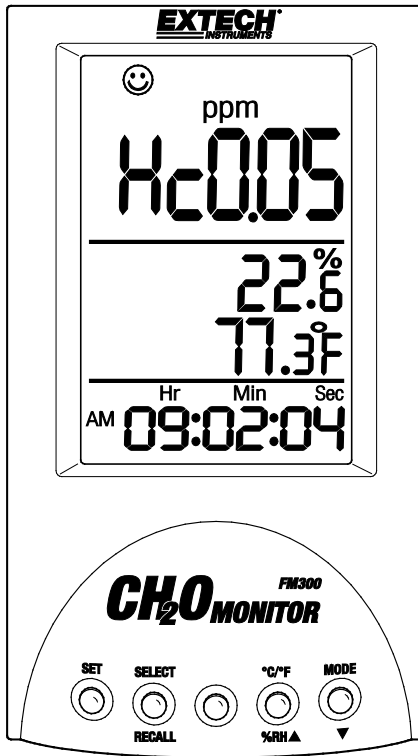


### Desktop Formaldehyde HCHO (CH<sub>2</sub>O) Meter

### Model FM300



## ***Introduction***

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Thank you for selecting the Extech Instruments Model FM300, this meter was designed with electrochemical vented ball sensor technology for quickly detecting HCHO or CH<sub>2</sub>O gas. This device is shipped fully tested and calibrated and, with proper use, will provide years of reliable service. Please visit our website ([www.extech.com](http://www.extech.com)) to check for the latest version of this User Guide, Product Updates, and Customer Support.

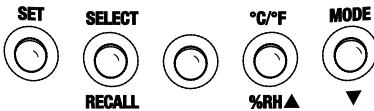
## ***Features***

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- Large four-tiered LCD Simultaneously displays Formaldehyde concentration, Air Temperature, and Relative Humidity with Date and Time
- Desktop style with audible HCHO (CH<sub>2</sub>O) alarm
- Three display (face) icons for HCHO (CH<sub>2</sub>O) concentration level (good , fair or poor)
- Latest smart technology for measuring HCHO (CH<sub>2</sub>O) concentrations
- Easy to use, intended for indoor air quality purposes
- Bright LED representing Recording mode (Green light) and Alarm trip (Red light)
- TWA (8-hour time-weighted average) and STEL (15-minute short term exposure limit)
- 99 data point memory (01-99) with recall and clear functions
- Min/Max utility shows highest and lowest readings at a glance
- User adjustable HCHO concentration Alarm limit (default 0.08 ppm)
- Electrochemical HCHO sensor, measures concentrations up to 5.00 ppm
- Includes Universal AC adaptor (100-240V) for US, EU, UK, and AUS plug types

## Meter Description

### Button Description



#### SET Button:

- Set date and time
- Audible Alarm ON/OFF (SET + MODE)
- Alarm Limit Adjustment
- Short press to switch AM/PM

#### SEL/Recall Button:

- Move to next digit
- Short press to save current reading
- Press and hold to recall stored reading

#### °C - °F - %RH ▲ Button:

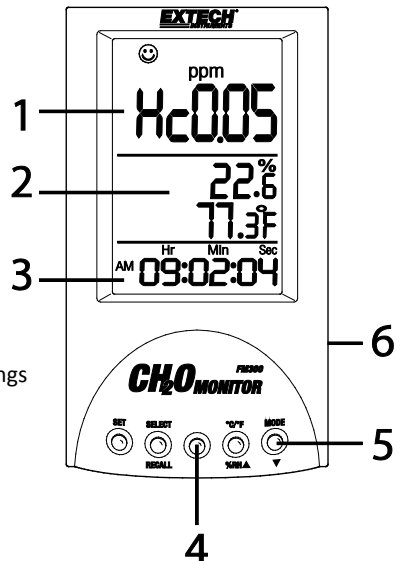
- Increase a value
- Press and hold to switch temperature units

#### MODE ▼ Button:

- Decrease a value
- Review Maximum and Minimum reading
- Review TWA-STEL

### Meter Description

1. Top LCD display for HCHO (CH<sub>2</sub>O) ppm readings
2. Middle LCD display for RH% and temperature readings
3. Bottom LCD display for Time and Date
4. LED indicator light (Red, Orange, Green)
5. Push-buttons (detailed above)
6. Power adaptor jack



### LED Indicator Description

- Each time a reading is manually stored, the LED flashes green
- When the high alarm is tripped, the LED flashes red and the audible beeper sounds

## Operation

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### POWER THE METER

Plug the AC adaptor into meter and receptacle to turn on the meter. Reset the date and time each time the meter power is cycled. Remove the adaptor or switch off the AC power source to shut down the meter.

### GETTING STARTED

All LCD display lines will switch ON and the LED will glow orange when power is applied to meter. The display will warm up to 5 or 10 minutes depending on air quality after which the meter enters the normal mode.

In normal mode, the top display line indicates the current HCHO (CH<sub>2</sub>O) concentration in ppm, the middle display line shows RH% and ambient temperature readings; the bottom LCD line alternates between Date and Time.

If the measured HCHO (CH<sub>2</sub>O) concentration exceeds the user-programmable Alarm threshold value when the meter is switched ON the LED light will flash red and the audible beeper will sound (unless it has been disabled by the user). Press **SET** and **MODE** at the same time to silence the alarm beeper.

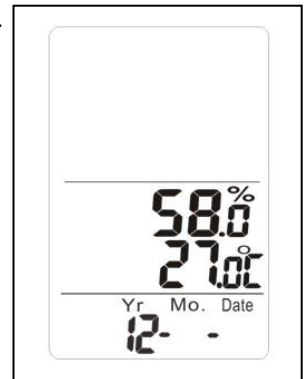
When attempting to manually store the current HCHO reading, the LED light turns green for one second and a short beeper tone will sound.

Toggle the displayed temperature units by press and holding the °C/°F/RH%▲ button for 3 seconds.

### SETTING THE DATE AND TIME

In normal operation, the meter alternates the date and time displays. Short press **SET** to change AM/PM.

1. Press and hold **SET** for 3 seconds to see image at right.
2. Press ▼ to decrease a number or press ▲ to increase a number
3. Press **SEL/RECALL** to scroll through the YEAR-MONTH-DAY
4. When finished changing the Date, press **SET** to change the Time
5. Press ▼ to decrease number or press ▲ to increase number
6. Press **SEL/RECALL** to scroll through HR-MIN-SEC
7. Press **SET** to access the alarm setting (see Alarm section).
8. To exit, press and hold **SET** for 3 seconds.



## MAX, MIN, TWA, and STEL READINGS

1. Press **MODE** to view the maximum reading since meter was powered (MAX icon appears)
2. Press **MODE** again to view the minimum reading (MIN icon appears)
3. Press **MODE** again to view the TWA (8-hour time weighted average) value
4. Press **MODE** again to view the STEL (15-minute short term exposure limit) value
5. Press **MODE** again to return to the normal measurement mode
6. To clear these readings: Enter the Maximum mode and, when the MAX Icon appears, press and hold the **SET** button for 3 seconds, "Clr" appears for confirmation.




## HCHO ALARM SETTING

1. Alarm default is ON.
2. Press and hold the **SET** button for 3 seconds to enter the setup mode
3. Press **SET** again to skip the Date setting (set the Date if desired per earlier instructions)
4. Press **SET** again to skip the Time setting (Set the Time if desired per earlier instructions)
5. Press **SET** again and a flashing "8" will display. Use the up ▲ and down ▼ arrows to increase/decrease the alarm threshold. Press **SEL/RECALL** to move to the next digit. There are 3 digit places with a maximum setting of 5.00pm (0.08ppm is the default).
6. Press and hold **SET** for 3 seconds to save and return to the normal measurement mode.

While alarm is tripped, the LED will flash red even if "beeper audio off" is selected. To silence the beeper when in an alarm condition, press **SET** and **MODE** at the same time. The red LED will continue to flash, however, until the environmental HCHO level no longer exceeds the default 0.08ppm Alarm level or the user selected Alarm level. Remember to reactivate the beeper for future use.

## INTERPRETING THE FACE ICONS

The three face icons represent three HCHO measurement ranges: Normal (<0.08ppm), Moderate (>0.08ppm, <0.80ppm), and Unhealthy (>0.8ppm). The guide and table below are useful when interpreting measurements for a variety of applications.

	<0.08ppm HCHO(CH <sub>2</sub> O)
	>0.08ppm, <0.80ppm HCHO(CH <sub>2</sub> O)
	>0.8ppm HCHO(CH <sub>2</sub> O)



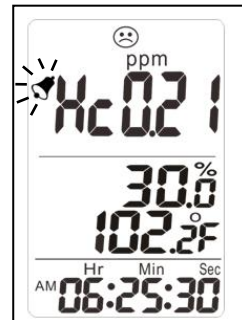
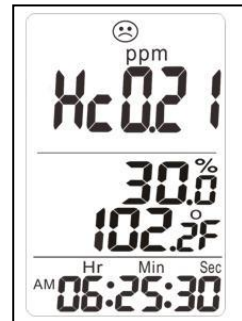
## MEASUREMENT COMPARISON TABLE

0.03 ppm	Average outdoor level
0.10ppm	Recommended upper limit for residences by ASHRAE, ANSI, EPA, NIOSH Recommended upper limit for STEL
0.40ppm	Recommended upper limit for manufactured homes
0.50ppm	OSHA workplace limit
0.75ppm	OSHA TWA limit
0.80ppm	Level at which most people first detect odor
2.00ppm	OSAL STEL limit

## AUDIBLE ALARM BEEPER (ON / OFF)

To toggle ON-OFF the audible beeper: From the normal measurement mode, press the **SET + MODE ▼** button at the same time. The LCD will show **beeper icon** when the beeper is active. The Alarm beeper will sound (and the LED will flash red) when the environmental HCHO level exceeds the default 0.08ppm Alarm level or the user selected Alarm level.

While alarm is tripped, the LED will flash red even if “beeper audio off” is selected. To silence the beeper when in an alarm condition, press **SET** and **MODE** at the same time. The red LED will continue to flash, however, until the environmental HCHO level no longer exceeds the default 0.08ppm Alarm level or the user selected Alarm level. Remember to reactivate the beeper for future use.



## MANUALLY STORE/RECALL 99 HCHO READINGS

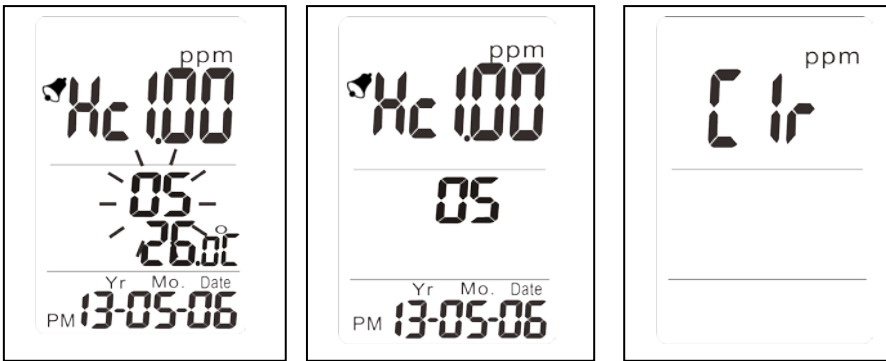
The FM300 can manually store an HCHO reading by pressing **SEL/RECALL** button (up to 99 can be stored). The LCD shows the record number, 01-99. The number appears momentarily in the humidity reading area. A short beep will sound each time a reading is stored.

To recall stored readings, press and hold the **SEL/RECALL** Button, the LCD shows the number of the record with its HCHO reading, to scroll other stored readings press the **▲** button or the **▼** button. Press and hold the **SEL/RECALL** Button to return to normal operation mode.

To clear stored data:

Enter the Recall mode and press and hold the **SET** button until “Clr” appears on LCD. The LCD then automatically returns to the normal mode of operation.

The illustration at left shows a manually recorded HCHO reading (reading number '05' in this case); the middle illustration shows the recalled HCHO reading; the illustration at right shows HCHO readings cleared.



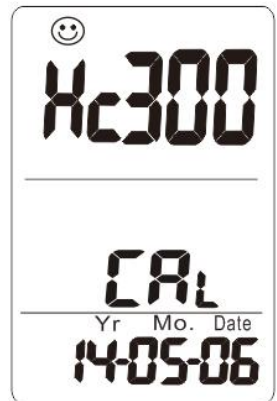
### HCHO SELF-CALIBRATION

It is recommended that the meter be calibrated monthly in a clean air environment.

From the normal measurement mode, press and hold the **MODE▼** button for at least 6 seconds to enter calibration mode.

The LCD shows CAL and counts down from 300 seconds. After calibration is completed, the meter returns to the normal measurement mode automatically.

**NOTE:** Power on the meter for 10 minutes at a location with good ventilation. Ensure that no HCHO concentration is present in the air while calibrating.



### DISPLAY ERROR CODES

ER-1 (Temperature): If the Temperature sensor fails the error code appears in the Temperature display area.

ER-1 (RH): If the RH sensor fails the error code appears in the RH display area.

ER-2: The measurement exceeds the range of the instrument. This could also indicate that the meter is malfunctioning. Please contact Extech for service.

## Specifications

Measurements	HCHO (CH <sub>2</sub> O) ppm, Temperature, RH%
HCHO range and resolution	Measurement range 0.00 to 5.00ppm (0.01ppm)
HCHO Sensor	Electrochemical type
HCHO Accuracy *	±25% + 0.03 ppm
Alarm alert	Visual LED alarm and audible beeper alarm
Temp. range and resolution	0 to 50°C (32 to 122°F); 0.1 °C (0.1 °F)
RH% range and resolution	10 to 90 %RH (0.1%)
Temperature and RH% Accuracy	±1°C (2°F) Temperature; ±5% RH
Date and Time indicators	Year, Month, Day, and Time (HR:MIN:SEC)
Response time	< 30 seconds
Internal Memory	99 data point (01-99) store/recall/clear
MAX/MIN Record / Recall / Clear	Stores highest reading since power start
Measurement analysis	TWA/STEL modes
Power	Universal AC adaptor (for 100 to 240VAC sources)
Dimensions	155 x 87 x 81mm (6.1 x 3.4 x 3.2")
Weight	165 g (5.8 oz.)

\*Accuracy Note: Accuracy meets NIOSH acceptance criterion within ±25% of the true value at 95% confidence level

### Sensor Cross Sensitivity table

Substance	Cross Sensitivity (%)
CO	1
H <sub>2</sub> S	No Data
H <sub>2</sub>	0.1
SO <sub>2</sub>	12
NO <sub>2</sub>	No Data
NO	No Data
CL <sub>2</sub>	-3
C <sub>2</sub> H <sub>4</sub>	No Data
NH <sub>3</sub>	0.0
CO <sub>2</sub>	0.0
Ethanol, methanol	50
Phenol	7
Water Vapor	0.0*

\*NB: Within specified range. Step changes in %RH produce short term transient response

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