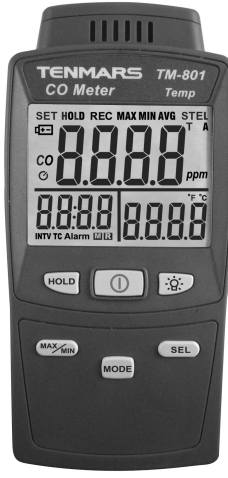
TENMARS

Carbon Monoxide Meter
TM-801
User's Manual



HB2TM8010004

TENMARS ELECTRONICS CO., LTD

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1. PREFACE

Thank you for purchasing our product.
Please, read the operating instructions in details before you use this CO meter, so you will operate the meter correctly. This meter can be operated in industry and home.

	WARNING
	Non-compliance warning and/or operating instructions may damage the instrument or its parts or injuring the operator.

2. GENERAL DESCRIPTION

- Adjustable alarm: Adjustable alarm threshold level(25/35/50/100/250/400/800/Randomly Adjustable); Enable/Disable alarm.
- Dual and digital display of the CO and temperature measuring.
- Maximum/Minimum/Average hold.
- Data hold(HOLD).
- Low battery indication " ".
- LED Backlight.
- Auto power OFF and disable function.

3. TECHNICAL SPECIFICATIONS

3.1. Characteristics

Accuracy is indicated as [% of reading +ppm]. It is referred to the following reference conditions: 23°C ± 5°C with RH <75%.

CO ※Carbon monoxide

Range	0 ~ 1000ppm
Resolution	±1ppm
Accuracy	±(5% +2ppm)
Repeatability	< 2%
Response time※	< 30 seconds.
Zero drift in long term	< 5ppm
Sensitivity drift	< 5% (per year)
Typical sensor life	3 years
※ The response time refers to the fixed value of 90% of the value.	

Temperature

Range	-20~50℃/-4~122℉
Resolution	±0.1℃/±0.1℉
Accuracy	±1.0℃/±1.8℉

3.2. General data

- 4 dgt LCD with maximum 1000 counts. 60mm(W)x 47mm(L) monochrome LCD and backlight.
- Sample rate:1 times/second

- Dimension: 156x73x35mm(LxWxH).
- Weight: approx 250g (Batteries not included).
- Power Supply :
  UM-4(AAA)1.5Vx 6 PCS or AC100~240V
  DC9V/0.5A(9mm) Adaptor.
- Battery life : approx 90 hours.
- Operating Temperature & Humidity :
  -20°C to +50°C，<80% RH。
- Storage Temperature & Humidity :
  -10°C to +50°C，<70% RH。
- Data output : USB PC serial interface.
- Standard Accessories :
  UM-4(AAA)1.5V battery x6 PCS
  、User's manual

WARNING

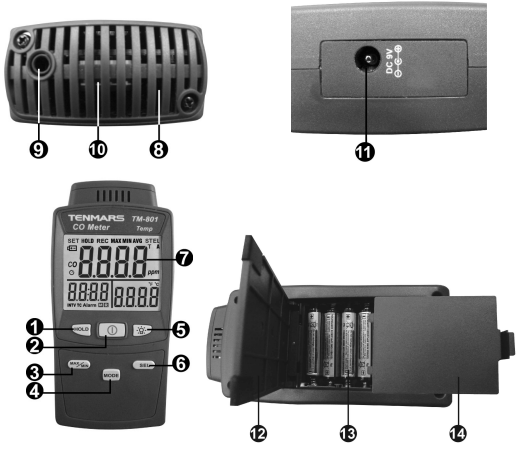
To ensure that the accuracy of the meter, We recommend for calibration once a month.

- **EMC :** This test was designed in accordance with EMC Standards in force and its compatibility has been tested in accordance with EN61326-1(2006).

4. CO LEVELS AND STANDARDS

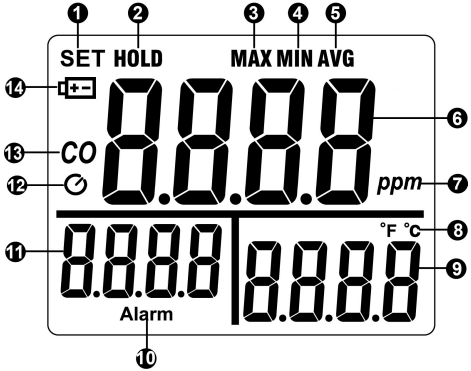
Carbon monoxide content in the air	Inspiration time	Symptoms and applicable standard
0-1 ppm		Normal background levels.
9 ppm		Maximum indoor air quality level.
35 ppm	8 hours	The average exposure level per U.S. OSHA workplace standards.
50 ppm	8 hours	The maximum average exposure of the U.S. OSHA workplace standards.
0.01%(100 ppm)	2~3 hours	evacuate people from enclosed space if the CO concentration exceeds 100 ppm per OSHA exposure limit. Mild headache.
0.04%(400 ppm)	1~2 hours	Headache occur in 2.5 hours to 3.5 hours.
0.08%(800 ppm)	45-min	Dizziness, nausea, cramps(convulsions).
0.16%(1600 ppm)	20-min	Headache, dizziness and will be dead within 2 hours.
0.32%(3200 ppm)	5~10 min	Headache, dizziness, vomiting and will be dead in 30 minutes.
0.64%(6400 ppm)	1~2 min	Headache, dizziness and will be dead within 10 to 15 minutes
1.28%(12800 ppm)	1~3 min	Will die.

5. INSTRUMENT DESCRIPTION



1. HOLD Button
2. Power Button
3. MAX/MIN/AVG Button
4. MODE Button
5. Backlight Button
6. SEL Button
7. LCD
8. Temperature Sensor
9. Earphone Jack
10. CO SENSOR
11. DC POWER
12. HOLDER
13. Battery Holder
14. Battery Cover

6. LCD DESCRIPTION



1. SET symbol
2. HOLD symbol
3. MAX symbol
4. MIN symbol
5. AVG symbol
6. Numeral reading value
7. PPM unit
8. Temperature unit
9. Temperature Reading
10. Alarm symbol
11. Time display
12. Auto power off
13. CO symbol
14. Low Battery symbol

7. POWER ON/OFF

Press ⏻ button to turn on or turn off the meter. It will be unable to turn off under setting up alarm, and correction.

8. AUTO POWER OFF

The duration of auto power off time is 15 minutes. If you want disable auto power off, please hold HOLD button and press ⏻ button at the power shutdown mode. When you see the “n-SL” display on the LCD, that means the auto power off function is off. If you want enable auto power off, please restart the meter.

※ The auto power off will disable if the alarm is enabled.

9. BACKLIGHT

Press 🔆 button to turn on the backlight, press this button again to turn it off.
The backlight time is 15 seconds.

10.CHANGE THE TEMP UNIT

Press SEL button to change the temperature ℃, ℉ unit。

11.DATA HOLD

Freezes the reading present on the LCD screen at the moment the button is pressed.

12.CO ALARM SETTING

Hold and press MODE button for more than 2 seconds to enter into the alarm setting mode, press SEL button to choose and press MODE button to turn on(A-on) or turn off(A-oF) the alarm.

If you select the alarm to be turned on(A-on), press SEL button to select alarm value (25/50/100/250/400/800/0000) and press MODE button to enable.

If you select the “0000”, press MAX/MIN button to adjust the value and press MODE button to enable.(Hold and press MAX/MIN button to High value adjustment, the highest setting value is 1200, and the lowest is 0.)

13.MAXIMUM/MINIMUM/AVERAGE

Press MAX/MIN button simultaneously Lockup data maximum and minimum and average value of measuring data. Press the "MAX/MIN" button for more than 2 seconds to disable this feature.

14.CALIBRATION

Please shutting down the meter first, then hold and press MODE button and press ⏻ button to enter into calibration mode. It will show a blinking 0 ppm on the upper display and the lower-left corner of the screen will display the value of the ADC.

※ In the calibration, must away from the environment or equipment with electromagnetic waves.

- 0 ppm Calibration
  The meter is running 0 ppm calibration as default.
  Put the meter in an area free of CO and enter the calibration mode. It calibrates automatically. The duration of calibration time is 5 minutes.

- 100 ppm/500 ppm Calibration
  After end of the 0 ppm calibration, the screen will display 100 ppm, then press SEL button to select 100 ppm or 500 ppm value and press MODE button to start calibration. It will show a blinking 100 ppm or 500 ppm on the upper display and the lower-left corner of the screen will display the value of the ADC and place the meter into the sealed box filled with standard gas(e.g. 100 ppm/500 ppm) for 5 minutes, then the calibration will be done automatically.

※ Check if the reading meets calibration value. If it does, the calibration is not, repeat the procedure.

15.PRECAUTIONS

- Keep the meter away from electromagnetic interference (EMI) which may cause erratic readings.
- Recovering time is required when meter exposed to high level CO. The longer the exposure, the longer recovering time is needed.

16.COMPUTER GRADE

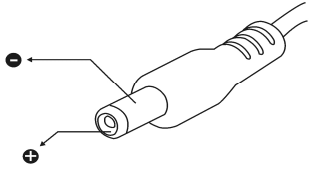
- CPU:Pentium Ⅲ 1000MHZ.
- RAM:SDRAM 256MB.
- HARD DISK:200MB.
- OS:Windows 2000, Windows XP.
- DISPLAY :800×600 256 color

17.EXTERNAL DC POWER

External AC to DC adapter : Voltage 9 V_{DC} (8~14 V_{DC} Max).

Socket :Pin positive, Ground casing negative.

External Diameter 5.5mm ;Internal Diameter 2.1mm.



18.SAFETY AND MAINTENANCE STANDARDS

- Do not put this device in direct sunlight or where it is hot and/or damp.
- Operating altitude: below 2,000m.

19.BATTERY REPLACEMENT

WARNING

If the LCD displays "[battery]"symbol, please replace the battery immediately.

Turn off the power and unplug all cables, remove the battery and replace into the new battery.
Please use the correct specification of the battery, and correctly installed in the battery holder.

20.END OF LIFE

Caution : This symbol indicates that equipment and its accessories shall be subject to a separate collection and correct disposal.

WARNING

If not using the meter, please remove the battery to avoid possible damage.

TENMARS

Professional Electrical and Environment Test & Measurement Instruments:

Battery Capacity / Impedance Tester
LED light meter, Temperature & Humidity meter,
Infrared Thermometer, Sound level meter
Light meter, EMF meter, UV Light meter,
RF meter, Hot wire Anemometer, CO meter
Anemometer, Lan cable tester, CO_2 meter,
Solar power meter, Radiation meter,
Clamp meter, Multimeter, Phase Rotation test,
Digital Insulation tester

Our products of high quality are selling well all over the world

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