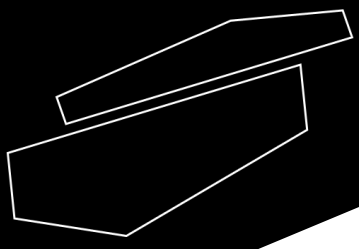
METRIA



Portable Air Quality Meter, 77532

Please read the User Manual carefully before use and follow all operating and safety instructions!



user manual

english

User Manual

EN

77532 Portable air quality meter

Preface

Users should read this Manual carefully, follow the instructions and procedures, and beware of all the cautions when using this instrument.

Service

If help is needed, you can always contact your dealer or Letslab via **www.letslab.com**

Please, provide the customer service representative with the following information:

- Serial number
- Description of the problem
- Your contact information

Warranty

This instrument is guaranteed to be free from defects in materials and workmanship under normal use and service, for a period of 24 months from the date of invoice. The warranty is extended only to the original purchaser. It shall not apply to any product or parts which have been damaged on account of improper installation, improper connections, misuse, accident or abnormal conditions of operation.
For claim under the warranty, please contact your supplier.

1. Introduction

The meter measures CO_2 level and air temperature and is an ideal instrument for indoor air quality (IAQ) diagnosis. Poor indoor air quality is considered unhealthy because it causes tiredness, loss of ability to concentrate and even illness. It is also considered very important to prevent the spread of Covid-19. IAQ monitoring and survey, especially on CO_2 level and air ventilation has become widely applied in public areas such as offices, classrooms, factories, hospitals and hotels.

This portable meter CO_2 meter uses NDIR (non-dispersive infrared) technology to ensure the reliability and long-term stability. It is useful in verifying HVAC system performance and air ventilation control.

Features:
· Stable NDIR sensor for CO_2 detection.
· Statistics of weighted averages TWA (8 hours weighted average) STEL (15 minutes weighted average).
· Backlight for working in dark areas.
· Auditive CO_2 warning alarm.
· Battery and adaptor power supply.
· Easy manual calibration on CO_2.

Material supplied (the package contains):
· Meter
· 4 pcs AA batteries
· Hard carrying case

Power supply:
The meter is powered by either 4 AA batteries or a DC adaptor (9V/1A output). Install the batteries into the battery compartment on the rear and make sure they are in correct polarity and good contact. When an adaptor is used, it will cut off the power supply from batteries. The adaptor can't be used as a battery charger.

When battery voltage gets low,  and "Lob" will appear on the screen (Fig. 1) and the beeper will sound. The CO_2 sensor cannot work under low voltage, si it beeps to indicate failed CO_2 measurement (press any key except SET to stop the beeping) and the readings will not be displayed. Please replace with fresh batteries or connect with an adaptor.

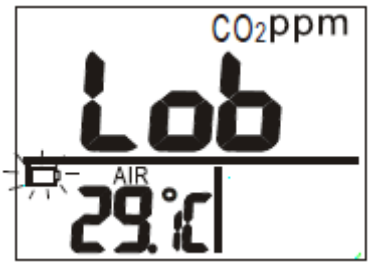


Figure 1

LCD Display

TWA	Time weighted average (8 hours)
STEL	Short-term exposure limit (15 minutes weighted average)
HOLD	Readings are freezed unchanged
MIN/MAX	Minimum and maximum readings
▭	Low battery indicator
AIR	Air temperature
°E (C/F):	Celsius or Fahrenheit

Keypad

SET	·Turns on and off the meter · Enters setup mode · Sets as non-sleep mode with HOLD
CAL/ESC	· Exists setup page/mode · Enters CO_2 calibration with MODE
HOLD	· Freezes the current readings · Cancels data hold function
MODE	· Activates or cancels the backlight · Selects unit or increases value in setup
BKLT	· Decrease value
M^N_X/AV	· Activates MIN, MAX, STEL, TWA function · Saves and finishes settings

2. Operation

Power ON/OFF
Press SET to turn the meter on and off. When power on, it emits a short beep and performs 30 second countdown (Fig.2) for meter warm up, then enters normal mode with current CO2 and temperature readings displayed (Fig.3).



Figure 2

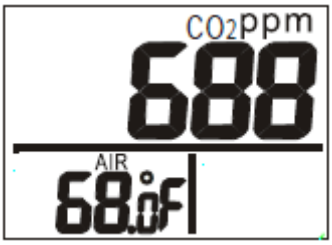


Figure 3

Taking measurement
The meter starts measurement when the power is on and updates readings every second. In the condition of operating change in operating environment (ex. from high to low temperature), it takes 30 seconds to respond for CO_2 sensor.
NOTE: Do not hold the meter close to your face since exhalation affects CO_2 levels.

Data hold
Pres HOLD to freeze the readings, "HOLD" icon is displayed on the left top of LCD. All current readings are kept unchanged, except STEL and TWA. Press HOLD again to cancel the hold function.

Backlight
Hold down MODE for more than 1 second to activate and cancel backlight function

MIN, MAX, STEL and TWA
Under normal mode, press M^{N}_{X}/AV to see the minimum, maximum and weighted average readings. Each press of M^{N}_{X}/AV displays MIN, MAX, STEL, TWA in sequence and returns to normal mode.

In MIN and MAX modes, it shows the minimum and maximum readings of CO_2 on the upper LCD and of AIR on the lower LCD (Fig. 5). In STEL and TWA modes, the upper LCD shows the weighted average of CO2 readings for the past 15 minutes (STEL) and 8 hours (TWA). The lower LCD shows the current AIR (Fig. 4).

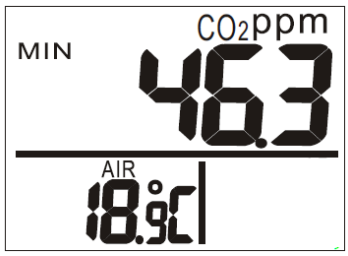


Figure 4

In STEL and TWA modes, the upper LCD shows the weighted average of CO_2 readings for the past 15 minutes (STEL) and 8 hours (TWA). The lower LCD is the current AIR (Fig. 5).

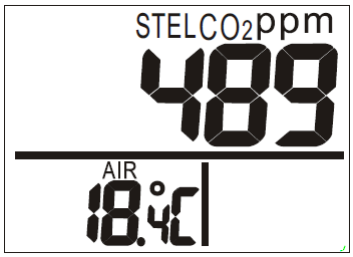


Figure 5

NOTE:
1. If the meter is turned on for shorter than 15 minutes, the STEL value will be weighted average of readings taken since power on. Same for TWA values that appear before 8 hours.
2. It takes at least 5 minutes to calculate STEL and TWA. The LCD shows "----" (Fig. 6) during the first 5 minutes from power on.

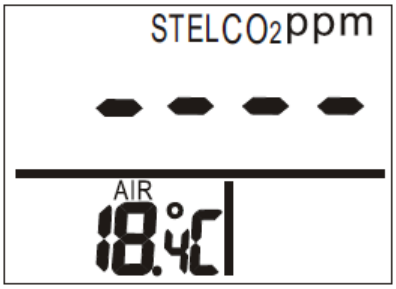


Figure 6

3. While all readings are held unchanged, STEL and TWA will keep updating every 5 minutes.

Alarm
The meter features an audible alarm to give warnings when CO_2 concentration exceeds the limit. (See **P1.0** in setup for setting the alarm threshold). It emits beeps (Abt. 80 dB) when CO_2 level goes over the set value and stops when any key (except for SET) is pressed or readings fall below the set value. It beeps again when value goes over the limit. Please restart the meter if the beeper cannot be stopped.

Auto power off
The meter turns off automatically after 20 minutes of inactivity. To override the function, hold down SET and HOLD for 2 seconds to turn on the meter until **"n"** appears.
NOTE: Auto sleep function will be disabled during calibration mode.

Setup
Hold down SET under normal mode for more than 1 second to enter the setup mode. To exit setup, press CAL/ESC in **P1.0** or **P3.0** and it returns to normal mode.
NOTE: P2.0 is not applicable in this model

P1.0 CO_2 alarm
When entering setup mode, P1.0 and "AL" (Fig. 7) are displayed on the LCD. Press M^N_X/AV to enter P1.1 for setting CO2 alarm threshold. The current set value will be blinking on the LCD (Fig. 8).

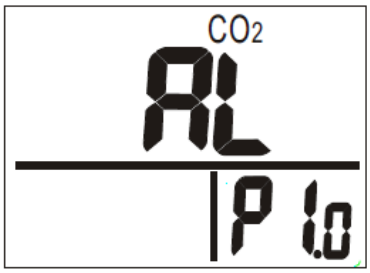


Figure 7

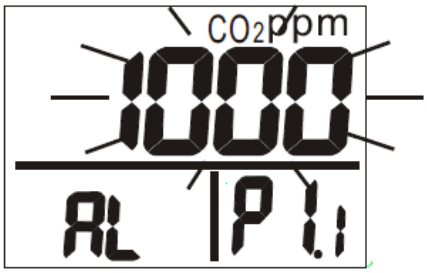


Figure 8

Press MODE (^) to increase the value or BKLT (V) to decrease the value. Each press tunes 100 ppm and the alarm range is from 100 to 9900 ppm. When the preferred alarm value is set, press M^N_X/AV to save the setting or CAL/ESC without saving and return to P1.0.

P3.0 Temperature scale

Press MODE or BKLT in P1.0 to access P3.0 for setting up temperature scale (Fig. 9). Press M^{N}X/AV enter P3.1 with blinking °C or °F current set (Fig. 10) on the lower left LCD. To switch °C or °F, press MODE and BKLT. Then press M^{N}X/AV to save the setting or CAL/ESC without saving to return to P3.0.



Figure 9



Figure 10

CO_2 calibration

The meter is calibrated at standard 400 ppm CO_2 concentration in factory. It's suggested to do a manual calibration regularly to maintain good accuracy.

CAUTION:

Do not calibrate the meter in the air with unknown CO_2 concentration. Otherwise, it will be calibrated as 400 ppm by default and leads to inaccurate measurements.

The manual calibration is suggested to be done in fresh outdoor air that is well ventilated and sunny weather.

Place the meter in the calibration site. Turn on the meter and hold down CAL/ESC and MODE simultaneously to enter CO_2 calibration mode (Fig. 11). 400 ppm and "CAL" will blink in the LCD while performing the calibration.



Figure 11

Wait about 5 minutes until the blinking stops and the calibration is completed automatically and back to normal mode. To abort the calibration, turn off the meter at any time.

NOTE: Ensure the batteries are with full voltage during the calibration to prevent from interruption or failed calibration.

Troubleshooting

Problem	**Solution**
Can't power on	Press SET for more than 0.3 seconds and try again. Check if batteries are in good contact and correct polarity, or the adaptor is well plugged.
Fixed readings	Check if data hold function is activated (HOLD icon at the left top of LCD)
Slow response	Check If the air flow channels on the rear are blocked

Error messages

Error text	**Meaning**
E01	CO_2 sensor damaged
E02	The value is under range
E03	The value is over range
E07	Too low voltage to measure CO_2. Replace batteries.
E17	Retry CO_2 calibration
E31	Temperature sensor damaged

Specifications

Model	77532
Measuring range (CO_2)	0 – 9999 ppm (5001-9999 out of scale)
Measuring range (Temperature)	-10 to 60 °C 14 to 140 °F
Resolution	1 ppm, 0,1 °C/°F
Accuracy (CO_2)	± 30 ppm ± 5% (0-5000 ppm)
Accuracy (Temperature)	± 0.6 °C / ± 0.9 °F
Warm up time	30 seconds
Response time (CO2)	< 30 seconds (90 % step change)
Tair	< 2 minutes (90% step change)
LCD size (H x W)	26 x 44 mm
Operation condition	0 – 50 °C 0 – 95% RH (avoid condensation)
Storage condition	-20 – 50 °C 0 – 95% RH (avoid condensation)
Power supply	4 x AA batteries
Battery life	>24 hours
Meter size (L x W x H)	205 x 70 x 56 mm
Weight	200 g
Standard package	Meter, manual, AA batteries, hard carry case

CO_2 levels and guidelines

Non-Enforced reference levels:

NIOSH recommendations:
250-350 ppm: Normal outdoor ambient concentrations
600 ppm: minimal air quality complaints
600-1000 ppm: less clearly interpreted
1000 ppm: indicates inadequate ventilation; complaints such as headaches, fatigue, and eye/throat irritation will be more widespread. 1000 pm should be used as upper limit for indoor levels.

EPA Taiwan: 600 ppm and 1000 ppm
Type 1: indoor areas such as department stores, theatres, restaurants, libraries, the acceptable CO_2 concentration of 8-hour average is 1000 ppm.
Type 2: indoor areas with special requirements of good air such as schools, hospitals, day care centres, the suggested CO_2 level is 600 ppm.

Regulatory exposure limit

ASHRAE standard 62-1989: 1000 ppm
CO2 concentration in occupied building should not exceed 1000 ppm.

Building bulletin 101 (BB101): 1500 ppm
UK standards for schools say that CO2 at average over the whole day (i.e. 9 AM to 4 PM should not exceed 1500 ppm).

OSHA: 5000 ppm
Time weighted average over five 8-hour work days should not exceed 5000 ppm.

Gernamy, Japan, Australia, UK…: 5000 ppm
8 hours weighted average in occupational exposure limit is 5000 ppm.

Nota importante para los aparatos electrónicos vendidos en España

Instrucciones sobre la protección del medio ambiente y la eliminación de aparatos electrónicos:



Los aparatos eléctricos y electrónicos marcados con este símbolo no pueden ser eliminados en forma de residuos urbanos.

De conformidad con la Directiva 2012/19/UE, los usuarios de la Unión Europea de aparatos eléctricos y electrónicos, tienen la posibilidad de devolver sus RAEE para su eliminación al distribuidor o fabricante del equipo después de la compra de uno nuevo. La eliminación ilegal de aparatos eléctricos y electrónicos es castigada con multa administrativa.

Remarque importante pour les appareils électroniques vendus en France

Informations sur la protection du milieu environnemental et élimination des déchets électroniques :



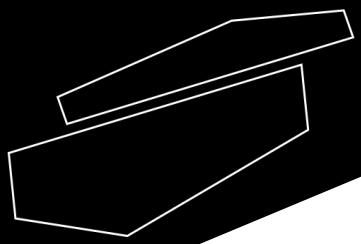
Les appareils électriques et électroniques portant ce symbole ne peuvent pas être jetés dans les décharges.
En réponse à la règlementation, Labbox remplit ses obligations relatives à la fin de vie des équipements électriques de laboratoire qu'il met sur le marché en finançant la filière de recyclage de ecosystem dédiée aux DEEE Pro qui les reprend gratuitement (plus d'informations sur www.ecosystem.eco).
L'élimination illégale d'appareils électriques et électroniques est punie d'amende administrative.

Nota importante per le apparecchiature elettroniche vendute in Italia

Istruzioni sulla protezione ambientale e sullo smaltimento dei dispositivi elettronici:



Le apparecchiature elettriche ed elettroniche contrassegnate con questo simbolo non possono essere smaltite come rifiuti urbani.
In conformità con la Direttiva 2012/19 / UE, gli utenti dell'Unione Europea di apparecchiature elettriche ed elettroniche hanno la possibilità di restituire i propri RAEE per lo smaltimento al distributore o al produttore di apparecchiature dopo averne acquistato uno nuovo. La rimozione illegale di apparecchiature elettriche ed elettroniche è punibile con una sanzione amministrativa.



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