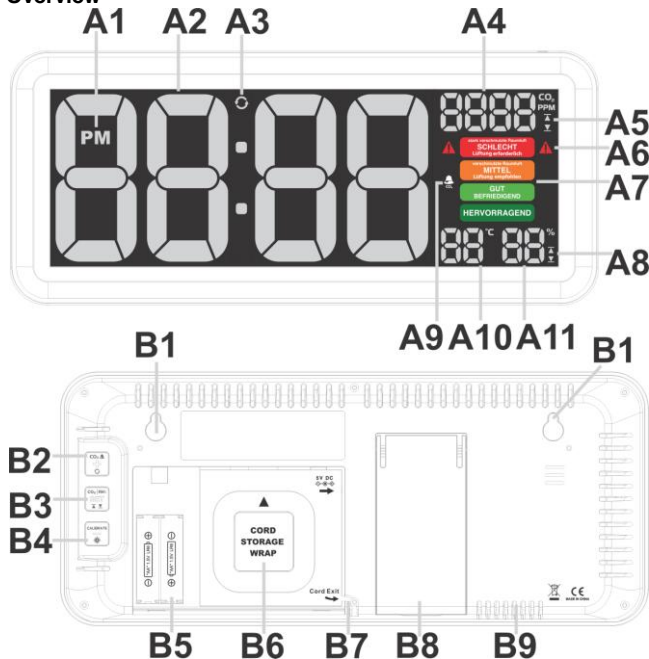


WL 1040 – Instruction manual

LED wall clock with CO₂ Monitor, Temperature and Relative Humidity

Overview



A – Front view

- A1 – PM icon
- A2 – Large display of time / CO₂ value
- A3 – Rotation icon
- A4 – Small display of CO₂ value
- A5 – Low/high alert icon of CO₂
- A6 – CO₂ warning icon
- A7 – Ventilation recommendation messages
- A8 – Low/high alert icon of humidity
- A9 – CO₂ alert sound icon

A10 – Indoor temperature

A11 – Indoor humidity

B – Back view

B1 – Hanging holes

B2 – +(plus) button

B3 – SET button

B4 – -(minus) button

B5 – Battery compartment

B6 – Power adapter cord storage wrap

B7 – Power adapter cord exit

B8 – Stand

B9 – CO₂ sensor ventilation

Main features

- Bold and large displays of time, CO₂ level, temperature and relative humidity
- Coloured display of ventilation recommendation on basis of CO₂ levels
- Stable NDIR sensor for CO₂ detection
- Wide CO₂ measuring range 400 - 5000 PPM
- Programmable high/low iconic alert of CO₂ and relative humidity
- Audible CO₂ high / low warning alert
- Smart automatic baseline calibration and manual calibration on CO₂
- Light sensor for auto-adjusting brightness of display
- Built-in memory chip to store settings when power is off
- Battery backup (for time keeping): 2 x AA batteries (not included)
- Power supply: 5V~1.5A power adaptor **KA0601A-0501200EUS** (included)
- Wall mounting or table standing

Installation

- Slide open the battery cover at the back of the clock.
- Plug in the enclosed 5V-1.5A AC/DC power adaptor to an AC wall outlet and then the DC jack to the back side of your clock.
- Optional, for Back-up function only: install 2 x AA batteries by observing the correct (+) and (-) polarity sign.
- Replace the battery cover.



Notes:

- Only use included power adaptor **KA0601A-0501200EUS**



After you powered up your clock, the display will come on with 0:00 with the relevant temperature and relative humidity. Your CO₂ displays “150“ PPM and starts to countdown. In around 150 seconds (2.5 minutes) a relevant CO₂ data will be displayed. It will continue to calibrate itself and display the correct CO₂ data in 24 hours.

If the AC power is interrupted, the display is turned off. The settings of your unit will be kept by the internal memory chip and the time will be kept by the backup batteries installed. Your clock will function again after the AC power resumes.

Ventilation recommendation on the basis of CO₂ concentration in the air

| Measuring range | Display status |
|--------------------|---|
| Over 2000 ppm eq |  SCHLECHT stark verschmutzte Raumluft Lüftung erforderlich  |
| 1501 – 2000 ppm eq | SCHLECHT stark verschmutzte Raumluft Lüftung erforderlich |
| 1001 – 1500 ppm eq | MITTEL verschmutzte Raumluft Lüftung empfohlen |
| 601 – 1000 ppm eq | GUT BEFRIEDIGEND |
| 400 – 600 ppm eq | HERVORRAGEND |


Your CO₂ monitor measures and displays the CO₂ in PPM with color ventilation recommendations:

The   icons flash when the current CO₂ exceeds 2000 ppm.

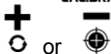
To Set Time, 12/24 Hour, High-Low Alert of CO₂ and Humidity

CO₂ | RH%

SET

1) Press and hold the  button, the hour digit “0” flashes. Press the



CO₂  CALIBRATE



or  button to set the hours.



CO₂ | RH%

SET

2) Press the   button once again, the minute digits “00” flash. Press the



CO₂  CALIBRATE

 or  button to set the minutes.



CO₂ | RH%

SET

3) Press the   button once again, the time displays “24 Hr” and flashes.



CO₂  CALIBRATE

Press the  or  button to select “12 Hr”. A “PM” icon will appear to indicate the afternoon time in the 12-hour format. Please note that there is no AM icon.




CO₂ | RH%

SET

4) Press the   button once again, the CO₂ digits “400” (default) flash



CO₂  CALIBRATE


 

and the  icon appears. Press  or  to adjust the low alert level of CO₂. Press once to adjust +/- 10 PPM. Press and hold the + / - button to accelerate setting in fast speed. Lowest alert level is 400 PPM.




CO₂ | RH%

SET

2) Press the   button once again, the CO₂ digits “2000” (default) flash



CO₂  CALIBRATE

and  appears. Press the  or  button to adjust the high alert level of CO₂. Press once to adjust +/- 10 PPM. Press and hold the + / - button to accelerate setting in fast speed. The highest CO₂ alert level is 5000 PPM.




CO₂ | RH%

SET

3) Press the   button once again, the humidity digits “35%” (default)

CO₂  CALIBRATE



flash and  appears. Press the  or  button to adjust the low alert level of RH%. Press once to adjust +/-1%, press and hold the +/- button to accelerate setting in fast speed. Lowest alert level is 20%.

4) Repeat 2) to set high alert level of RH% (default at **70%**). The highest RH% alert level is 95%.

CO₂ | RH%
SET

5) Press   to confirm and end the setting.

Note:

- Your monitor will store your settings and exit the alert set mode when no key is pressed in approximate 10 seconds.
- When the measured CO₂ or RH% reaches the set high / low alert level, the related  or  icon appears and flashes. The CO₂ reading also flashes to remind you.

To use the acoustic CO₂ Alarm (for high alert)




- Press and hold the  button to turn on the CO₂ acoustic alarm.



When the alarm is on, the **CO₂** icon appears on the display.

- When the measured CO₂ reaches the set high alert level, both the CO₂





digits, the  and **CO₂** icons flash and an acoustic beep sound will be given continuously. The beep sound will accelerate when the measured CO₂ level exceed more over the set high alert level.

If this happens, please open the windows, adjust the air ventilation and avoid too many people gathering together to improve the air quality of your environment.

- Press any button to stop the sound temporarily (it will sound again in 15 seconds). To completely disable the CO₂ voice alarm, press and






hold the  button until the **CO₂** icon disappears. The CO₂ digits and  icon remain flashing if CO₂ exceeds the set high alert.

To interchange the display of time and CO₂ reading

CO₂ 



Press the  button once to change the constant large time display to constant large CO₂ display. Press this button once again to activate the auto-alternate time ↔ CO₂ display in every 5 seconds (a short beep will be heard and the  icon appears). Press this button once again to revert to constant large time display. The  icon disappears.

To calibrate the CO₂ sensor

This monitor is factory calibrated to a 400 PPM CO₂ standard concentration.



Caution: Do not manually calibrate the monitor in an environment of unknown CO₂ concentration.

Automatic baseline calibration: your clock is equipped with a smart chip so that it will automatically calibrate itself to reduce the drift of the CO₂ sensor for long time usage. It will calibrate itself automatically at the minimum CO₂ reading detected during 7 days of continuous monitoring.

Important note: make sure the place you put your clock at is well ventilated (with a CO₂ level near 400 PPM) for at least an hour or so everyday, or you move the clock to such a well ventilated room for an hour or so everyday to perform Automatic Baseline Calibration.

Manual calibration of the CO₂ Sensor

It is recommended to undergo manual calibration performed by a qualified laboratory every 12 months.

- Place your CO₂ monitor in a 400 PPM calibration chamber. Power it on and wait for 2.5 minutes until the first
- CALIBRATE**

- CO₂ reading is displayed. Then press and hold  until “**CAL**” flashes as below. In around 20 minutes, the blinking will stop and the calibration is completed. Your clock will return to normal display mode.



- To stop the manual calibration anytime, press  once.

Light sensor for self-adjusting the display brightness

The clock is equipped with a light sensor (located at the top right of the clock). It will adjust the display's brightness (Hi / Med / Lo level) according to the surrounding light environment.

Troubleshooting

No display or functions

Check the AC/DC adaptor is properly connected.

Response time

Ensure the air flow channels at the back of the monitor are not blocked or covered.

CO2 reading shows "Err"

The CO2 sensor is not working properly. Unplug the AC/DC adapter for 10 seconds to insert it to your monitor again.

Care and maintenance

- Place your monitor on a stable surface, away from sources of direct sunlight or excessive heat or moisture.
- Clean your monitor with a soft cloth moistened only with mild soap and water. Stronger agents such as Benzine, thinner or similar materials can damage the surface of the item. Make sure the monitor is unplugged before cleaning.
- Do not open the back case or tamper with any components of this monitor.
- Do not plug in any other AC/AC or AC/DC adaptor with incorrect specifications or voltage.

CO2 levels and guidelines

Below are some CO2 reference levels in general:

400~600 ppm

Background (normal) outdoor air level.

600~1,000 ppm

Typical level for occupied spaces with good air exchange.

1,000 ~1,500 ppm

Start ventilation of the room.

1,500~2,000 ppm

Level associated with complaints of

drowsiness and poor air. Ventilation recommended!

2,000~5,000 ppm

Level associated with headaches, sleepiness, and stagnant, stale, stuffy air. Poor concentration, loss of attention, increased heart rate and slight nausea may also be present. Ventilation strongly recommended!

> 5,000 ppm

Exposure may lead to serious oxygen deprivation resulting in permanent brain damage, coma, and death. Requires immediate ventilation!

Declaration of conformity

Hereby, Technotrade declares that this product WL 1040 is in compliance with the essential requirements and other relevant provisions of Directive 2014/53/EU and ROHS 2011/65/EC. The original EU declaration of conformity may be found at: www.technoline.de/doc/4029665110400

Specifications

CO₂

| | |
|-------------------------|--|
| Measurement range | : 400 – 5000 PPM |
| Resolution | : 1 PPM |
| Accuracy | : +/- 50 PPM (up to 2000 PPM) |
| Warm up time | : 2.5 minutes |
| Temperature range | : 0°C to 50°C |
| Temperature resolution | : 1°C |
| Relative Humidity range | : 20% - 95% |
| Relative Humidity range | : 1% |
| Operating temperature | : 0°C to 50°C, < 95% RH non-condensing |

Out of range display

| | |
|-----------------|--|
| CO ₂ | : 400 (below 400 PPM) / HI (over 5000 PPM) |
| Temperature | : LO (below 0°C) / HI (above 50°C) |
| RH% | : 20% (below 20%) / 95% (over 95%) |
| Power Supply | : 5V DC, 1.5A adaptor |

KA0601A-0501200EUS

Default Settings

| | |
|-----------------------|--------------------------|
| CO ₂ alert | : Low - 400, High – 2000 |
| RH% alert | : Low – 35%, High – 70% |

Precautions

- This unit is intended to be used only indoors.
- Do not subject the unit to excessive force or shock.
- Do not expose the unit to extreme temperatures, direct sunlight, dust or humidity.
- Do not immerse in water.
- Avoid contact with any corrosive materials.
- Do not dispose this unit in a fire as it may explode.
- Do not open the inner back case or tamper with any components of this unit.

Batteries safety warnings

- Use only alkaline batteries, not rechargeable batteries.
- Install batteries correctly by matching the polarities (+/-).
- Always replace a complete set of batteries.
- Never mix used and new batteries.
- Remove exhausted batteries immediately.
- Remove batteries when not in use.
- Do not recharge and do not dispose of batteries in fire as the batteries may explode.
- Ensure batteries are stored away from metal objects as contact may cause a short circuit.
- Avoid exposing batteries to extreme temperature or humidity or direct sunlight.
- Keep all batteries out of reach from children. They are a choking hazard.

Use the product only for its intended purpose!

Consideration of duty according to the battery law



Old batteries do not belong to domestic waste because they could cause damages of health and environment. You can return used batteries free of charge to your dealer and collection points. As end-user you are committed by law to

bring back needed batteries to distributors and other collecting points!

Consideration of duty according to the law of electrical devices



This symbol means that you must dispose of electrical devices separated from the General household waste when it reaches the end of its useful life. Take your unit to your local waste collection point or recycling centre. This applies to all countries of the European Union, and to other European countries with a separate waste collection system.