

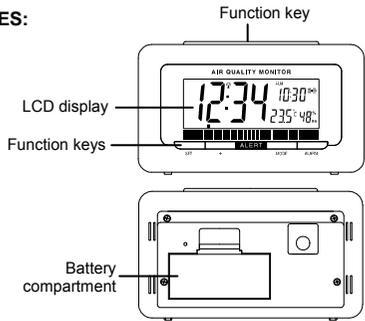
# AIR QUALITY MONITOR

## Instructions manual

### INTRODUCTION:

Congratulations on purchasing this Air Quality Monitor with display of indoor temperature and humidity. It is further acting as a DCF-77 radio controlled clock with calendar display and alarm clock function. This innovative product is ideal for use in the home or office.

### FEATURES:



- DCF radio controlled time with manual setting
- DCF Time reception ON/OFF
- Time zone setting: ± 12 hours
- 12/24h time display
- Calendar display
- Alarm setting with snooze function
- Indoor temperature display in °C / °F
- Indoor humidity display in RH%
- Air quality alert setting
- Air quality indicator
- Low battery indicator
- LED Back-light

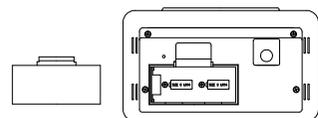
### SETTING UP:

1. Open the battery cover at the back of the air quality monitor as indicated below.
2. Checking the correct polarization, insert 2 x C, IEC LR14, 1.5V Alkaline batteries into the battery compartment and replace the cover.
3. When the batteries are inserted, all the segments of the LCD will light up briefly and a "beep" will sound. The air quality monitor will now start receiving the DCF time signal. After approximate 3 to 5 minutes, the DCF time will be displayed.
4. If after 10 minutes, the DCF time has not been received, press the SET key to manually enter a time initially.

### Note:

- The Equivalent CO<sub>2</sub> ppm will only be displayed after 30 minutes.
- The air quality sensor will take up to 5 days after inserting batteries to condition itself for the room it is placed. If the unit is placed into another room, there might be a reconditioning time of several days as well.

### INSTALLING AND REPLACING THE BATTERY IN THE AIR QUALITY MONITOR



The air quality monitor uses 2 x C, IEC LR14, 1.5V batteries. To install and replace the batteries, please follow the steps below:

1. Remove the cover at the back of the air quality monitor.
2. Insert batteries observing the correct polarity (see marking). Replace compartment cover.

### BATTERY CHANGE:

It is recommended to replace the batteries in the unit regularly to ensure optimum accuracy of the unit (Battery life See **Specifications** below).

### DCF RADIO CONTROLLED TIME

The time base for the radio controlled time is a Cesium Atomic Clock operated by the Physikalisch Technische Bundesanstalt Braunschweig which has a time deviation of less than one second in one million years. The time is coded and transmitted from Mainflingen near Frankfurt via frequency signal DCF-77 (77.5 kHz) and has a transmitting range of approximately 1,500 km. Your radio-controlled clock receives this signal and converts it to show the precise time in summer or wintertime.

The quality of the reception depends greatly on the geographic location. In normal cases, there should be no reception problems within a 1,500 km radius of Frankfurt.

DCF reception is done twice daily at 02:00 and 03:00 am. If the reception is not successful at 03:00 am, then the next reception takes place the next day at 02:00 am.

If the tower icon flashes, but does not set the time or the DCF tower does not appear at all, then please take note of the following:

- Recommended distance to any interfering sources like computer monitors or TV sets is a minimum of 1.5 - 2 meters.
- Within ferro-concrete rooms (basements, superstructures), the received signal is naturally weakened. In extreme cases, please place the unit close to a window and/ or point its front or back towards the Frankfurt transmitter.
- During nighttime, the atmospheric disturbances are usually less severe and reception is possible in most cases. A single daily reception is adequate to keep the accuracy deviation below 1 second.

### KEY FUNCTIONS:

The Air Quality Monitor has 5 easy-to-use keys:



### SET key:

- Press and hold to enter the manual setting modes: time zone, DCF ON/OFF, 12/24 hour time display, manual time, calendar display, snooze time, °C / °F temperature display, alert settings
- Press briefly to display the calendar for about 6 seconds
- Stop alarm ringing

### + key:

- Press to change, set, toggle all manual settings
- Stop alarm ringing

### MODE key:

- Press to toggle between: alarm time, seconds, and Equivalent CO<sub>2</sub> ppm display
- Stop alarm ringing
- Exit the manual setting mode

### ALARM key:

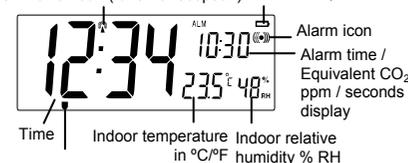
- Press and hold to enter the alarm setting mode
- Activate / deactivate the alarm
- Stop alarm ringing
- Exit the manual setting mode

### SNOOZE key:

- Enter snooze during alarm ringing
- Exit the manual setting mode

### LCD SCREEN

DCF Tower icon (for time reception) Low battery icon



Air quality indicator

### MANUAL SETTINGS:

The following manual settings can be done in the setting mode:

- Time zone setting
- DCF ON/OFF setting
- 12/24 hour time setting
- Time setting
- Calendar setting
- Snooze setting
- °C / °F temperature display setting
- Air quality alert setting

Press and hold the SET button for about 3 second to enter the setting mode:

### TIME ZONE SETTING



The time zone default is "0" hour. To set a different time zone:

1. The current time zone value starts flashing.
2. Use the + key to set the time zone. The range runs from 0, 1, 2...-12, -12, -11, -10... -2, -1, 0, in consecutive 1-hour intervals.
3. Confirm with the SET key and enter the **Time reception ON/Off setting**.

### TIME RECEPTION ON/OFF SETTING



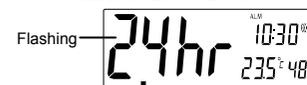
In area where reception of the radio-controlled time (DCF time) is not possible, the time reception function can be turned OFF. The clock will then work as a normal quartz clock. (Default setting is ON).

1. The digit "ON" and tower icon will start flashing on the LCD.
2. Use the + key to turn OFF the time reception function if necessary.
3. Confirm with the SET key and enter the **12/24 hour time display setting**.

### Note:

If the Time Reception function is turned OFF manually, the clock will not attempt any reception of the radio-controlled time (DCF time) as long as the Time Reception OFF function is activated. The Time Reception icon and the DCF icon will not be displayed on the LCD.

### 12/24 HOUR TIME DISPLAY SETTING



1. "12hr" or "24hr" flashes in the LCD. (default 24hr)
2. Press the + key to select the "12hr" or "24hr" display mode.
3. Confirm with the SET key and enter the **Manual time setting**.

### Note:

When 24h time display is selected, the calendar format will be date and month display. When 12h time display is selected, the calendar format will be month and date display.

### MANUAL TIME SETTING

In case the air quality monitor is not able to detect the radio-controlled time (DCF time) signal (disturbances, transmitting distance, etc.), the time can be manually set. The clock will then work as a normal Quartz clock.



To set the clock:

1. The hour digits start flashing in the time display section.
2. Use the + key to adjust the hours and then press SET key to go to the minute setting.

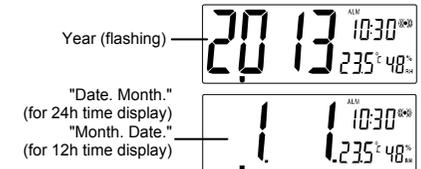
3. The minute will be flashing. Press the + key to just the minutes.
4. Confirm with the SET key and enter the **Calendar setting**.

### Note:

The unit will still try to receive the signal despite a manual setting. When the signal is received, the manually set time will automatically be replaced by the received time. During reception attempts, the DCF tower icon will flash. If reception has been unsuccessful, the DCF tower icon will not appear but reception will still be attempted.

### CALENDAR SETTING

The date default of the air quality monitor is 1. 1. of the year 2013 after initial set-up. Once the radio-controlled time signals are received, the date is automatically updated. However, if the signals are not received, the date can also be set manually. To do this:



1. The year starts flashing. Use the + key, set the year required. The range runs from 2013 to 2049 (default is 2013).
2. Press the SET key to enter the month setting.
3. The month digit will be flashing. Press the + key to set the month.
4. Press the SET key to enter the date setting.
5. The date digit will be flashing. Press the + key to set the date.
6. Confirm with the SET key and enter the **Snooze setting**.

### SNOOZE SETTING

The snooze time can be set OFF or to a maximum time of 30 minutes (default is 10 minutes):

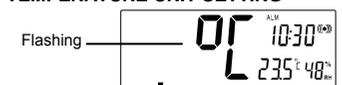


1. The snooze time (in minute) digit will be flashing. Use the + key to set the snooze time (in minute). Each pressing of the button will increase the snooze time by 5 minutes (5, 10...30 min). The snooze can also be set OFF when the "OFF" digit is being displayed.
2. Confirm with the SET button and enter the **°C/°F temperature unit setting**.

### Note:

If the snooze time has been set "OFF", the snooze function will not be activated.

### °C/°F TEMPERATURE UNIT SETTING



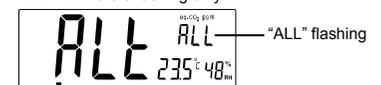
The default temperature reading is set to °C (degree Celsius). To select °F (degree Fahrenheit):

1. The "°C" will be flashing, use the + key to toggle between "°C" and "°F".
2. Confirm with the SET key and enter the **Air quality alert setting**.

### AIR QUALITY ALERT SETTING

The air quality monitor has 3 alert settings (default: ALL):

- **ALL:** LED alert flashing with alert sound
- **OFF:** alert off (no LED alert flashing, no alert sound)
- **LED:** LED alert flashing only



1. The setting starts flashing. Use the + key to set the required setting (ALL, LED, OFF).

- Confirm with the **SET** key and the **exit the manual settings**.

**Note:**

If the air quality alert has been set to "ALL" or "LED":

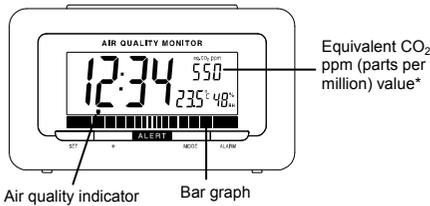
- Equivalent CO<sub>2</sub> ppm > 1500ppm:**  
LED alert blinks at a slower speed (1.5s) and no alert sound.
- Equivalent CO<sub>2</sub> ppm > 2000ppm:**  
LED alert blinks at faster speed (0.5s) and has alert sound.  
(Alert will sound only if the air quality setting has been set to ALL).

**Note about the air quality alert:**

- The air quality alert will sound for a maximum duration of 30 minutes. To stop the alert, press any key.
- If the time alarm or the DCF reception occurs while the air quality is on alert mode, the air quality alert sound and LED flashing will momentarily stop. It will restart once the time alarm is stopped, or after the DCF time reception is done.

**AIR QUALITY INDICATOR**

The air quality indicator is located on the bottom of the LCD. It changes from GREEN to RED by measuring the Equivalent CO<sub>2</sub> ppm. The Equivalent CO<sub>2</sub> ppm can be displayed when pressing the **MODE** key briefly:



\* The air quality value shown, after sensor conditioning, may differ +/- 250 ppm.

**Note:**

A 9-level bar graph is used to indicate "GREEN" to "RED" air quality level in the surrounding environment:

| Levels          | Equivalent CO <sub>2</sub> ppm |
|-----------------|--------------------------------|
| GREEN (level 1) | 450 – 600ppm                   |
| Level 2         | 650 – 800ppm                   |
| Level 3         | 850 – 1000ppm                  |
| Level 4         | 1050 – 1200ppm                 |
| Level 5         | 1250 – 1500ppm                 |
| Level 6         | 1550 – 1800ppm                 |
| Level 7         | 1850 – 2100ppm                 |
| Level 8         | 2150 – 2400ppm                 |
| RED (level 9)   | ≥ 2450ppm                      |

**ALARM SETTING**



To set alarm:

- Press and hold **ALARM** key for about 3 seconds until the alarm time display flashes.
- The hour digit will be flashing. Press the **+** key to adjust the hour.
- Then, press **ALARM** key and the minute digit will start flashing. Press **+** key to set the minute.
- Press again the **ALARM** key to confirm the setting and exit the alarm setting.

**Note:**

- To activate/ deactivate the alarm function, press the **ALARM** button once. The display of the alarm icon represents that the alarm is "ON".
- The duration of alarm sounding is 180 seconds.

**TO ACTIVATE THE SNOOZE FUNCTION AND STOPPING THE ALARM:**

- When the alarm is sounding, press the **SNOOZE** key to activate the snooze function. The alarm will stop and reactivate after the time interval of the snooze time pre-set by user.
- To stop the alarm completely, press any keys other than the **SNOOZE** key.

**SPECIFICATIONS:**

Recommended temperature range:

+5°C to +40°C / +41°F to 139.8°F

**Temperature measuring range:**

Indoor : -9.9°C to +59.9°C with 0.1°C resolution / 14.1°F to +139.8°F with 0.2°F resolution  
(OFL displayed if outside this range. In degree F display, OFL will displayed when over 99.9°F)

**Relative humidity measuring range:**

Indoor : 20% to 95% with 1% resolution (display "- -" if temperature is OFL, except when the temperature is 100°F to 139.8°F; display "19%" if < 20% and "96%" if > 95%)

**Equivalent CO<sub>2</sub> ppm measuring range:**

450ppm to 6950ppm with 50ppm resolution (display OFL > 6950ppm)

**Measuring intervals:**

Indoor temperature checking interval : every 16 seconds

Indoor humidity checking interval : every 16 seconds

Air quality level checking interval : every 3 minutes

**Power consumption:** 2 x C, IEC LR14, 1.5V

**Dimensions** (L x W x H): 149.4 x 49 x 83.7mm

**Precautions**

- This main 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**

- Please read all instructions carefully before use.
- 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.

**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 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.



**R&TTE Directive 1999/5/EC**

Summary of the Declaration of Conformity: We hereby declare that this wireless transmission device does comply with the essential requirements of R&TTE Directive 1999/5/EC.