

*Critical Environment Technologies
Canada Inc.*

YESAIR Junior

*Affordable Indoor Air Quality Monitor
CO₂, Temperature, RH, Data logging*



OPERATION MANUAL

REV: A AUGUST-1-2010

#145, 7391 Vantage Way Delta, BC V4G 1M3
Canada Phone: 604-940-8741 Fax: 604-940-8745
www.yestek.com

IMPORTANT NOTE

READ AND UNDERSTAND THIS MANUAL PRIOR TO USING THIS INSTRUMENT. CAREFULLY READ THE WARRANTY POLICY, SERVICE POLICY, NOTICES, DISCLAIMERS AND REVISIONS ON THE FOLLOWING PAGES.

THIS INSTRUMENT SHOULD BE INSPECTED AND CALIBRATED REGULARLY BY A QUALIFIED AND TRAINED TECHNICIAN.

THIS INSTRUMENT HAS NOT BEEN DESIGNED TO BE INTRINSICALLY SAFE. FOR YOUR SAFETY, **DO NOT** USE IT IN CLASSIFIED HAZARDOUS AREAS (EXPLOSION-RATED ENVIRONMENTS).

INSTRUMENT SERIAL NUMBER:

PURCHASE DATE:

PURCHASED FROM:

WARRANTY POLICY

CRITICAL ENVIRONMENT TECHNOLOGIES CANADA INC. (GETCI) WARRANTS THIS INSTRUMENT TO BE FREE FROM DEFECTS IN MATERIALS AND WORKMANSHIP FOR A PERIOD OF TWENTY-FOUR MONTHS, INCLUDING CO2 SENSOR, (ALKALINE BATTERIES NOT INCLUDED) FROM THE DATE OF PURCHASE BY THE ORIGINAL OWNER. IF THE PRODUCT SHOULD BECOME DEFECTIVE WITHIN THIS WARRANTY PERIOD, WE WILL REPAIR OR REPLACE IT AT OUR DISCRETION.

THE WARRANTY STATUS MAY BE AFFECTED IF THE INSTRUMENT HAS NOT BEEN USED AND MAINTAINED AS PER THE INSTRUCTIONS IN THIS MANUAL OR HAS BEEN ABUSED, DAMAGED OR MODIFIED IN ANY WAY. THIS INSTRUMENT IS ONLY TO BE USED FOR PURPOSES STATED HEREIN. THE MANUFACTURER IS NOT LIABLE FOR AUXILIARY INTERFACED EQUIPMENT OR CONSEQUENTIAL DAMAGE.

DUE TO ONGOING RESEARCH, DEVELOPMENT AND PRODUCT TESTING, THE MANUFACTURER RESERVES THE RIGHT TO CHANGE SPECIFICATIONS WITHOUT NOTICE. THE INFORMATION CONTAINED HEREIN IS BASED ON DATA CONSIDERED ACCURATE. HOWEVER, NO WARRANTY IS EXPRESSED OR IMPLIED REGARDING THE ACCURACY OF THIS DATA.

ALL GOODS MUST BE SHIPPED TO THE MANUFACTURER BY PREPAID FREIGHT. ALL RETURNED GOODS MUST BE PRE-AUTHORIZED BY OBTAINING A RETURN MERCHANDISE AUTHORIZATION (RMA) NUMBER. CONTACT THE MANUFACTURER FOR A NUMBER AND PROCEDURES REQUIRED FOR PRODUCT TRANSPORT.

SERVICE POLICY

CETCI MAINTAINS AN INSTRUMENT SERVICE FACILITY AT THE FACTORY. SOME CETCI DISTRIBUTORS / AGENTS MAY ALSO HAVE REPAIR FACILITIES, HOWEVER, CETCI ASSUMES NO LIABILITY FOR SERVICE PERFORMED BY ANYONE OTHER THAN CETCI PERSONNEL. REPAIRS ARE WARRANTED FOR 90 DAYS AFTER DATE OF SHIPMENT. SHOULD YOUR INSTRUMENT REQUIRE NON-WARRANTY REPAIR, YOU MAY CONTACT THE DISTRIBUTOR FROM WHOM IT WAS PURCHASED OR YOU MAY CONTACT CETCI DIRECTLY.

IF CETCI IS TO DO THE REPAIR WORK, YOU MAY SEND THE INSTRUMENT, PREPAID, TO:

CRITICAL ENVIRONMENT TECHNOLOGIES CANADA INC. #145, 7391 VANTAGE WAY, DELTA, B.C. V4G 1M3, ATTENTION: SERVICE DEPARTMENT.

ALWAYS INCLUDE YOUR RMA #, ADDRESS, TELEPHONE NUMBER, CONTACT NAME, SHIPPING / BILLING INFORMATION AND A DESCRIPTION OF THE DEFECT AS YOU PERCEIVE IT. YOU WILL BE CONTACTED WITH A COST ESTIMATE FOR EXPECTED REPAIRS PRIOR TO THE PERFORMANCE OF ANY SERVICE WORK. FOR LIABILITY REASONS, CETCI HAS A POLICY OF PERFORMING ALL NEEDED REPAIRS TO RESTORE THE INSTRUMENT TO FULL OPERATING CONDITION.

PRIOR TO SHIPPING EQUIPMENT TO CETCI, CONTACT OUR OFFICE FOR AN RMA NUMBER. ALL RETURNED GOODS MUST BE ACCOMPANIED WITH AN RMA NUMBER.

PACK THE EQUIPMENT WELL (IN IT'S ORIGINAL PACKING IF POSSIBLE), AS WE CANNOT BE HELD RESPONSIBLE FOR ANY DAMAGE INCURRED DURING SHIPPING TO OUR FACILITY.

NOTICES

COPYRIGHTS: THIS MANUAL IS SUBJECT TO COPYRIGHT PROTECTION; ALL RIGHTS ARE RESERVED. UNDER INTERNATIONAL AND DOMESTIC COPYRIGHT LAWS, THIS MANUAL MAY NOT BE COPIED OR TRANSLATED, IN WHOLE OR IN PART, IN ANY MANNER OR FORMAT, WITHOUT THE WRITTEN PERMISSION OF CETCI.

ALL SOFTWARE WHICH CETCI UTILIZES AND/OR DISTRIBUTES, HOLDS A PROPRIETARY INTEREST AND IS ALSO SUBJECT TO COPYRIGHT PROTECTION AND ALL RIGHTS ARE RESERVED. NO PARTY MAY USE OR COPY SUCH SOFTWARE IN ANY MANNER OR FORMAT, EXCEPT TO THE EXTENT THAT CETCI GRANTS THEM A LICENSE TO DO SO. IF THIS SOFTWARE IS BEING LOADED ONTO MORE THAN ONE COMPUTER, EXTRA SOFTWARE LICENSES MUST BE PURCHASED.

DISCLAIMER

UNDER NO CIRCUMSTANCES WILL CRITICAL ENVIRONMENT TECHNOLOGIES CANADA INC. (CETCI) BE LIABLE FOR ANY CLAIMS, LOSSES OR DAMAGES RESULTING FROM OR ARISING OUT OF THE REPAIR OR MODIFICATION OF THIS EQUIPMENT BY A PARTY OTHER THAN CETCI SERVICE TECHNICIANS, OR BY OPERATION OR USE OF THE EQUIPMENT OTHER THAN IN ACCORDANCE WITH THE PRINTED INSTRUCTIONS CONTAINED WITHIN THIS MANUAL OR IF THE EQUIPMENT HAS BEEN IMPROPERLY MAINTAINED OR SUBJECTED TO NEGLIGENCE OR ACCIDENT. ANY OF THE FORGOING WILL VOID THE WARRANTY.

REVISIONS

THIS MANUAL WAS WRITTEN AND PUBLISHED BY CETCI, THE MANUFACTURER). THE MANUFACTURER MAKES NO WARRANTY OR REPRESENTATION, EXPRESSED OR IMPLIED INCLUDING ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR PURPOSE, WITH RESPECT TO THIS MANUAL. ALL INFORMATION CONTAINED IN THIS MANUAL IS BELIEVED TO BE TRUE AND ACCURATE AT THE TIME OF PRINTING. HOWEVER, AS PART OF IT'S CONTINUING EFFORTS TO IMPROVE IT'S PRODUCTS AND THEIR DOCUMENTATION, THE MANUFACTURER RESERVES THE RIGHT TO MAKE CHANGES AT ANY TIME WITHOUT NOTICE. REVISED COPIES OF THIS MANUAL CAN BE OBTAINED BY CONTACTING CETCI.

SHOULD YOU DETECT ANY ERROR OR OMISSION IN THIS MANUAL, PLEASE CONTACT THE COMPANY AT THE FOLLOWING ADDRESS:

CRITICAL ENVIRONMENT TECHNOLOGIES CANADA INC.
UNIT 145, 7391 VANTAGE WAY
DELTA, BC V4G 1M3
CANADA

TOLL FREE: 877-940-8741
PHONE: 604-940-8741
FAX: 604-940-8745
E-MAIL: FBRIITTON@CETCI.COM
WEBSITE: WWW.YESTEK.COM
WEBSITE: WWW.CRITICAL-ENVIRONMENT.COM

IN NO EVENT WILL CETCI, OR IT'S OFFICERS OR EMPLOYEES BE LIABLE FOR ANY DIRECT, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES RESULTING FROM ANY DEFECT IN ANY MANUAL, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

INDEX

| <u>SECTION</u> | <u>DESCRIPTION</u> | <u>PAGE</u> |
|----------------|------------------------------------|-------------|
| | IMPORTANT NOTE AND WARRANTY POLICY | 3 |
| | SERVICE POLICY AND NOTICES | 4 |
| | DISCLAIMER AND REVISIONS | 5 |
| | INDEX | 7-8 |
| | WELCOME | 9 |
| 1.0 | GENERAL | 10 |
| 2.0 | SPECIFICATIONS | 10-11 |
| 2.1 | INSTRUMENT FEATURES | 11 |
| 3.0 | DIMENSIONS | 12 |
| 3.1 | POWER SUPPLY | 13 |
| 3.2 | LCD DISPLAY | 13 |
| 3.3 | KEYPAD | 14 |

INDEX

| <u>SECTION</u> | <u>DESCRIPTION</u> | <u>PAGE</u> |
|----------------|-------------------------|-------------|
| 4.0 | OPERATION | 14-21 |
| | POWER ON/OFF | 14 |
| | TAKING MEASUREMENTS | 14-15 |
| | DATA HOLD | 15 |
| | BACKLIGHT | 15 |
| | MIN / MAX / STEL / TWA | 15-16 |
| | ALARM | 16 |
| | AUTO POWER OFF | 16 |
| | SET UP | 17 |
| | CALIBRATION | 18-19 |
| | TROUBLE SHOOTING | 19 |
| | ERROR MESSAGES | 20 |
| | PC CONNECTION | 20 |
| | CO2 LEVELS & GUIDELINES | 21 |

WELCOME

Thank you for purchasing the YESAIR *Junior* indoor air quality monitor. The YESAIR *Junior* is an easy to use, portable, monitoring device for monitoring trends that pertain to indoor air quality. It utilizes a good quality infrared CO2 sensor plus temperature & relative humidity (RH) sensors.

The YESAIR *Junior* is equipped with integral CO2, temperature & RH sensors to aid in verifying readings providing an indication of air quality. Information readings are written to internal flash memory. The instrument is a battery powered, hand-held device.

The YESAIR *Junior* instruments are manufactured to provide good value to the end user. Calibration and repair is available at our manufacturing facility and through some of our authorized and trained distributors.

If after reading through the manual, you have any questions, please do not hesitate to contact our service department for technical support.

WHAT YOU GET

*** INSTRUMENT**

*** 4 X "AA" ALKALINE BATTERIES**

*** WALL ADAPTER (NORTH AMERICAN WALL PLUG CONFIGURATION ONLY)**

OPERATION MANUAL

BLACK PLASTIC CARRYING / STORAGE CASE

YESVIEWER CD & INTERCONNECTING COMPUTER USB CABLE



1.0 GENERAL

The YESAIR Junior is a rugged, hand-held, battery powered IAQ instrument for measuring and displaying Carbon Dioxide (CO₂), Temperature & RH indoors. It operates from internal alkaline batteries or it's own (supplied) wall adapter (North American plug configuration only).

2.0 SPECIFICATIONS

| | |
|----------------|---|
| Dimensions: | 2.75" W X 6.63" H X 1.25" Th (70mm X 81mm X 32mm) |
| Weight: | 7.1 oz (200 grams) including batteries |
| General: | Operating Conditions: Operating Temperature: 32-122°F (0-50°C) 0-95% RH, non-condensing Storage Temperature: -4 to 158°F (-20 to 70°C) |
| Power: | Battery type: Alkaline, AA X 4 (20 to 24-hours) External: 9 VDC from external AC/DC adapter which is included in package (North American wall configuration only). CAUTION: DO NOT use rechargeable batteries in the YESAIR Junior and DO NOT try to use the wall adapter to charge them. <u>Note:</u> The end of the wall adapter that plugs into the instrument is 1.3mm diameter, centre positive (in case overseas customers want to source their own). |
| Warm Up: | 30-seconds |
| Outputs: | USB to computer for use with the CETCI developed YESVIEWER PC software (cable supplied). |
| Sample Method: | Diffusion |
| Range: | 0 - 5000 ppm |
| Resolution: | 1 ppm |
| Accuracy: | +/- 30 ppm +/- 5% of reading (0 - 5000 ppm) |
| Pressure: | Dependence: +1.6% reading per kPa deviation from normal pressure, 100 kPa |
| Temperature: | Range: -10.0 °C to 60.0 °C (14 °F TO 140 °F) Resolution: 0.1 °C (0.1 °F) Accuracy: +/- 0.6 °C (+/- 0.9 °F) |

2.0 SPECIFICATIONS, CONT'D.....

| | |
|-----------------|--|
| Humidity: | Range: 0.0% to 99.9% Resolution: 0.1% Accuracy: +/- 3% (10% to 90% range), +/- 5% (other ranges) |
| Memory: | Stores up to 26,000 data points to internal flash memory |
| Display: | Three parameters, backlit, numerical LCD display |
| Alarms: | Will sound at 1000 PPM, the ASHRAE limit. The Alarm Level can be modified and the alarm sound can be turned off through the instrument menu. |
| Warranty: | 24-months parts & labour (when returned to factory prepaid freight). Batteries not covered under warranty. Warranty does not cover damage from misuse. |
| Certifications: | CE |

2.1 INSTRUMENT FEATURES

- Displays CO₂, temperature and RH simultaneously
- Stable NDIR sensor for CO₂ detection
- Statistics for STWL & TWA
- Backlight for LCD display for dark areas
- Audible alarm for CO₂ readings
- Battery (operates to 10-hours) or continuously with wall adapter power supply
- Data logging to flash memory (26,000 readings)
- USB connection to PC
- YESVIEWR PC software
- Easy manual calibration for CO₂ & RH

3.0 DIMENSIONS



3.1 POWER SUPPLY

The instrument is powered by either 4 “AA” alkaline batteries or a supplied DC wall adapter (9V/1-A output).

Install batteries into the battery compartment on the rear of the instrument and make sure they are in correct polarity and making good contact. When the wall adapter is used it will cut off the power supply from the batteries. The wall adapter cannot be used as a battery charger.

When battery voltage gets low, “Lob” will appear on the LCD (Fig-1) and the audible alarm sounds. The CO2 infrared sensor cannot operate under low voltage, so the instrument beeps to indicate failed CO2 measurement. The user can press any button to stop the beeps and at that time the sensor readings will not be displayed. To continue, replace the alkaline batteries with fresh ones or connect the wall adapter.



Fig-1

3.2 LCD DISPLAY


AIR TEMPERATURE, DEW POINT, WET BULB. TEMPERATURE IN DEGREES C. or F.







CO2 CONCENTRATION IN PPM

RELATIVE HUMIDITY IN %

Symbols

| | |
|---|--|
| TWA | Time Weighted Average (8-hours) |
| STEL | Short-Term Exposure Limit (15-minute weighted average) |
| HOLD | Readings are frozen & remain unchanged |
| MIN/MAX | Minimum / maximum readings |
|  | Low battery indicator |
| DP | Dew point temperature |
| AIR | Air Temperature |
| WBT | Wet bulb temperature |
| % | Unit of measurement of relative humidity |
| °E (C/F) | Celsius / Fahrenheit temperature unit of measure |

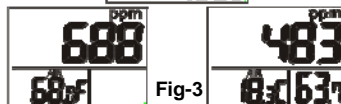
3.3 KEYPAD

-  **SET** Switches instrument on and off.
Enters set up mode
Sets as non-sleep mode along with "HOLD"
- CAL** Exits set up page/mode
Esc Enters CO2 calibration along with "MODE"
Enters RH calibration along with "DP/WBT"
- HOLD** Freezes the current readings
Cancels data hold function
-  **MODE** Activates or cancels the backlight
Selects unit or increases value in set up
-  **DP/WBT** Selects AIR, DP, WBT temps display
Selects unit or decreases value in set up
- M^N / AV** Activates MIN, MAX, STEL, TWA functions
 Saves and finishes settings

4.0 OPERATION

POWER ON / OFF

Press "SET" to switch instrument on and off. At power up, it emits a short beep and performs a 30-second count down (Fig-2) while meter warms up. It then enters normal operating mode displaying real time CO₂, temperature and RH readings (Fig-3).



TAKING MEASUREMENTS

The instrument starts taking measurements upon power up and updates information on the LCD every second. When the environment to be monitored changes (example: from high temperature to low temperature), it takes 30-seconds to update the CO₂ reading and 30-minutes to update the RH reading.

Note: Do not hold the instrument close to your face because your exhalation will affect the CO₂, temperature and RH readings.

4.0 OPERATION

TAKING MEASUREMENTS, CONT'D.....

Press "DP/WBT (down arrow) button to switch between the three different temperature units of measure. The lower left portion of the LCD will cycle from air temperature to dew point temperature (Fig-4) to wet bulb temperature (Fig-5).



Fig-4



Fig-5

DATA HOLD

Press the "HOLD" button to freeze the current readings. The "HOLD" icon is indicated at the top left corner of the LCD (Fig-6). All current readings remain unchanged, except TWA and STEL. Press the "HOLD" button again to cancel this function.



Fig-6

BACK LIGHT

Hold down "MODE" for more than 1-second to activate or cancel the back light function.

MIN - MAX - TWA - STEL

While in normal operating mode, press "MNX/AV" to see the minimum, maximum, and time weighted average readings. Each press of this button displays another readings in sequence and finally returns to the normal operating mode.

In the MIN / MAX modes, the instrument indicates the minimum and maximum readings for CO2 on the upper half of the LCD, air / DP / WB temperatures in the lower left corner of the LCD and RH in the lower right corner of the LCD (Fig-7).

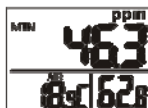


Fig-7

4.0 OPERATION, CONT'D.....

MIN - MAX - STEL - TWA, CONT'D.....

In STEL and TWA modes, the main part of the LCD indicates the time weighted average for readings for CO₂ for the past 15-minutes (STEL) and past 8-hours (TWA). The lower portions of the LCD are the current AIR, DP/WB temperatures readings and current RH readings (Fig-8).



Fig-8

Note-1: If the instrument is switched on for less than 15-minutes, the STEL value will be the time weighted average of the readings taken since switch on. The same calculations apply to the TWA readings indicated prior to 8-hours operation.

Note-2: It takes at least 5-minutes of recorded readings to calculate the STEL and TWA. The display indicates "—" (Fig-9) during the first 5-minutes of operation from power on.

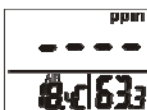


Fig-9

Note-3: While all the other readings are held unchanged, the STEL and TWA are updated every 5-minutes.

ALARM

The instrument has an audible alarm to provide warnings to the user when CO₂ concentrations exceed the limit (see p1.0 in set up for setting alarm threshold). It emits beeps (about 80 dB) when measured CO₂ concentration exceeds the preset value and stops when any key (except "SET") is pressed or readings fall below the preset alarm value. It beeps again when the value once again exceeds the preset limit. Restart the instrument if the beeping cannot be stopped.

AUTO POWER OFF

The instruments automatically switches off after 20-minutes of inactivity to save on battery life. To override this function, hold down the "SET" and "HOLD" buttons for 2-seconds to turn on the meter until "n" appears on the LCD.

Note: Auto sleep function will be disabled during calibration mode.

4.0 OPERATION CONT'D.....

SET UP

Hold down the "SET" button for more than 1-second while in normal operation mode to enter the set up mode. To exit set up mode, press the "CAL Esc" button in P1.₀ or P3.₀ and it returns to normal operating mode.

Note: P2.0 is not applicable in this model.

P1.0 CO2 ALARM

When entering the set up mode, P1.₀ and "AL" (Fig-10) are indicated on the LCD. Press "MNX/AV" button to go into P1.₁ for setting the CO2 alarm threshold. The current set value will be blinking on the LCD (Fig-11).

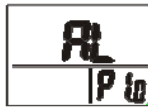


Fig-10



Fig-11

Press the "MODE (up arrow)" button to increase the value or press "DP/DBT (down arrow)" button to decrease the value. Each button press changes the value by 100 ppm and the alarm range is 100 to 9900. When the desired alarm set point value has been attained, press "MNX/AV" to save the setting or "CAL" without saving and return to P1.₀.

P3.0 TEMPERATURE SCALE

Press the "MODE (up arrow)" button "DP/WBT (down arrow)" button in P1.₀ to access P3.₀ for setting up the temperature scale (Fig-12). Press the "MNX/AV" button and it enters P3.₁ mode with blinking °C or °F current settings (Fig-13) on the lower left area of the LCD. To switch between 0C and 0F, press the "MODE (arrow up)" button and "DP/WBT (arrow down)" button. Then press the "MNX/AV" button to save the setting or "CAL Esc" button to exit without saving and return to P3.₀.



Fig-12

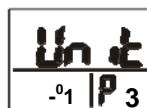


Fig-13

4.0 OPERATION, CONT'D.....

CO2 CALIBRATION

The instrument defaults to be calibrated manually in ambient air where CO2 concentration outdoors is around 400 ppm.

Calibration:

Do not calibrate the instrument in air with unknown CO2 concentration otherwise it will be calibrated as 400 ppm by default and the CO2 readings displayed will be inaccurate.

Calibration Site:

It is suggested to calibrate the instrument in fresh outdoor air that is well ventilated and it is better in sunny weather. Do not calibrate the instrument in places crowded with people or close to areas where CO2 concentrations may be high such as ventilation outputs, etc.

Procedure:

Set the instrument in the calibration site, switch it on and hold down the "CAL Esc" and "MODE (arrow up) buttons simultaneously to enter the CO2 calibration mode (Fig-14) 400 ppm and "CAL" are blinking on the LCD while performing calibration.



Fig-14

Wait about 10-minutes until the blinking stops and the calibration is completed automatically and the instrument returns to normal operation mode. To abort the calibration, switch the instrument off at any time.

Note: Ensure fresh batteries are used for the calibration procedure because the infrared Co2 sensor draws fairly high current. Low battery voltage may result in an interruption or failed calibration.

RH CALIBRATION

The meter defaults to be calibrated at 33% RH and 75% salt solution. The ambient condition is recommended to be at 25° C with stable humidity (it's better to be close to the calibration value). To abort the calibration, switch the instrument off at any time.

Caution: Do not calibrate the humidity without the default calibration salt solution as it will cause permanent damage to the RH sensor.

33% Calibration

4.0 OPERATION, CONT'D.....

RH CALIBRATION, CONT'D.....

Plug the sensor probe into a 33% salt solution bottle. Hold down the "CAL Esc" button and "DP/WBT" button while in normal operating mode to enter the 33% calibrating mode (Fig-15). "CAL" and calibration value (32.7% if at 25°C) are blinking on the LCD with current temperature displayed on the lower left side.

The instrument is now calibrating and will finish in approximately 60-minutes when "CAL" and humidity stop blinking (Fig-16).



Fig-15



Fig-16

75% Calibration

After 33% calibration, plug the sensor probe into a 75% salt solution bottle, then press "MNX/AV" to enter 75% calibration (Fig-17).

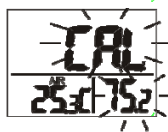


Fig-17

"CAL" and calibrating value (75.2% if at 25°C) are blinking on the LCD with current temperature indicated at the lower left corner. The instrument is now calibrating and will finish in approximately 60-minutes when "CAL" and humidity stop blinking and the instrument returns to normal operating mode.

Note: User can also calibrate either point. To calibrate 33% only, press "CAL Esc" and exit when 33% calibration is complete. To calibrate 75% only, press "MODE (arrow up)" or "DP/WBT (arrow down)" within 5-minutes while initializing 33% calibration.

TROUBLESHOOTING

Cannot power on: Press "SET" button for more 0,3 seconds and try again. Check to ensure batteries are making good contact and at correct polarity or that wall adapter is plugged in.

Fixed readings: Check whether data hold function was activated (HOLD icon is displayed at top left corner of LDC).

Slow response: Check to ensure air flows vents on rear of instrument are blocked.

4.0 OPERATION, CONT'D.....

Error messages:

E01: CO2 sensor damage

E02: The value is under range

E03: The value is over range

E04: The original data error result in this error (DP, WB)

E07: Battery voltage too low to measure CO2. Replace batteries or use wall adapter

E11: Retry humidity calibration

E17: Retry CO2 calibration

E31: Temperature sensor damaged

E34: Humidity sensor damaged

PC CONNECTION

The YESAIR *Junior* can communicate with your computer via the USB connector on the rear of the instrument. The YES VIEWER pc software is required to both set up the data logger flash memory and download logged data.

While the instrument is actively logging data, the GREEN LED (located on upper rear of instrument) will flash every second. If the LED is not flashing then the instrument is NOT saving information to the internal memory. It may be that the logging memory is full, or that the instrument was not set up to log using YESVIEWER. In either case, connect the instrument to a PC with the supplied USB cable, and start the YESVIEWER application. From there you can erase the logging memory and/or configure the logger as needed.

If you specify that the instrument should start logging at a future date, the LED will not flash until the instrument actually starts logging. (For example, if you indicate that the instrument should start logging tomorrow morning at 8 AM, the LED will remain off until tomorrow morning, at which point the instrument will start saving information and you will see the light flashing.)

IMPORTANT: the instrument will not switch itself on to start logging. If you set the logger to start at a future time, but leave the instrument switched off afterwards, the instrument will NOT wake itself up to start recording information. Someone MUST switch it on first.

4.0 OPERATION, CONT'D.....

CO₂ LEVELS and GUIDELINES

The following are excerpts from ANSI/ASHRAE addendum standard 62.1 - 2004:

Enforceable and/or regulatory levels:

OSHA: 5000 ppm
The Occupational Safety and Health Administration

MAK: 5000 ppm or 10,000 ppm (1-hour)
German Institution

Non-Enforced Guidelines and Reference levels:

Canadian: 3500 ppm (long term)

NIOSH: 5000 ppm or 30,000 ppm (15-minutes)
The US National Institutes of Health

ACGIH: 5000 ppm or 30,000 ppm (15-minutes)
The American Conference of Governmental Industrial Hygienists

Notes:

TWA (Time Weighted Average) value stands for the average Carbon Dioxide level exposure during 8-hours (working day) is 5000 ppm / 5-days.

STEL: (Short Term Exposure Limit) value shows the last 15-minutes CO₂ concentration is 30,000 ppm.

ASHRAE: Standard 62-1989, Sec.6.1.3: Comfort (odour) criteria are likely to be satisfied if the ventilation rate is set so that 1000 ppm of CO₂ is not exceeded.

