pSENSE II

SHORT INSTRUCTION MANUAL

Congratulations on your purchase of the new portable humidity, temperature and CO_2 instrument. Please read these short instructions carefully before installing the device.

General description

The **pSENSE II** is an accurate hand-held datalogger that displays & records relative humidity, temperature, CO_2 and calculated parameters such as dew point and wet bulb. These short instructions are limited to a description of the main functions and installation of the device. The detailed instruction manual can be found on the Internet at www.senseair.se

Programming

Most of the settings, such as memory clear, CO_2 alarm, units(°C/°F), sampling rate, pressure compensation and real time clock can be changed using the function keys.

Integrated probe

PC connect port

9VDC adaptor port

Battery compartment

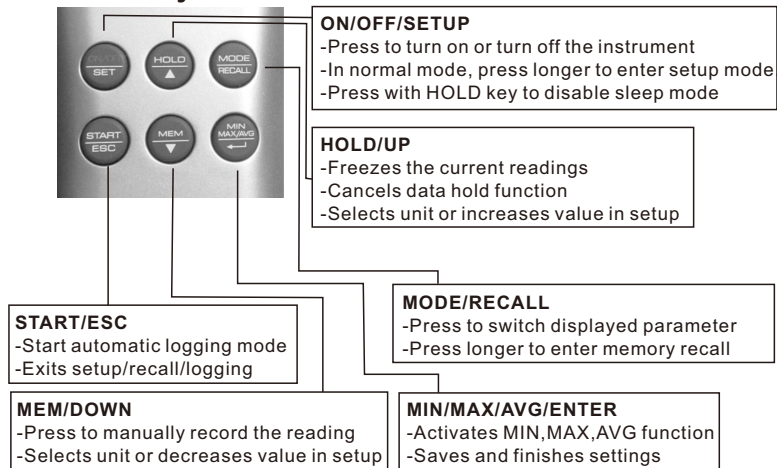Built-in CO_2 sensor w/ calibration cap

Tripod hole

Power Supply

The **pSENSE II** uses four AA re-chargable batteries as power source. To insert (replace) the batteries, use the screwdriver enclosed to loose two screws and put in the batteries in correct polarity with good contact.
Please charge the batteries for eight hours on first time use. To charge the batteries, power off the meter and plug in the 9VDC adaptor enclosed. Wait until "End" appears on LCD to indicate the charging process is completed (approximately four hours).
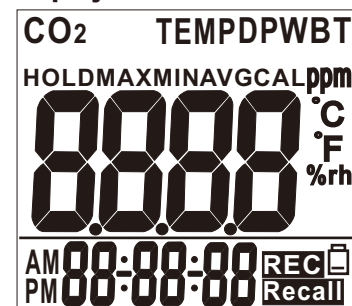
Connection to PC or Laptop

Connect the **pSENSE II** via mini USB cable to a PC or Laptop. Recorded data can be easily downloaded with the software enclosed.

Functions Key

ON/OFF/SETUP
-Press to turn on or turn off the instrument
-In normal mode, press longer to enter setup mode.
-Press with HOLD key to disable sleep mode

HOLD/UP
-Freezes the current readings
-Cancels data hold function
-Selects unit or increases value in setup

START/ESC
-Start automatic logging mode
-Exits setup/recall/logging

MODE/RECALL
-Press to switch displayed parameter
-Press longer to enter memory recall

MEM/DOWN
-Press to manually record the reading
-Selects unit or decreases value in setup

MIN/MAX/AVG/ENTER
-Activates MIN,MAX,AVG function
-Saves and finishes settings

Display

UpperLCD	Humidity/TEMP/CO_2....reading
LowerLCD	Real time clock display
CO_2	Carbon dioxide reading
HOLD	Readings are hold unchanged
MIN/MAX	Minimum/Maximum readings
AVG	Average reading
🔋	Low battery indicator
DP	Dew point temperature
TEMP	Temperature
WBT	Wet bulb temperature
%rh	Unit of relative humidity
°C/°F	Celsius/Fahrenheit temperature
CAL	In calibration status
REC	In manual/automatic logging status
RECALL	In manual records recall mode

Operation

POWER ON/OFF

Press 🔘 to turn the meter on. At power up, it emits a short beep and performs a 28 sec. countdown (Fig.1) for meter warm up, then enters normal mode with real time clock displayed (Fig.2). Date and time are displayed in turns.
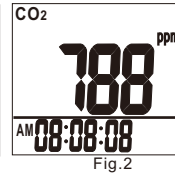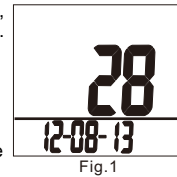
To power off, press 🔘 again to turn off the meter.

Fig.1   Fig.2

DATE/TIME SETUP

When meter is powered on , hold down 🔘 for more than two seconds until entering meter setup mode. Press 🔘 or 🔘 key to select the program P80 (rtc) and press 🔘 key to enter.

First, choose the time format as 12hour or 24hour by pressing 🔘 or 🔘 and then press 🔘 to confirm. Second, choose the date format as Month-Day-Year or Day-Month-Year by pressing 🔘 or 🔘 and then, press 🔘 key to confirm. Now, start to input the real time clock value from year, month, day, hour, minute to second. Press 🔘 or 🔘 to select and then press 🔘 to confirm. Press 🔘 to return to normal.

UNIT SETUP

When meter is powered on , hold down 🔘 for more than two seconds until entering meter setup mode. Press 🔘 or 🔘 key to select the program P50 (unit) and press 🔘 key to enter.

Press 🔘 or 🔘 to select °C or °F and then press 🔘 to confirm. Press 🔘 to return to normal.

TAKING MEASUREMENT

The meter starts measurement when power on and update readings every second. In the condition of operating environment change, it takes 30 seconds to respond for CO_2 sensor.
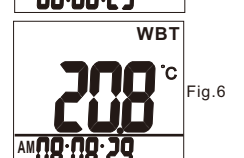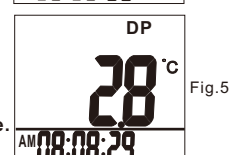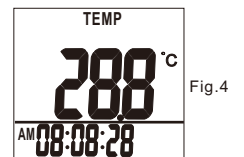**NOTE: Do not hold the meter close to faces in case exhalation affects CO_2**

HUMIDITY

Press 🔘 to switch to humidity display (Fig.3).The lower display shows the real time clock.

Fig.3

TEMP, DP, WBT

Press 🔘 to switch to temperatures display (Fig.4,5,6). The lower display shows the real time clock.

Fig.4

CO2 (CARBON DIOXIDE)

Press 🔘 to switch the mode to CO_2. User can get the CO_2 reading in ppm unit on main display (Fig.7). The lower display shows the real time clock.

Fig.5

DATA HOLD

In normal display mode, press 🔘 to freeze the readings, "HOLD" icon is flashed on the left top of LCD (Fig.8). All current readings are kept unchanged. Press 🔘 again to cancel the hold function.

NOTE:
The hold function is disabled in MIN/MAX/AVG mode.

Fig.6

DISPLAY BACKLIGHT

The backlight will be activated for 10 seconds by pressing any key.

MIN/MAX/AVG REVIEW

This meter allows you to check the minimun, maximum, average and the current value from the moment you press the 🔘 key. Under normal mode, each press of displays the MIN, the MAX, the AVG and the current value in sequence (Fig.9~11). To return to normal mode, press 🔘 to escape(Fig.12)

In the MIN/MAX/AVG mode, it shows the corresponding readings on main display and the accumulated time of this mode. The maximum time interval for this function is 18h.

Fig.7

Press 🔘 to switch the displayed parameters (Fig.13).

Distinguish the normal display and current review by checking the time display format. In normal display, date & time are displayed in turns. In current review, the lower display is the **accumulated time** of how long you have been in MIN/MAX/AVG mode.

NOTE:
"HOLD" & "MANUALLY RECORD" & "RECALL" functions are disabled in MIN/MAX/AVG mode.

Fig.8

Fig.9   Fig.10   Fig.11   Fig.12   Fig.13
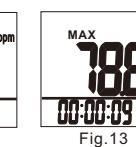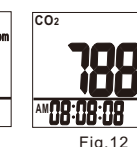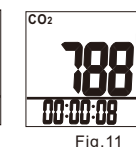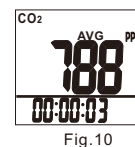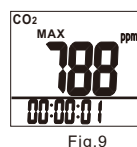
ALARM

The meter features audible alarm to give warnings when CO_2 concentration exceeds the limit. (See "Meter Setup" section for setting alarm threshold). It emits beeps (about 80dB) when CO_2 level goes over the set value and stops only when the readings fall below the set value. It beeps again when value goes over the limit.

AUTO POWER OFF

The meter turns off automatically after 20 minutes of inactivity. To override the function, first, the meter is in power off status. Hold down ⊙(ON/OFF SET) and ⊙(HOLD) for two seconds to turn on the meter until "**n**" appears (Fig.14).
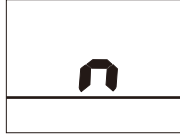
NOTE:
Auto sleep function will be disabled during calibration & auto recording mode. Auto sleep function WILL NOT be disabled automatically via using adaptor.

Fig.14

MANUAL RECORDING

The meter features a 99 point memory. In the normal or hold mode, press ⊙(MEM RECALL) key to start recording, the **REC** -icon and the main display will be flashed three times. The memory sequential number will show on the main display with 99 points in maximum. The data in the memory contains all parameters information and not only the displayed parameter. When all 99 points memory are occupied, a "FULL" message will be displayed on the screen. If you think the reading is changing too fast, you can press ⊙(HOLD) key to freeze current reading first then manually record the data. This recording function will be disabled in the MIN/MAX/AVG mode.

MEMORY RECALL

In normal or hold mode, press ⊙(MODE RECALL) key for more than two seconds until the **Recall** -icon flashes. Press ⊙(HOLD) or ⊙(MEM) to scroll the memories. The memory sequential number displays on main LCD first and reading comes after (Fig.16 &17). Press ⊙(MODE RECALL) key to switch the display parameter (Fig.18).The time displayed in memory recall mode is the recording time of this entry.

Fig.15 Fig.16 Fig.17 Fig.18

DATA LOGGING

The meter can automatically record HUMIDITY/TEMP/CO2 for long term environment monitoring. The memory capacity is 6000 points for each parameter. Users can set up sampling rate from one second to 4hours, 59 minutes and 59 seconds. The factory preset rate is 30 second.

To setup the sampling rate, when meter is powered on, hold down ⊙(ON/OFF SET) for more than two seconds until entering meter setup mode. Press ⊙(HOLD) or ⊙(MEM) key to select the program P60 (rAtE) and press ⊙(MODE RECALL) key to enter.

Press ⊙(HOLD) or ⊙(MEM) to select the sample rate from hour, minute to second and then press ⊙(MIN MAX/AVG) to confirm. Press ⊙(START ESC) to return to normal.

After sampling rate is selected, press ⊙(START ESC) for two seconds under normal mode to start logging. The **REC**-icon flashes to indicate the logging status and LCD main display shows the real time value. Lower displays are real time clock (Fig.19).

Repeat above to start another run of logging. While the logging space is full, it shows "FULL". To terminate data logging, press ⊙(START ESC) for two seconds, **REC** -icon stops flashing.

Press ⊙(MODE RECALL) key to switch to the mode you want to see. Except the mode switching function, auto power off, MIN/MAX/AVG, manual record, hold and recall functions are all disabled during logging.

Fig.19

Meter Setup

When meter is powered on, hold down ⊙(ON/OFF SET) for more than two seconds until entering meter setup mode. To exit setup, press ⊙(START ESC) to return to normal mode.

Press ⊙(HOLD) or ⊙(MEM) key to select the program and press ⊙(MIN MAX/AVG) key to select. The programmable setting flashes on display, press ⊙(HOLD) or ⊙(MEM) key to select and press ⊙(MIN MAX/AVG) key to confirm. To leave without saving, press ⊙(START ESC) key to return.
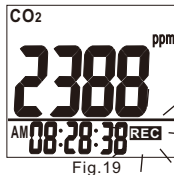
		Note:
P10, 99 points MEMORY clear	ПЕПП	"donE"is displayed while memory is cleared.
P11, choose yes or no	NO ···· YES	
P20, auto LOG data clear	Lo9	Note: "donE"is displayed while memory is cleared.
P21, choose yes or no	NO ···· YES	
P30, CO2 ALARM setup	ALAr	Note: -Factory preset 1400ppm. -Adjustable scale is every 100ppm
P31, choose from 100 to 9900	100 ···· 9900	
P40, CO2 ABC setup	AbC	Note: -Factory preset ABC function as ON
P41, Choose on or off	ON ···· OFF	
P50, Temp. UNIT setup	un it	Note: -Factory preset °C
P51, choose °C or °F	°C ···· °F	
P60, logging sampling RATE	rAtE	Note: -Factory preset at 30 sec. -The format is hour:minute:second
P61, choose from 04:59:59 to 00:00:01	04:59:59 ···· 00:00:01	
P70, PRESSURE compensation	PrES	Note: -Factory preset at 1013hpa -The adjustable scale is every 1hPa.
P71, choose from 700 to 1990hpa	700 ···· 1990	

P80, REAL TIME CLOCK setup	rtC		Note: -Factory preset at 12H & dd-mm-year format.
P81, choose 12 or 24 hour format	12H ···· 24H		
choose DATE format	ddmmyy ···· mmddyy		
Input Year/ Month/ Day	year	00 ···· 99	
	month	01 ···· 12	
	date	01 ···· 31	
Input Hour/ Min./Sec.	Hour	01 ···· 12 or 24	
	Minute	00 ···· 59	
	Second	00 ···· 59	

Battery low indicator

A battery low icon " ▯ " appears when the supplied power is too low to maintain a functional operation. Please plug in the 9VDC adaptor enclosed to charge the batteries. While charging the batteries, you still can power on the device and operate as usual.

Humidity Calibration

This meter can be calibrated either via 35% & 80% salt bottle or humidity generator. The ambient condition is recommended as stable 25°C. While the meter is powered off, plug the sensor probe into 35% salt. Press ⊙(ON/OFF SET), ⊙(START ESC), ⊙(MEM) simultaneously for three seconds to turn on the meter and enter calibration mode. Press ⊙(HOLD) or ⊙(MEM) to select 35.0% calibration and press ⊙(MIN MAX/AVG) to start. "CAL" and calibrating value are blinking on the LCD.

CAUTION:
Do not calibrate the humidity without the default calibration salt. Otherwise, it will cause permanent damage. Contact SenseAir for calibration salt or services.
Single point calibration will cause error code E11 or non-accurate reading. Always do dual point calibration to complete a process. Suggest to calibrate low humidity first.

CO2 Calibration

The sensor has an automatic calibration function to secure long-term accuracy. If a calibration is desired anyway, press ⊙(ON/OFF SET), ⊙(START ESC), ⊙(MEM) simultaneously for three seconds to turn on the meter and enter calibration mode. Press ⊙(HOLD) or ⊙(MEM) key to select 400ppm CO2 calibration (Outside Air calibration). Press ⊙(MIN MAX/AVG) to start and see"CAL" and CO2 value blinking on LCD. Wait about 10 minutes until the blinking stops and the calibration is completed and back to normal mode. When choosing 0ppm CO2 calibration, remove the cap from meter rear side and plug the CO2 CALIBRATOR pipe into the sensor hole beneath. Wait about 10 min until the blinking stops and the calibration is completed and back to normal mode.

CAUTION:
Do not calibrate the meter in the air with unknown CO2 concentration. Otherwise, it leads to inaccurate measurements.
Ensure the batteries are fully charged during the calibration to prevent interruption or failed calibration. When the accuracy becomes a concern after long time usage, return to dealers for standard calibration.

Trouble Shooting

Error	Messages	Solution
E01	CO2 sensor is out of order or the battery is too low	Turn off meter and re-start again or re-charge the battery
E33	CO2 sensor is out of order	Retry CO2 calibration
E02	measured value is under range	Put meter in normal condition
E03	measured value is over range	Put meter in normal condition
E04	Original data error results in this error (DP, WB)	Solve the original data error
E11	RH calibration error	Retry humidity calibration
E31	Temp. sensor or AD damaged	Return for repair
E32	Memory IC damaged	Return for repair
E33	RH sensor or circuit damaged	Return for repair

Technical Data

Humidity/accuracy:	0.1% to 99.9%/ ±3.0%(10~95%@25 °C), ±5% (other)
Temperature/accuracy:	-20 to 60°C/+0.3°C@5~40°C
CO2 /accuracy:	0 to 9999ppm/+(30ppm+5% of reading)@0~5000ppm
Storage and transit:	-20 to 60°C/10 to 90%rh, non-condensing.
Operating limit for CO2:	0 to 50°C, non-condensing / Electronics: -20 to 60°C
Memory:	99 manual records, 18000 data logging records.
Dimensions (LxWxH):	234x77x42 [mm]
Weight:	200g
Battery type:	Four pcs AA re-chargable batteries
DC power type:	9VDC, 500mA (Standard accessory).
PC connection:	mini USB port

Optional Accessory

Art.No.
CO2 CALIBRATOR: 00-0-0022 Zero Calibration Kit

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