

AirSense

Plug & Play Wi-Fi Aircon Control



Air Conditioner Control



Motion sensor

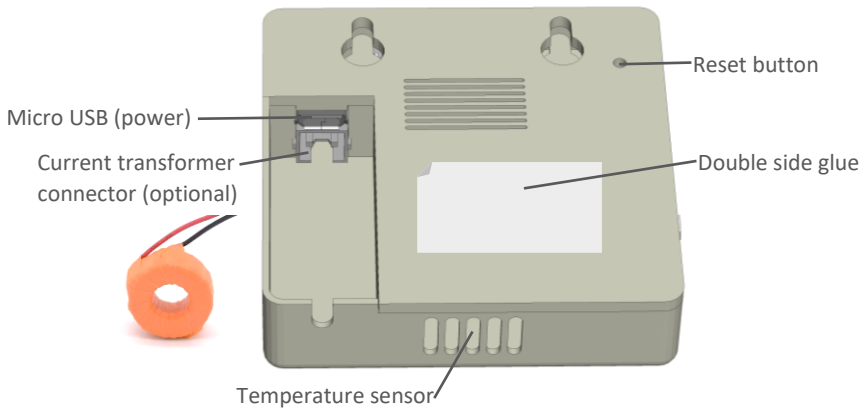
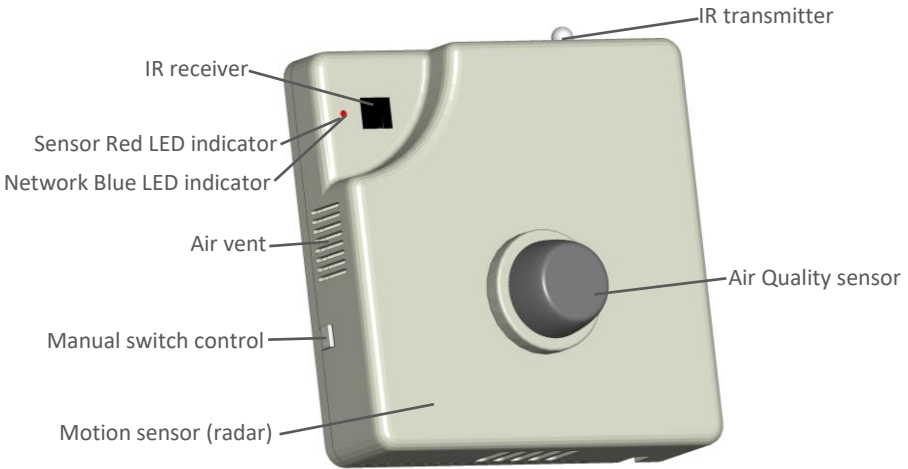


GAS sensor



Power meter

Specification



Features

- App for iOS and Android
- Control and monitor Aircan from anywhere via Wifi or 3G/4G
- Control Cold / Hot / Auto / Fan / Dry mode, Set Point and Fan 1, 2, 3, Auto
- 2-way communication - status feedback and sync with aircan's remote control
- Automatic aircan brand selection via aircan's remote control (setup with press of a button)
- Compatible with major aircan brand with remote control (other aircan brand can be updated online)
- Plug and Play – no need installation (just connect to power)
- Measure Room temperature via built-in temperature sensor NTC
- No need additional controller (standalone product)
- Size: 6 * 6 * 1.5 cm (2.2cm include sensor)
- Turn ON the air condition to its last status in memory
- Set Point Temperature Range: 16 ~ 32°C
- Room Temperature range: 0 ~ 60°C
- Radar Motion sensor – radius 7 meters range (14 meters diameter at 360 degrees)
- Motion sensor settings when enter the room:
 - a. Turn on air conditioner to last state
 - b. Turn on air conditioner to a pre-set setting (temperature, mode, fan)
- Motion sensor settings when leaving the room:
 - a. Turn off air conditioner
 - b. Conservation mode (pre-set the aircan to comfortable level for X time)
- Air quality sensor will send alerts to App in case of high PPM levels of CO₂, benzene, alcohol, sulphide, smoke and other harmful gases. Total 5 gas levels:
 - a. Good: 0-600ppm
 - b. Fairly good: 600-1100ppm
 - c. Average: 1100-2100ppm
 - d. Bad: 2100-3100ppm
 - e. Very bad: 3100ppm and more
- Power consumption optional add-on:
 - a. Current transformer – 5mA (50A). Size outer: ϕ 24mm, width: 11mm
 - b. Power supply – 220VAC (2 wires) to 5VDC, 1A. (USB socket). Size: 44*32*24mm
- Power consumption: 5VDC, 220mA
- IR distance: Max. 6 meters at line of sight
- Wireless Wi-Fi frequency: 2.4GHz ISM free frequency range
- Wifi Communication distance: maximum 30 meters (at line of sight)
- Enclosure: ABS plastic casing. White color or custom (MOQ)
- Indoor use only
- CE, EMC, FCC, IC, LVD standard

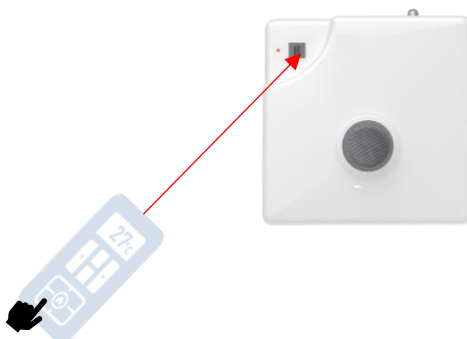
Compatible air conditioner brands (with most of their models)



Aircool, Airwell, AUX, BlueStar, Carrier, Cetnral Air, Changhong, Daikin, Elco, Electra, Electrolux, Fujitsu, General, Gree, Haier, Hitachi, Hisense, LG, Midea, Mitsubishi, National, Panasonic, Pioneer, Pearl, Samsung, Sanyo, Sharp, Skyworth, Star-Aire, Tadiran, TCL, Toshiba, Yair, York

Air conditioner brand setup

After power, within 10 seconds press any button of the air conditioner's remote control to learn the air conditioner brand. After setup, the AC brand is set in memory also after power failure.

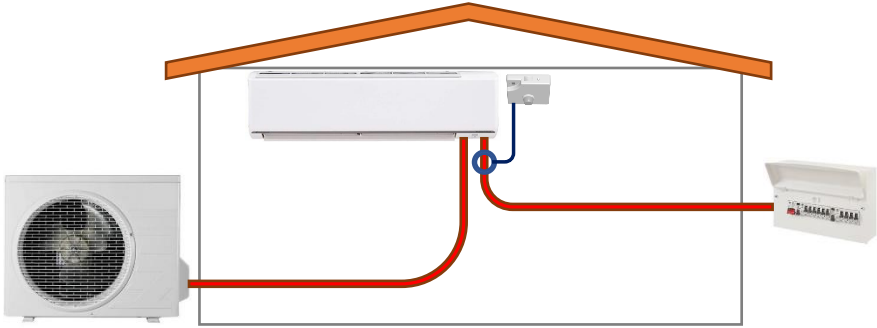


Installation – Current Transformer (only 4in1)

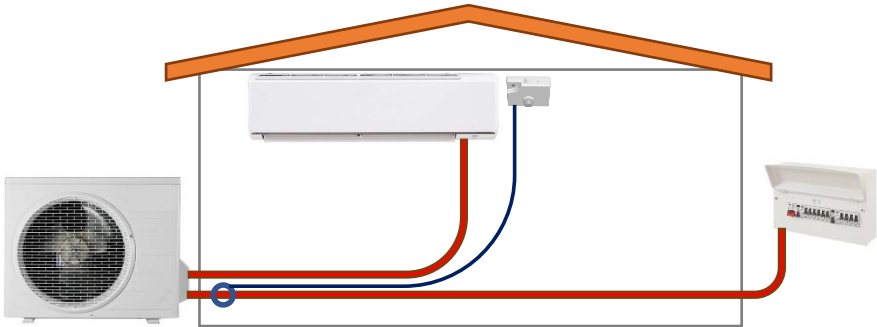
As default, AirSense comes with plug power supply and USB cable and include Air Conditioner controller, Gas sensor and Motion sensor (3 in 1). This product is plug & play - only connect to power and setup in App.

To add power meter function, an optional add-on current transformer is required. There are 2 types of air conditioners wiring (depend on AC model), each required different installation:

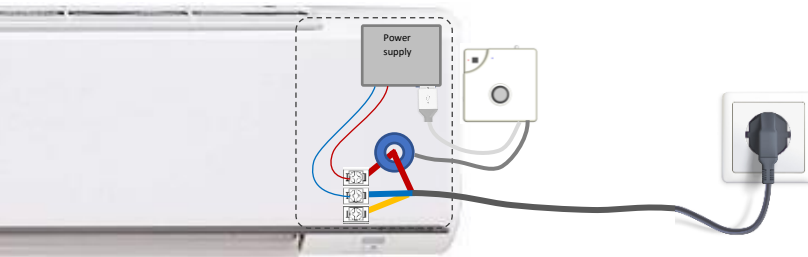
1. Wiring from circuit board to inner unit to outdoor unit (normally on small size AC)



2. Wiring from circuit board to outdoor unit to indoor unit (normally on big size AC)

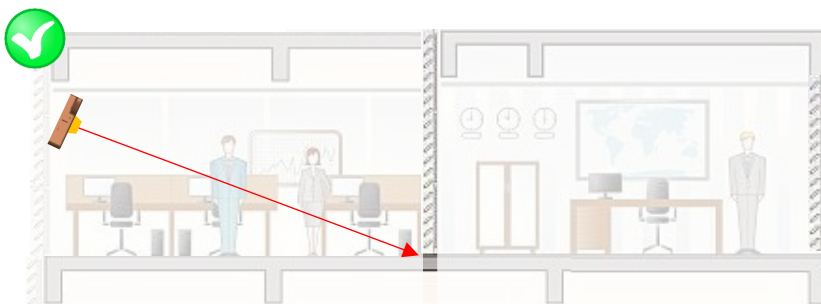
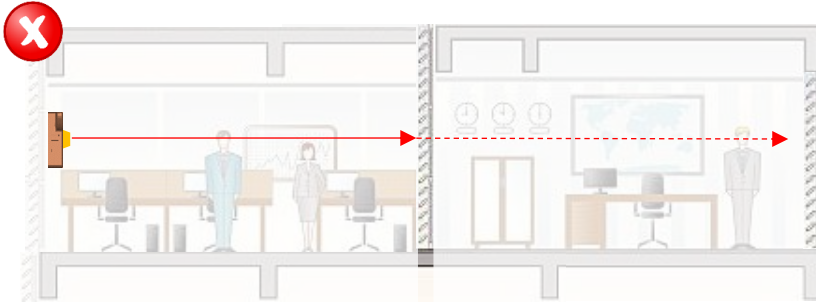


In both cases need to ensure current transformer is connected to the feed from circuit breaker as follows (only to LIVE):



Installation – Motion Sensor

The motion sensor can sense movement through walls - ensure to mount the Airsense with an angle to the centre of the room (and not facing directly to another wall to avoid false alarms from movement from outside the room)



Debug Mode (motion sensor)

To test motion sensor, press and hold the side button for 10 seconds (till the red light flash).



In this mode, each movement makes the red light to blink.

Restart Airsense to exit debug mode.

AirSense LED logic

Blue light logic

Logic	RED LED
Power up	ON for 10 seconds (IR learning mode)
Module not added to App (new module or after reset)	Quick flash (0.5s on and 0.5s off...repeat)
Module already added to App + connected to router	OFF
Module already added to App but no internet connection	Slow flash (1s on and 2s off...repeat)
Update firmware version (after reboot or after add to app)	Very, very quick flash (0.2s on and 0.2s off...repeat)
Receive / Transmit command from App	Flash once
Short press (~1sec) on hidden switch on the back	Flash once + send off command
Long press (~5 sec) on hidden switch on the back	Reset device (led on for 10 seconds and then quick flash like new module)

RED light logic

Logic	RED LED
Send 'ON' (press side switch for 1s)	Flash 0.5s (and off)
Send 'OFF' (press side switch for 3s)	Flash 0.5s (and off)
'AWAY' (room empty over 5 min)	Flash 3s (and off)
'COME' (motion sensor detect motion while in 'AWAY' mode)	Flash 3s (and off)
Enter 'DEBUG' mode (press side switch for 10s)	(0.5 sec ON + 0.5 sec OFF) x 3 times (and off)
Detect motion while in 'DEBUG' mode	Flash ~2s when motion sensor detect movement
Power up	Flash 1s (and off)
Detect gas – level 1 (no gas detected)	--
Detect gas – level 2	(0.2 sec ON + 0.2 sec OFF) x 2 times + 30 sec delay
Detect gas – level 3	(0.2 sec ON + 0.2 sec OFF) x 3 times + 30 sec delay
Detect gas – level 4	(0.2 sec ON + 0.2 sec OFF) x 4 times + 30 sec delay
Detect gas – level 5	(0.2 sec ON + 0.2 sec OFF) x 5 times + 30 sec delay

App



Note: when user change settings on the air conditioner's remote control, the app update its feedback online and show its current status

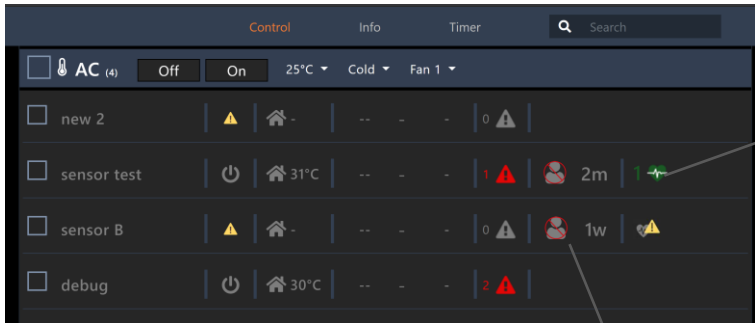
Ensure to select your country at system setup for power consumption cost

Desktop

Control & Monitor from computer

Login: <https://activate-ac.com>

In CONTROL page monitor the air quality and motion sensor status

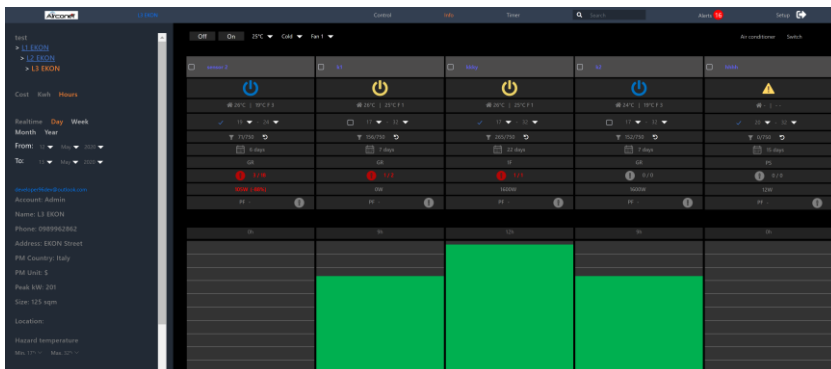


The screenshot shows the 'Control' page of the AC system. At the top, there are tabs for 'Control', 'Info', and 'Timer', along with a search bar. Below the main control area, there are four sensor rows:

- new 2**: Air Quality level is 0 (indicated by a yellow triangle icon).
- sensor test**: Air Quality level is 1 (indicated by a red triangle icon), and the motion sensor status is 2m (indicated by a red triangle icon).
- sensor B**: Air Quality level is 0 (indicated by a yellow triangle icon), and the motion sensor status is 1w (indicated by a red triangle icon).
- debug**: Air Quality level is 2 (indicated by a red triangle icon), and the motion sensor status is 2 (indicated by a red triangle icon).

Annotations with arrows point to the 'Air Quality level' and 'Motion sensor status and its time period' for the 'sensor test' and 'sensor B' rows.

In INFO page monitor the power usage (working hours, kWh and Cost) in real time, per day / week / month / year



The screenshot shows the 'Info' page of the AC system. On the left, there is a sidebar with user information for 'Admin' (Name: L3 EXON, Phone: 099962862, Address: EXON Street, PIR Country: Italy, PIR Level: 5, PIR Max: 200, Size: 120 sqm, Location: Hazard temperature: Min: 17°C, Max: 30°C). The main area displays a grid of power usage data for five sensors: 'new 2', 'sensor test', 'sensor B', 'debug', and 'test'. Each sensor row shows a power icon, a power button, and a power usage bar. The bars for 'new 2', 'sensor test', and 'sensor B' are green, while the bars for 'debug' and 'test' are red. Below the grid, there are several empty rows.

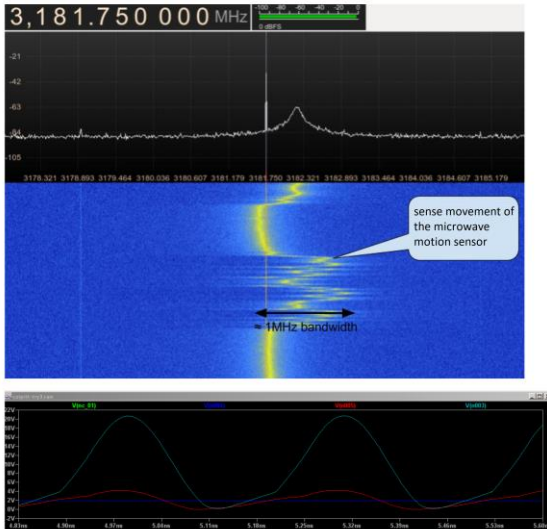
Motion sensor spec

Sensor type: Microwave sensor

Detecting range: 360°

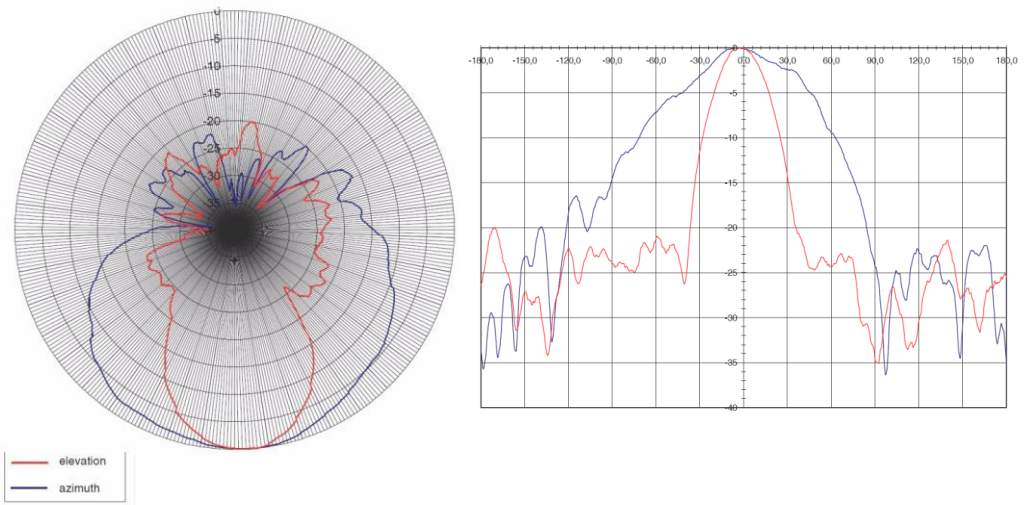
Detecting distance: 6m

Operating frequency: ~3.2GHZ



Unlike passive infrared motion alarm unit, which only registers objects at a temperature difference with respect to the background, the radar microwave motion sensor responds to all movements in the direction of the sensor. With this, the movement sensitivity is extremely high, even smallest movements nearly up to the stand still state are recognized. The radar motion sensor works through many materials, e.g. plastics, plaster wall, glass, etc.

Radiation pattern



The radar sensor comprises of a highly integrated microwave sensor with sending and receiving part as well as a push-pull mixer. Careful circuit layout and selection of suitable components lead to the fact that the module complies with the requirements of European ETSI standard and possesses a generally valid CE permission. Radar motion sensor work as per the Doppler principle: the electromagnetic waves in the microwave range are reflected from the object and superimposed over a sending signal by a mixer in the module. Therefore, the frequency of signal originating at the mixer output is proportional to the speed corresponding to a movement speed of approx. 1 km/h. The amplitude of the signal is an outcome of the size of the object and its distance to the sensor. A subsequent amplifier with defined bandwidth brings the signal to a useful level, which is then evaluated over a window comparator. While PIR sensors react very insensitively to movements in straight direction, the radar sensor shows its highest sensitivity here.