



A POWERFUL DEVICE FOR A BETTER AIR QUALITY



archiproducts

DESIGN AWARDS

—
WINNER 2020

VAIRUS AIR

CLEANING
DISINFECTION
DEODORIZATION



VAIRUS is an innovative photocatalytic oxidative air purification system which occurs through the combination of Titanium Dioxide, photo-active and UV-A LED and whose use can be continuous and also in the presence of people, being a completely harmless system.

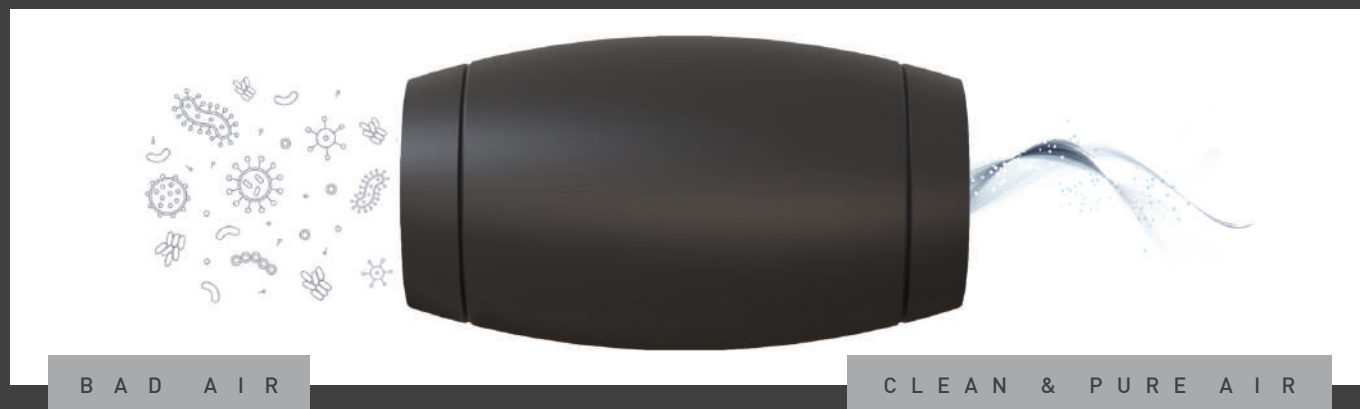
VAIRUS was created to break down harmful volatile substances present in the air, increasing the well-being in the places where we stay. Through this “smart” device, in versions equipped with sensors, air quality can also be monitored remotely with 4.0 connectivity through the CASAMBI APP.

The device, designed and manufactured by us with a compact and sophisticated design, provides for the possibility of being integrated also with track lighting systems, making VAIRUS a very versatile product. A particular management of fluid dynamics creates a powerful and at the same time silent air vortex inside the device, able to uniformly pass through the TiO_2 cells with the consequent oxidation of substances carried by the air.

In one hour VAIRUS, at maximum power, treats 126 m^3 of air so, in environments such as shops and offices, with forced air, a single device can cover up to 150 m^2 (with 3 m height) while in domestic environments and spaces without forced ventilation, the treated surface is approx. 80 m^2 (with 2.7 m height)*.

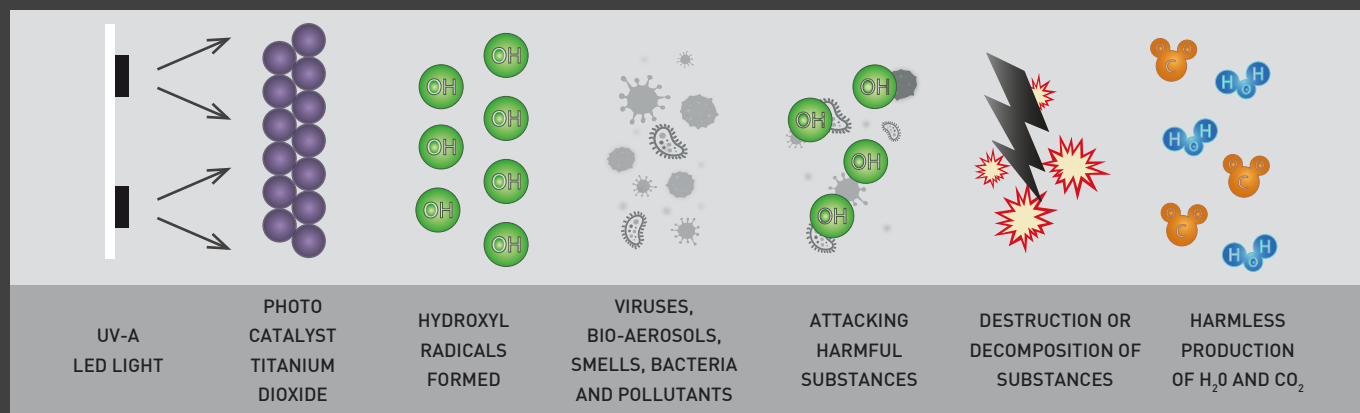
(*) The above data are to be considered indicative and vary according to the customer's needs and the type of environment to be treated

TECHNOLOGY



VAIRUS uses an advanced technology that, thanks to the ceramic cells in Titanium Dioxide (TiO_2), activated by specific UV-A LEDs, effectively allows to oxidize and destroy viruses, bacteria, molds, allergens and odors carried by the air into the device.

Photocatalytic oxidation occurs through the creation of free radicals, in proximity of the cells, which attack chemical and biological nature polluting molecules, breaking their molecular bonds and degrading. This process doesn't generate Ozone but low quantity of harmless substances such as Carbon Dioxide (CO_2) and water vapor (H_2O).



T E C H N O L O G Y

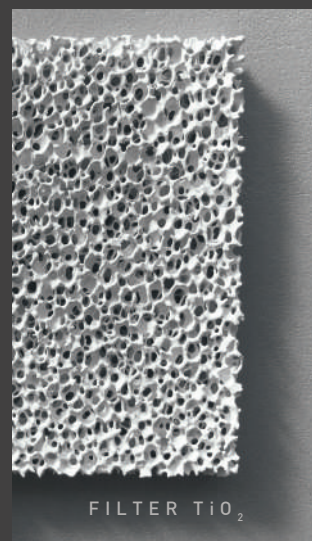
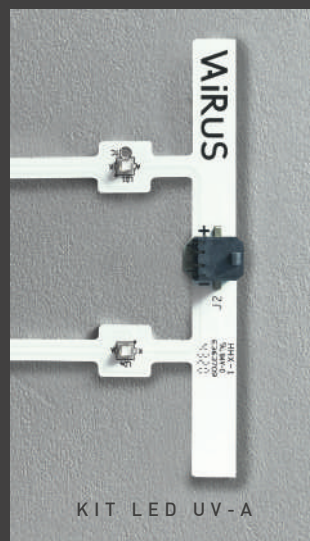
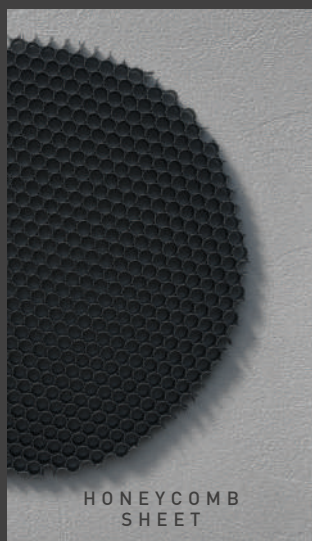
The air treated by VAIRUS passes through 4 levels of filtration: a mechanical pre-filter to avoid the passage of solid bodies (> 3000 micron) and three independent layers of TiO_2 ceramic cells.

The particular processing and porosity of the nanotechnological ceramic cells allows us to have the maximum contact surface and a low resistance to the passage of air which, passing three layers of non-mechanical filtration, makes the disinfection process extremely fast and effective.

VAIRUS, unlike traditional air purifiers with Hepa filters or activated carbon, it does not retain the substances but destroys them avoiding the filters, once saturated, become in turn a source of proliferation of bacterial flora. The system is also able to disrupt pollutants 1000 times smaller than those that standard Hepa filters retain.

Our ceramic cells do not require periodic replacement (it is estimated to last about 15 years), therefore VAIRUS has reduced maintenance costs, limited only to washing and periodic replacement of the prefilter.

The internal LED UV-A kit, has a useful life (maintenance of luminous efficiency of 70%) of 35.000 h, therefore, considering an average use of 9h / day, has a duration of over 10 years. LED kit can in any case be replaced as a spare part.



LED UV-A AND LED UV-C

Why we didn't chose to develop an UV-C device for air treatment?

UV-C LED is considered effective for surface treatment ("firm" virus) only if certain factors are respected, such as the exposure time and the UV-C light intensity to reach the pollutant substance.

For example, to eliminate 99% static COVID-19 on a surface, considering an UV-C LED power (275 nm) at 24 W*, at a distance of 10 cm, we will need 6 seconds of continuous and uniform exposure of the surface.

Therefore, considering that an air treatment device, at minimum speed, treats approx 40 m³/h of air, it would be impossible to guarantee sufficient UV-C irradiation to kill viruses and bacteria due to the fraction of a second in which these substances remain in the device.

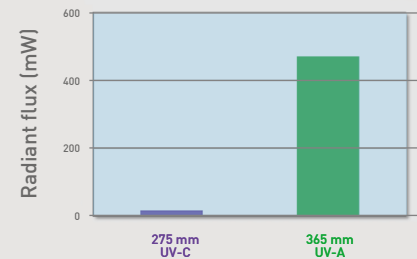
Why we didn't chose to use UV-C LED for activation of photocatalysis?

With UV-C LEDs there would be a better efficiency in the photocatalytic activation processes with TiO₂ but unfortunately, due to the very low luminous efficiency, with the same Watt, UV-A LEDs are far more performing. For example, as the graph, 1W UV-C emits 17 mW while 1W UV-A emits 470 mW.

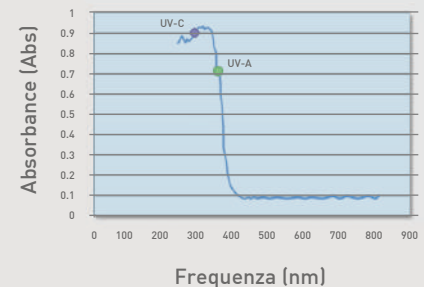
UV-C LEDs have a life time of 8.000 / 12.000 hours (with 50% reduction of the light output) while the UV-A LEDs of 30,000 / 35,000 hours (with 30% reduction of the light output).

UV-C rays are also considered highly dangerous, therefore it's necessary to take multiple precautions to avoid accidental exposure of the user to the radiation emitted. Instead the UV-A light, representing 95% of the spectrum of sunlight hitting the earth, it has no damaging effect at minimal exposures.

Efficiency of 1W UV-C and 1W UV-A



Absorption spectra of TiO₂



(*) source: specific reports of LEDs on the market

WHAT DESTROYS



VIRUSES



BACTERIA



DANGEROUS GAS



VOC



CIGARETTE SMOKE



SMELLS



FUNGUS & MOLD



ALLERGENS

VAIRUS devices aim to improve and maintain indoor air quality, helping to contain and slow down the transmission of airborne pathogens.

In the environments a microbiological charge is constantly generated due to airborne pollutants that are created during the day or enter through our windows and VAIRUS has the task of destroying up to 99.9%* of these volatile substances.

The oxidative action of Photocatalysis against viruses and bacteria is widely documented in the scientific literature so VAIRUS can help to remove pathogens that might otherwise remain in the air for hours.

VOCs (Volatile Organic Compounds) include a wide range of dangerous compounds and they make up the bulk of our indoor gaseous pollution as they are contained for example in cleaning products, deodorants and paints.

Formaldehyde, quickly destroyed by VAIRUS, it is a stable substance difficult to remove from the indoor air, which can be released from furniture, upholstery, clothing and especially from cigarette smoke. VOCs, if left untreated, can cause long-term adverse health effects.

Also, some alkaline aerosols, for example Ammonia, they can affect the increase in the spread of some viruses therefore it's important to keep the air purified as much as possible in the environments in which we stay.

(*) The above information refers to scientific tests conducted in specialized laboratories


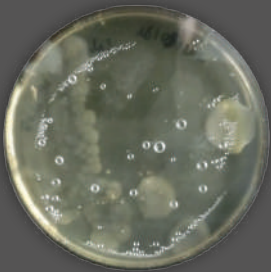
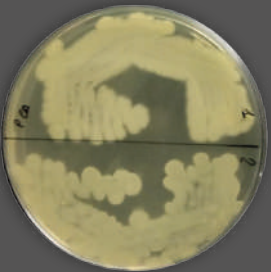


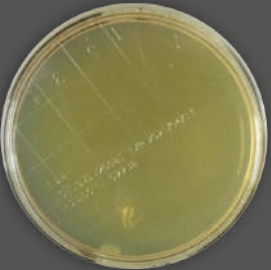
The performances are constantly updated and a test is underway to measure the effectiveness of our filter on reduction of the virus SARS - COV-2

TEST RESULTS

VAIRUS, in continuous mode and at maximum power, it was placed in a 8 m³ sealed chamber introducing different types of pollutants into the air (bacteria, molds and volatile substances).

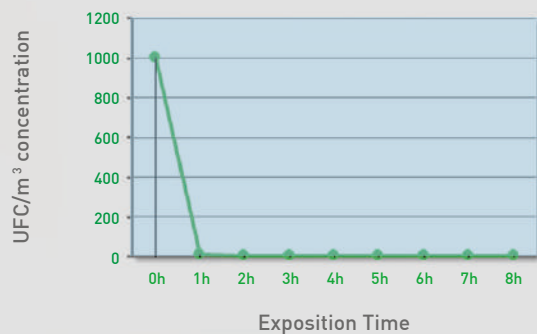
The analysis was conducted by a specialized laboratory that has measured after one, four and eight hours the air quality. The tests have shown a rapid and evident reduction of the bacterial load level on all the strains analyzed after only one hour of operation of the device VAIRUS. A test was also performed on some VOCs carrying out the same periodic samplings.

Below are the photographic evidence of the tests:

BEFORE THE TEST			
AFTER 1h OF TREATMENT			
	BACTERIA: Bacillus Subtilis Escherichia Coli Serratia Marcescens Staphylococcus aureus	YEASTS: Candida Albicans Common Yeast Cake Saccharomices Spores Saccharomices Ellipsoideus	MOLDS: Aspergillus Niger Aspergillus Flavus Mucor Raucemosus Penicillin Expansus

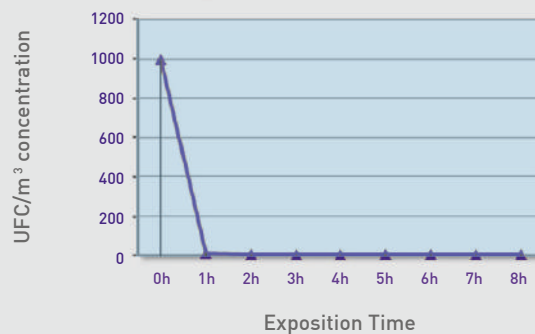
TEST RESULTS

BACTERIA



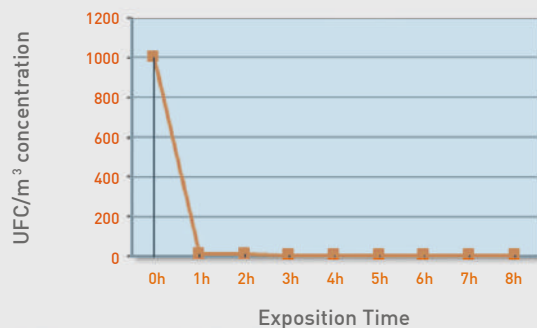
Bacteria typing was not performed after treatment as there is a 99% reduction after one hour of treatment, 99,5% after four hours and 99,9% after eight hours.

YEASTS



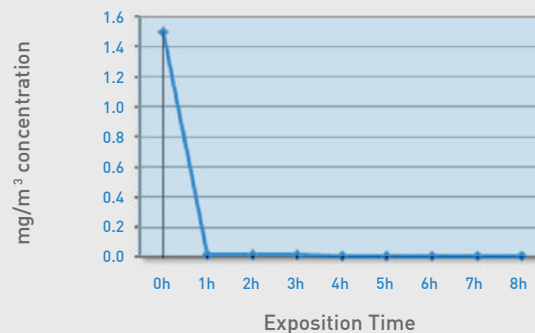
Yeasts typing was not performed following the treatment as there is a reduction of 99% after one hour of treatment, 99,5% after four hours and 99,9% after eight hours.

MOLDS



Molds typing was not performed following the treatment as there is a reduction of 99% after one hour of treatment, 99,5% after four hours and 99,9% after eight hours.

VOC




Average fall of the Acetaldehyde and Ammonia at 99,99% already after one hour of treatment. Average fall of the Acetic Acid, Toluene and Formaldehyde at 99,9% after one hour of treatment and VOC after four hours of treatment.


As can be seen from the graphical representations, there is a significant reduction after one hour of treatment (in a 8 m³ sealed chamber) with VAIRUS of all the studied substances.

WHAT DETECTS


SMART VERSION




TEMPERATURE




HUMIDITY




PRESSURE



TVOC




CO₂ RELATIVE




AIR QUALITY (IAQ)*

Premium VERSION

IN ADDITION TO THE
SMART VERSION:



PM10



INFLAMMABLE
SUBSTANCES

AVAILABLE AT THE END OF 2021

VAIRUS, in the SMART and PREMIUM version, allows the user to check the air quality in real time in the rooms where it's installed and to monitor it over time.



(*) IAQ: Index Air Quality

V E R S I O N S



T R A C K



R E C E S S E D



W A L L & C E I L I N G

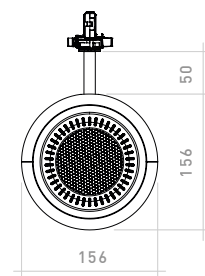
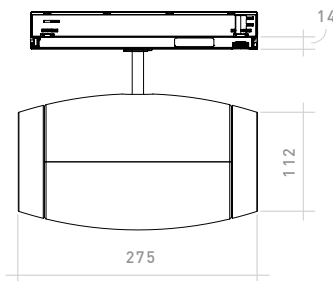


T A B L E



T R A C K

SUITABLE FOR THE FOLLOWING TRACKS: NA GLOBALTRAC PRO, CONCORD, EUTRAC 25101, HOFFMEISTER, IG STD 677, IVELA, STUCCHI, UNIPRO T3



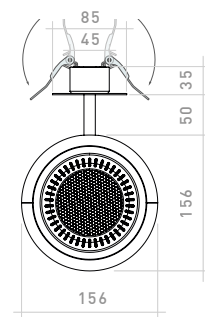
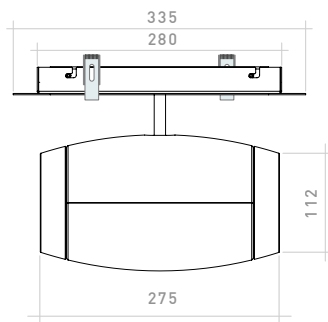
	PURE VERSION	SMART VERSION	Premium VERSION	VERSION AVAILABLE AT THE END OF 2021
AIR FLOW	126 m³/h	126 m³/h	126 m³/h	
APP DEVICE	✗	iOS & ANDROID	iOS & ANDROID	
IOT 4.0	✗	✓	✓	
SMART CONTROL	✗	CASAMBI ⚠	CASAMBI ⚠	
FILTERS	PREFILTER (DUST CAPTURE) TiO ₂ FILTERS + UV-A LED	PREFILTER (DUST CAPTURE) TiO ₂ FILTERS + UV-A LED	PREFILTER (DUST CAPTURE) TiO ₂ FILTERS + UV-A LED	
NOISE	from 15 dBA to 50 dBA	from 15 dBA to 50 dBA	from 15 dBA to 50 dBA	
RATED VOLTAGE	220 ÷ 240 Vac	220 ÷ 240 Vac	220 ÷ 240 Vac	
POWER CONSUMPTION	38 W	38 W	38 W	
ROOM COVERAGE	UP TO 150 m² *	UP TO 150 m² *	UP TO 150 m² *	
AIR QUALITY SENSOR	✗	TEMPERATURE - HUMIDITY PRESSURE - TVOC CO2 rel. - IAQ - AIR FLOW	TEMPERATURE - HUMIDITY PRESSURE - TVOC CO2 rel. - IAQ - AIR FLOW INFLAMMABLE GAS - PM10	

(*) The flow rate is indicative, as it varies according to the type of environment / ventilation present.
The data shown refers to an open space (ceiling 3m / h) and with forced ventilation (e.g. shops / offices)

R E C E S S E D



CUT-OUT HOLE: 290 x 55 mm



AIR FLOW
APP DEVICE
IOT 4.0
SMART CONTROL
FILTERS
NOISE
RATED VOLTAGE
POWER CONSUMPTION
ROOM COVERAGE
AIR QUALITY SENSOR

PURE VERSION
126 m³/h
✗
✗
✗
PREFILTER (DUST CAPTURE) TiO ₂ FILTERS + UV-A LED
from 15 dBa to 50 dBa
220 ÷ 240 Vac
38 W
UP TO 150 m² *
✗

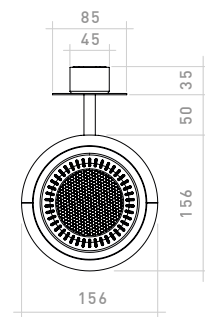
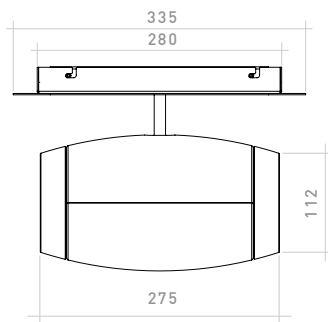
SMART VERSION
126 m³/h
iOS & ANDROID
✓
CASAMBI ⚠
PREFILTER (DUST CAPTURE) TiO ₂ FILTERS + UV-A LED
from 15 dBa to 50 dBa
220 ÷ 240 Vac
38 W
UP TO 150 m² *
TEMPERATURE - HUMIDITY PRESSURE - TVOC CO2 rel. - IAQ - AIR FLOW

<i>Premium</i> VERSION
126 m³/h
iOS & ANDROID
✓
CASAMBI ⚠
PREFILTER (DUST CAPTURE) TiO ₂ FILTERS + UV-A LED
from 15 dBa to 50 dBa
220 ÷ 240 Vac
38 W
UP TO 150 m² *
TEMPERATURE - HUMIDITY PRESSURE - TVOC CO2 rel. - IAQ - AIR FLOW INFLAMMABLE GAS - PM10

VERSION AVAILABE AT THE END OF 2021

(*) The flow rate is indicative, as it varies according to the type of environment / ventilation present.
The data shown refers to an open space (ceiling 3m / h) and with forced ventilation (e.g. shops / offices)

W A L L & C E I L I N G



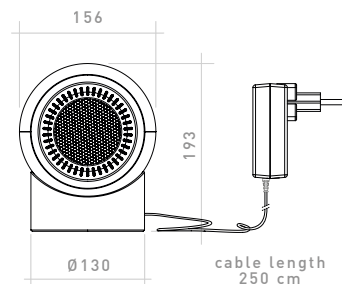
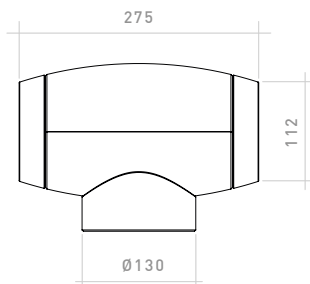
	PURE VERSION	SMART VERSION	Premium VERSION
AIR FLOW	126 m³/h	126 m³/h	126 m³/h
APP DEVICE	✗	iOS & ANDROID	iOS & ANDROID
IOT 4.0	✗	✓	✓
SMART CONTROL	✗	CASAMBI ⚠	CASAMBI ⚠
FILTERS	PREFILTER (DUST CAPTURE) TiO ₂ FILTERS + UV-A LED	PREFILTER (DUST CAPTURE) TiO ₂ FILTERS + UV-A LED	PREFILTER (DUST CAPTURE) TiO ₂ FILTERS + UV-A LED
NOISE	from 15 dBa to 50 dBa	from 15 dBa to 50 dBa	from 15 dBa to 50 dBa
RATED VOLTAGE	220 ÷ 240 Vac	220 ÷ 240 Vac	220 ÷ 240 Vac
POWER CONSUMPTION	38 W	38 W	38 W
ROOM COVERAGE	UP TO 150 m² *	UP TO 150 m² *	UP TO 150 m² *
AIR QUALITY SENSOR	✗	TEMPERATURE - HUMIDITY PRESSURE - TVOC CO2 rel. - IAQ - AIR FLOW	TEMPERATURE - HUMIDITY PRESSURE - TVOC CO2 rel. - IAQ - AIR FLOW INFLAMMABLE GAS - PM10

VERSION AVAILABLE AT THE END OF 2021


(*) The flow rate is indicative, as it varies according to the type of environment / ventilation present.
The data shown refers to an open space (ceiling 3m / h) and with forced ventilation (e.g. shops / offices)


T A B L E

LED DRIVER CE - cULus Listed WITH INTERCHANGEABLE ELECTRICAL PLUGS FOR EU- UK - USA



AIR FLOW
APP DEVICE
IOT 4.0
SMART CONTROL
TOUCH ON / OFF - SELECT MODE
FILTERS
NOISE
RATED VOLTAGE
POWER CONSUMPTION
ROOM COVERAGE
AIR QUALITY SENSOR

SMART VERSION
126 m³/h
iOS & ANDROID
✓
CASAMBI 
✓
PREFILTER (DUST CAPTURE) TiO ₂ FILTERS + UV-A LED
from 15 dBa to 50 dBa
110 ÷ 240 Vac
38 W
UP TO 80 m²*
TEMPERATURE - HUMIDITY PRESSURE - TVOC CO2 rel. - IAQ - AIR FLOW

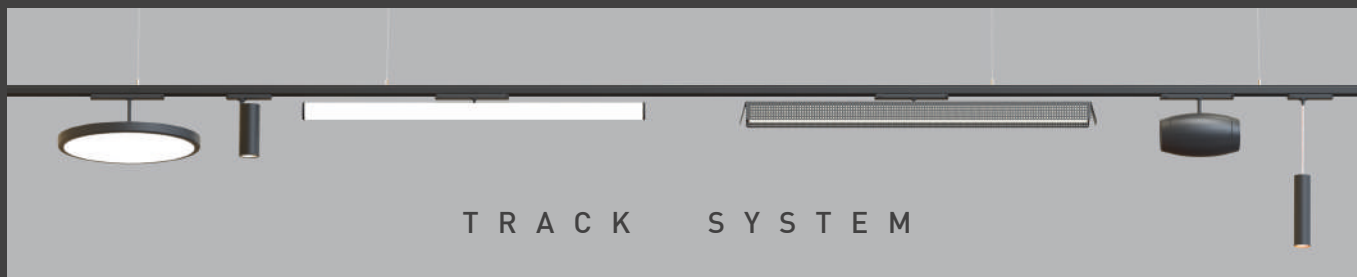
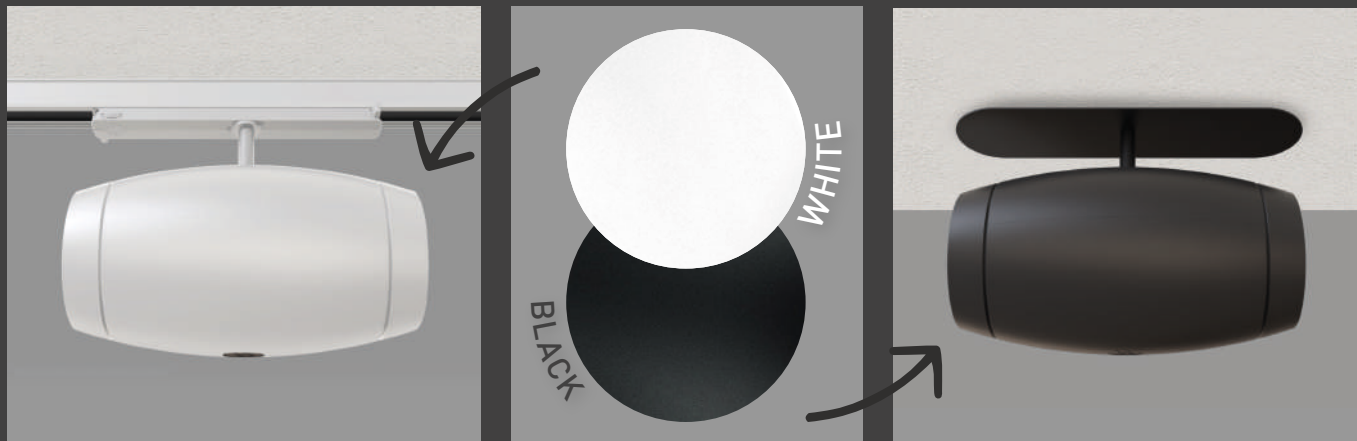
<i>Premium</i> VERSION
126 m³/h
iOS & ANDROID
✓
CASAMBI 
✓
PREFILTER (DUST CAPTURE) TiO ₂ FILTERS + UV-A LED
from 15 dBa to 50 dBa
110 ÷ 240 Vac
38 W
UP TO 80 m²*
TEMPERATURE - HUMIDITY PRESSURE - TVOC CO2 rel. - IAQ - AIR FLOW INFLAMABLE GAS - PM10

VERSION AVAILABLE AT THE END OF 2021

(*) The flow rate is indicative, as it varies according to the type of environment / ventilation present.
The data shown refers to an open space (ceiling 3m / h) and with forced ventilation (e.g. shops / offices)



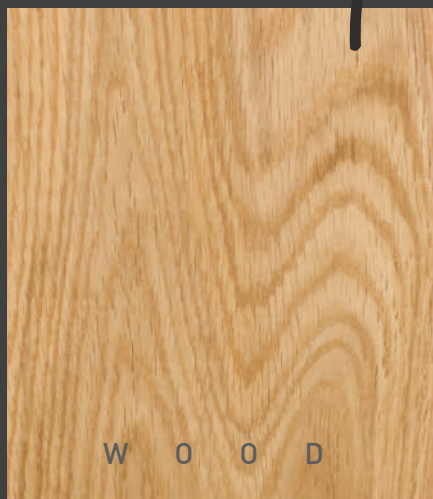
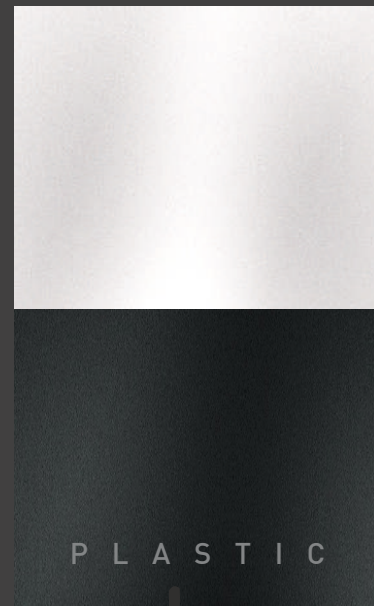
FINISHING & DETAILS



(*) only for table version



M A T E R I A L S



SMART CONTROL IoT WITH CASAMBI

VAIRUS, in the SMART and PREMIUM version, it is managed through the CASAMBI APP (with Bluetooth Mesh BLE technology) which allows from a smart device to set the fan speed, turn on and off, timing ignitions, create scenarios, add the device to the LIGHTS network and command it remotely from anywhere in the world.

DATA, CHECK & STATISTICS LIVE

- STATUS DEVICE
- TVOC
- HUMIDITY
- PRESSURE
- TEMPERATURE
- LOW POWER
- GAS



CONTROL & REGULATION

- SCENARIOS
- AIR FLOW
- TIMER
- UP TO 200 DEVICES



SMART CONTROL IoT WITH CASAMBI

The SMART control system, through cloud, allows you to view the historicized air quality data divided by category of volatile substances. Depending on the needs, it will also be possible to download the daily, weekly or monthly data.

REMOTE CONTROL & HISTORY REPORTS*

Humidity
40 %

TVOC
245 ppb

CO₂ REL
1305 ppm

IAQ
239

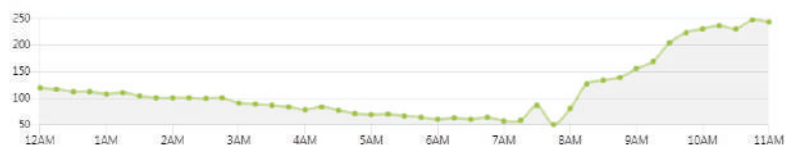
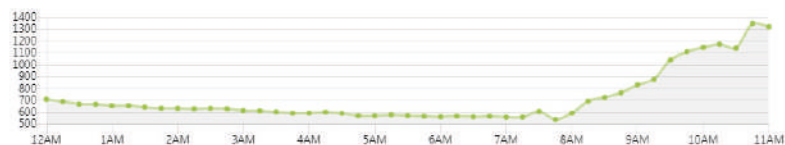
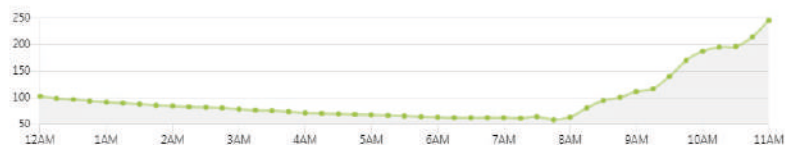
DASHBOARD > STORE 1 > VAIRUS



VAIRUS

Day Week Month

Export



(*) Remote control available with gateway internet connection



The VAIRUS product isn't a medical device and should not be used as a substitute for medical or pharmaceutical treatments. For your wellness it's necessary in any case an adequate circulation of air in the environments.

No air purifier can prevent you from getting a virus.

Bertronic srl reserves the right to make changes to technical data and product features at any time, without notice. The images shown are for illustrative purposes only.



MADE IN ITALY

DESIGNED
AND MADE
IN BERGAMO



archiproducts®

DESIGN AWARDS

—
WINNER 2020

C+R Automations- GmbH
Nürnberger Straße 45
90513 Zirndorf

Tel. +49 (0)911 656587-0
info@crautomation.de
www.crautomation.de