

UV-c scientifically proven to kill 99.9% of viruses and bacterial,
destroying the DNA through germicidal irradiation



"WELCOME" to PUMPMATES AUSTRALASIA

...and our close association with the Blue Diamond Pump team...and their Medical and Scientific Divisions (BlueScience) of the parent company...Charles Austen Pumps - UK.

Together they have developed the "UV DISINFECTION SYSTEM"...using powerful LED UV-c technology...which is scientifically proven to kill 99.9% of viruses...including coronaviruses...and bacteria by destroying their DNA through 'Germicidal Irradiation'...

As you would know...UV irradiation technology has been used successfully for decades taking out the impurities in water to make water safer for drinking around the world...and in fresh foods...UV irradiation has increased shelf life and in killing microorganisms.

So...UV irradiation works...it works so well that we just take it for granted today...

In America they moved to UV irradiation of 'air' years ago in commercial areas...but the UV 'bulb and 'fluorescents' technology...is good...but bulbs only last a year and fluorescents two...so they need constant replacement...and are tricky to install!

Whereas the BlueScience technicians have gone with the longer life 'UV - LEDS'...assuring a much lower power consumption...and so much easier to install as the BlueScience UV DISINFECTION SYSTEM uses a UV-c LED adhesive flexible strip to secure.

PEACE OF MIND - LOWERING STRESS

The 'UV DISINFECTION SYSTEM' will give your business clients and home owners...added 'peace of mind' when you let them know that all you need do to give them this added air cleansing safety...is to simply retrofit the 'system' into their existing A/C unit.

...and it will take you just 15-20 minutes to install...that's how easy it is for you.

So, you achieve an added cash flow ... and your client receives 'peace of mind'...and for businesses there is a sign to show at entry that their business has this 'air cleansing' system inside...so people can enter knowing that the business has gone out of their way to give added 'air disinfection' to protect them...and just lower the stress levels...so it is a 'win - win' all round!



UV AIR DISINFECTION SYSTEM

UV-c scientifically proven to kill 99.9% of viruses and bacteria, destroying their DNA through germicidal irradiation.



UV
LIGHT



KILLS
VIRUSES



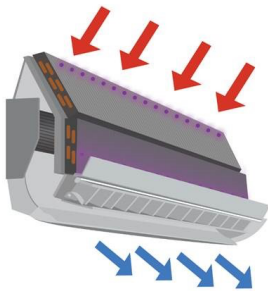
NEUTRALISES
ODOURS

Catch the video on our website
www.pumpmates.com.au



Blue Science utilises the disinfectant properties of UV-c light to convert an air-conditioning unit into a powerful air purifier. Warm and contaminated air is pulled in through the top of the unit, where it is then cooled via the unit's cooling coil. BlueScience immerses the air around the cooling coil in UV-c light, sanitising it during the process. The cool air is then dispensed by the air-conditioning unit free of virus, bacteria, moulds and odours into the room.

Air Flow & UV-c radiation points



This is a representation of the airflow on a Mini Split AC unit, each of the purple dots represents a UV-c LED. At the top of the AC unit, as the warm air gets drawn into the unit it flows past a row of LED's that radiate UV-c – anything in that air flow is subject to UV-c exposure.

The 2 row of LED's closer to the drain pan will help maintain a clean environment in the drain-pan and lower evaporator which is another well-known 'nasty' area - this area can be maintained by adding the Pro-Kit.

The standard Kit compromises of 2 main components. The LED Driver and a 700mm UV-c LED strip, we include 500mm extension cables in the box should the LED Driver need to be mounted remotely in the ceiling void above the AC unit however it's compact size of 165x20x30mm lends itself incredibly well to fitting inside the Mini Split unit. Wiring and placement of the LED Driver can be identical to that of a condensate pump. Below is a picture of the LED Driver so you can gauge how compact it is. We have mounted the LED driver and it fits with ample space beneath the drain pan and fridge pipes.

LED Driver Size

165 x 20 x 30mm



How to Install: Once the LED Driver is installed you can then route the cabling for the LED Strip Light, this is easily done and can be retro-fitted to a pre-installed A/C unit by slightly lifting the Mini Split away from its mounting bracket and feeding the cable in through from the back, if any plastic ducting is fitted then it becomes even easier as you can just feed the cable along the same route as the fridge pipes. All cable connectors have been deliberately over moulded and are robust enough to channel and push through tight gaps without the risk of becoming damaged.

Once the cable is routed you mount the UV-c LED strip. The LED UV-c strip has adhesive tape on the back. By simply peeling this off and sticking the strip onto the inside of the Mini Split casing all that's left to do is push the connectors together and re-mount the Mini Split casing.

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Available at:



PEACE OF MIND

By advising your business clients of this new layer of air safety ... you are giving business owners a very valid way of securing their valued staff and the people coming into a confined space...that this business has taken this extra step to safe-guard their wellbeing in installing this 'UV-c irradiation system' to kill off bacteria and viruses by killing the DNA of these airborne nasties...plus all year round allergies like asthma - hay fever – influenza strains...and even indoor odours!

WHO WILL NEED ...

Well...here are just some business types who will be wanting you to install the 'UV Air Disinfection System'... Many...you would have the names of on your files ... so they already know how good the service is you provide...

Aged Care Homes - Hair Salons - Cafes - Medical Centres - Offices - Bars - Dental Clinics
Restaurants - Gyms - Fast Food Outlets - Liquor stores - Pharmacies - Retail Stores
....the list goes on and on ...plus of course the family home or apartment living clients ...



In the 'UV Air Disinfection System' pack there is a distinctive sign for the business owner to stick onto the entry area so as all will know on entering the confined space...that the business has gone out of its way to assure the clients/customers ... that they are taking all precautions as possible to make people feel a 'peace of mind' that the air is sanitised of bacteria and viruses ...safe clean fresh air on entry....



Please take a look at the 'UV Air Disinfection System' on our website: www.pumpmates.com.au

Install will take between 15 to 20 minutes...it is that simple!
If you would like further information on pricing, please contact us

Please...will you email us: info@pumpmates.com.au

There are two models in the 'UV-c LED Air Sanitising System'

- 1) For A/C Wall Splits up to 10kW ... use the 'Standard' - consists of the 'Driver' (transformer) and an 18 x UV-c LED strip with adhesive backing for ease of install.
- 2) For A/C Wall Splits up to 22kW ... use the 'Pro Kit' with a 30 x UV-c LED Strip ...and plug into the 'Standard' giving you 48 x UV-c LED germicidal irradiation with adhesive backing for ease of install.

CRITICAL IMPORTANCE: 'UV-c LED' irradiation...in installing you must use UV protective eyewear.

RELEASE DATE: Monday, November 02, 2020

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HOW TO INSTALL - IS SO SIMPLE

STEP 1



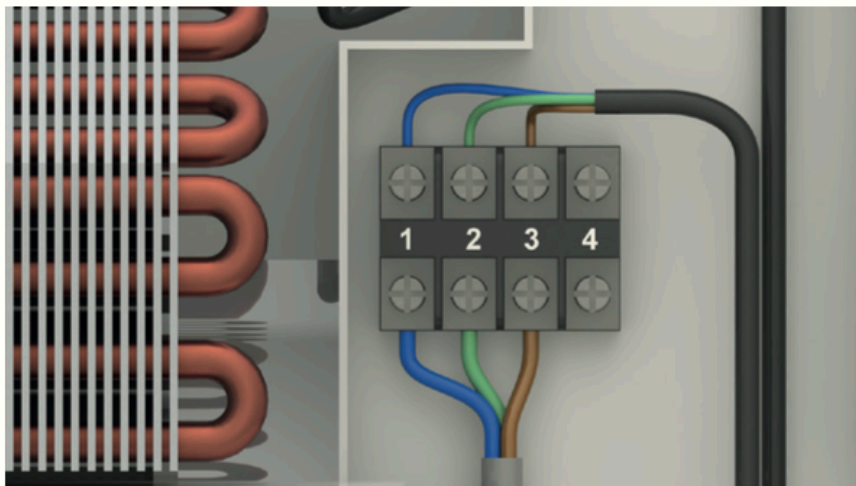
Isolate the power to the AC unit

STEP 2



Remove the Cover

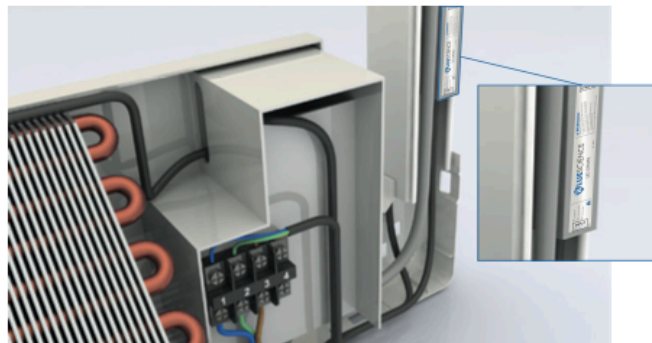
STEP 3



Connect the mains cable from the LED Driver (Input) into to the AC unit live feed so that power is supplied when the AC unit is on, this should be done by a qualified electrician.

STEP 4

Mount the LED Driver where suitable, if it does not fit below the drip tray suggested places are in any plastic ducting that covers the fridge pipes to the AC unit, or in the ceiling void above it.

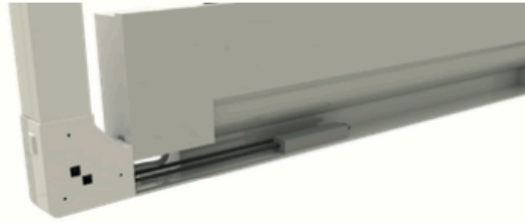


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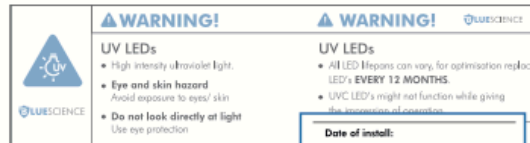
STEP 5

Route the cables from the LED Driver (Output) through the AC unit making sure they are free from any moving parts and will not obstruct the casing being re-fitted. The cable should be routed to sit at the top of the evaporator coil close to the 'air in' side.

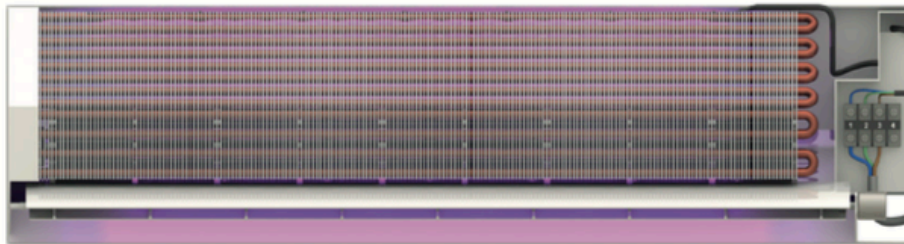


STEP 6

Connect the UV-c LED strip and add date of installation to the tag. Note: it is important for you or any other Engineers to be able to identify the age of the UV-c LED!



STEP 7



Lay the UV-c LED Strip on the top of the evaporating coil, making sure the UV-c LED's are facing in towards the unit. UV-c LED's must not radiate out or point out in the direction of the room.

STEP 8

If required, UV-c LED Strip can be cut to a desired length. Cuts can only be made at the terminal point seen after each UVC LED labelled 'LED 3', peel back the adhesive strip and fix the UV-c LED strip into place.



STEP 9



Refit cover.

STEP 10



Ensuring the filter door is shut, switch power back on and run AC unit. Protective eyewear and skin coverings are required from this point.

STEP 11

Using a UVC Meter at a distance of 300mm check in 6 places for readings. Once a zero reading has been recorded around the unit protective eyewear and clothing can be removed.



STEP 12

Apply BlueScience seal to the unit – to ensure the safety of fellow Engineers.



STEP 13

Apply storefront protector window sticker at the main entrance of the building.



No FAKE NEWS here...it is a well proven technology ... and surely in these uncertain times ... we believe A/C installers will be delighted to have such good news for the business owner and home owner clients...plus it is giving the A/C company an extra cash flow as well!

Finally, we have a 'Validation Statement' by Mr Norman Ammerer, BSc, MBA a world leading authority into what has become the International Ultraviolet Association...his 32 years commencing with UV cleansing of water for safer drinking water around the world - safer fresh foods through UV irradiation of microorganisms - has made him a leading authority as an independent consultant to industry worldwide.



VALIDATION STATEMENT

Article author, Norman Ammerer, BSc, MBA, first started in the UV industry in 1988 and went on to become a disinfection and UV supply chain expert, which enabled him to travel to over 100 countries as a UV technology and clean water process advocate. Norm is one of the original founding members of the International Ultraviolet Association in 1999, presented numerous UV technology workshops at industry conferences over the years, and has over 25 years' experience as an Independent Consultant to organizations around the world.

Using BlueScience Germicidal UV Light in Mini-Split Air-Conditioners Helps Fight the Spread of COVID-19 and Other Airborne Threats

Ultraviolet germicidal inactivation (UVGI) has been combating the airborne transmission and spread of infectious viral diseases for well over 50 years¹. UVGI light is known to be effective for penetrating and disrupting microbial DNA, thus making it unable to reproduce or infect. UVGI popularity has grown because all known microbes are susceptible to germicidal UV-C exposure and none develop an immunity over time.

Published papers confirm UVGI should be effective for arresting SARS-CoV-2 and similar viral diseases, and UV-C LED devices can inactivate airborne viruses and other pathogens in a moving air system design.²⁻³ Finally, Japanese researchers have demonstrated that a UV-C LED device rapidly inactivated SARS-CoV-2 obtained from a COVID-19 patient quarantined in Japan in February 2020, and provided >85% virus reduction after only 1 second UV exposure.⁴ This research is continuing.

With the COVID-19 pandemic still surging in parts of the world, and infectious disease health experts predicting new viral outbreaks in the future, indoor air quality and safety is now of utmost concern everywhere.

BlueScience UV-c Technology has developed a low-cost, energy efficient, UV-C LED based retrofit kit solution for fitting into the compact space within existing mini-split A/C systems installed in homes, schools, businesses, hotels, shops, restaurants and bars that may be subject to airborne viruses, molds, and other microbial threats. Disinfection efficiency is dependent on microbe type, air speed, humidity, particulates, and proper maintenance. Properly installed, each UV-C LED Kit treats and protects the room air, by constant UVGI disinfection, every time it passes through the A/C unit.



VALIDATION STATEMENT

When the A/C operates, the UV-C LEDs disinfect the air each time it's drawn into the A/C , so that the majority of any airborne pathogens will be rendered as non-infectious when the UV treated air blows out and re-enters the room.

Using BlueScience's proven UVGI technology, disinfected indoor air quality becomes safer from airborne disease threats each time it passes through the A/C unit, allowing everyone to work safer, breathe easier, and sleep better every night.

By: Norman Ammerer, BSc, MBA

References

1. Robertson EC, Doyle ME, Tisdall FF (20 March 1943). Use of ultraviolet radiation in reduction of respiratory cross infections in a children's hospital: Final Report. JAMA (1943);121(12):908-914. <https://doi.org/10.1001/jama.1943.02840120010003>
2. SARS-CoV-2 UV Dose-Response Behavior (9 July 2020). White Paper prepared for IUVA, Chevy Chase, Maryland USA. <https://iuva.org/resources/covid-19/SARS%20CoV2%20Dose%20Response%20White%20Paper.pdf>
3. Kim, DK, and Kang, DH (29 June 2018): UVC-LED Irradiation Effectively Inactivates Aerosolized Viruses, Bacteria, and Fungi in a Chamber-Type Air Disinfection System. AEM Accepted Manuscript Posted Online 29 June 2018. Appl. Environ. Microbiol. <https://doi.org/10.1128/AEM.00944-18>
4. Hiroko Inagaki , Akatsuki Saito , Hironobu Sugiyama , Tamaki Okabayashi & Shouichi Fujimoto (2020): Rapid inactivation of SARS-CoV-2 with Deep-UV LED irradiation, Emerging Microbes & Infections. Accepted author version posted online 16 July 2020. <https://www.tandfonline.com/doi/full/10.1080/22221751.2020.1796529>

What's New in August

As the population starts returning after lockdown, the sector offers innovation from UV-C lamps to round cassettes

BlueScience adds virus-killing UV-C to AC

BlueDiamond Pumps has launched BlueScience UV-C LED technology, a product it says has been developed to provide an easy retrofit system for all existing AC equipment to treat and protect the air, by constant disinfection, every time it passes through the unit.

The firm notes that UV-C disinfection "already makes safe the water we drink and the food we eat". The UV-C light works via a process of germicidal irradiation, and, according to BlueDiamond "attacks the DNA/DNR of micro-organisms, killing 99.9 per cent of them and rendering bacteria and viruses harmless and unable to reproduce or spread".

The firm adds that recent research points to similar effectiveness in killing coronaviruses and that large AC manufacturers such as LG and Gree are beginning to incorporate UV-C into their AC units.

The firm notes that much of the UV-C market has been developed for the US ducted ventilation market and is too large for mini-splits, whereas BlueScience is aimed specifically towards both fan coils and mini-splits.

It says: "People are avoiding switching the AC on, going to shops, restaurants and cafes because they don't trust the AC – they're of the opinion the AC hoovers up everyone's airborne particles and spits them back out across the entire environment. Whereas with the correct dose of UV, that would render those particles harmless. BlueScience is a retrofit unit that can convert any new or pre-installed mini split or FCU into a powerful air sanitiser. If something like this can help

to restore confidence in our industry, then it can only be a good thing."

At the top of the AC unit, as the warm air gets drawn into the unit it flows past a row of LEDs that radiate UV-C, so that anything in that air flow is subject to UV-C exposure.

The second row of LEDs closer to the drain pan will help maintain a clean environment in the drain-pan and lower evaporator.

The standard product comprises of two main components: an LED driver and a 700 mm UV-C LED strip, together with 500 mm extension cables for when the LED driver needs to be mounted remotely in the ceiling void above the AC unit. "However, its compact size of 165x20x30 mm lends itself incredibly well to fitting inside the mini split unit," the firm says.

Installation time is approximately 15 minutes and the hardest part is removing the

casing off the mini split unit, says the company's Andy Green: "Once the casing is off, the whole installation can be done in less time and with less fuss and mess than a routine chemical cleaning of a unit."

He says: "We see BlueScience as a product that offers an ongoing treatment to sanitise the air and maintain an ongoing clean and healthier environment within any AC unit. Chemical cleaners are only as effective as the moment the service engineer leaves, after which the debris that's been cleaned away immediately starts to build back up again. It's a messy process mixing up correct cleaning ratios with water and then rinsing the whole unit down afterwards."

Mr Green notes that UV-C is a well-proven sanitation process in hospitals and for water treatment: "With offices and retail environments now having to manage the return of populated areas, BlueScience can offer a

solution that goes far beyond a basic routine maintenance coil and filter clean."

Pastorfrigor provides a new Overview with integral range

Pastorfrigor GB, has introduced the Genova Overview range of integrals. The Essex firm says the range is a quick turnkey solution for supermarkets, convenience stores and food-to-go businesses that want to replace their refrigeration overnight.

"The main benefit of choosing our Genova Overview range is that by using our integrals, it is an overnight change in refrigeration rather than days of work by using a remote option, says managing director Simon Robinson. "This allows sites to open the following day without losing any business time."

The Genova Overview (OV) range is available using R290 and has a maximum charge per system of 150 g, along with the lowest energy in its class, the firm

BlueDiamond Pumps

