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# ULTRAVIOLET LEDS FROM SEOUL VIOSYS

Violeds is a clean technology that can be used for disinfection, deodorization, phototherapy and curing, realized by the collaboration of Seoul Viosys and SETI. violeds uses special LEDs that emit in the ultraviolet spectrum. The collaboration of Seoul Viosys and SETI offers the highest performance, most cost effective UVLEDs covering the entire UV LED spectrum from UVA, UVB and UVC violeds is a patented technology that includes UV LEDs, UV LED fixtures and UV LED systems. violeds is Ultraviolet LEDs for a clean and safe environment.

## Advantages

LED pulls significantly less energy and in most cases can be plugged into standard wall outlet. In addition, the LED is instant on/off; there is no need to keep the lamps running when not in use. Mercury lamps also emit ozone that needs to be removed. It can lead to respiratory problem for those who work near the UV Lamp units, so it's important to make sure the UV lamp units are well vented to evacuate ozone from the work area. The cost of displacing large amount of air contributes to higher energy consumption and higher overhead cost. LED does not emit ozone.

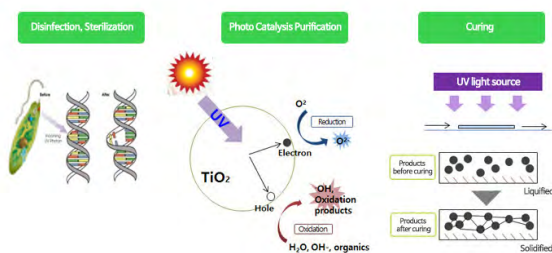
Mercury UV Lamp's usable life is about 2,000 hours. LED have a life in excess of ten years running continuously, with instant on/off and 8 hours of use per day. Small form factor of UV LED is also a strong point. UV LED is much smaller in size than conventional UV lamp, so it gives more flexibilities for designing the UV applications.



Source: alibaba.com

	UV LED	CONVENTIONAL UV LAMP
Technology	New, light, simple, compact	Old, bulky, heavy, complex
Lifetime	10,000 - 50,000 hrs	2,000 - 10,000 hrs
Energy consumption	Low	High
Warm-up time	Zero	Slow
Environmental friendliness	No mercury, no ozone	Contains Mercury, generates ozone
Heat generation	Low	High
Emission wavelength	Single UV band	Multiple peaks
Heavy metals	None	20 - 200mg of Mercury

## Features of Seoul Viosys UV LEDs



Source: seoulviosys.com

Violeds is an optimal technology for sterilization



Source: seoulviosys.com

# Applications

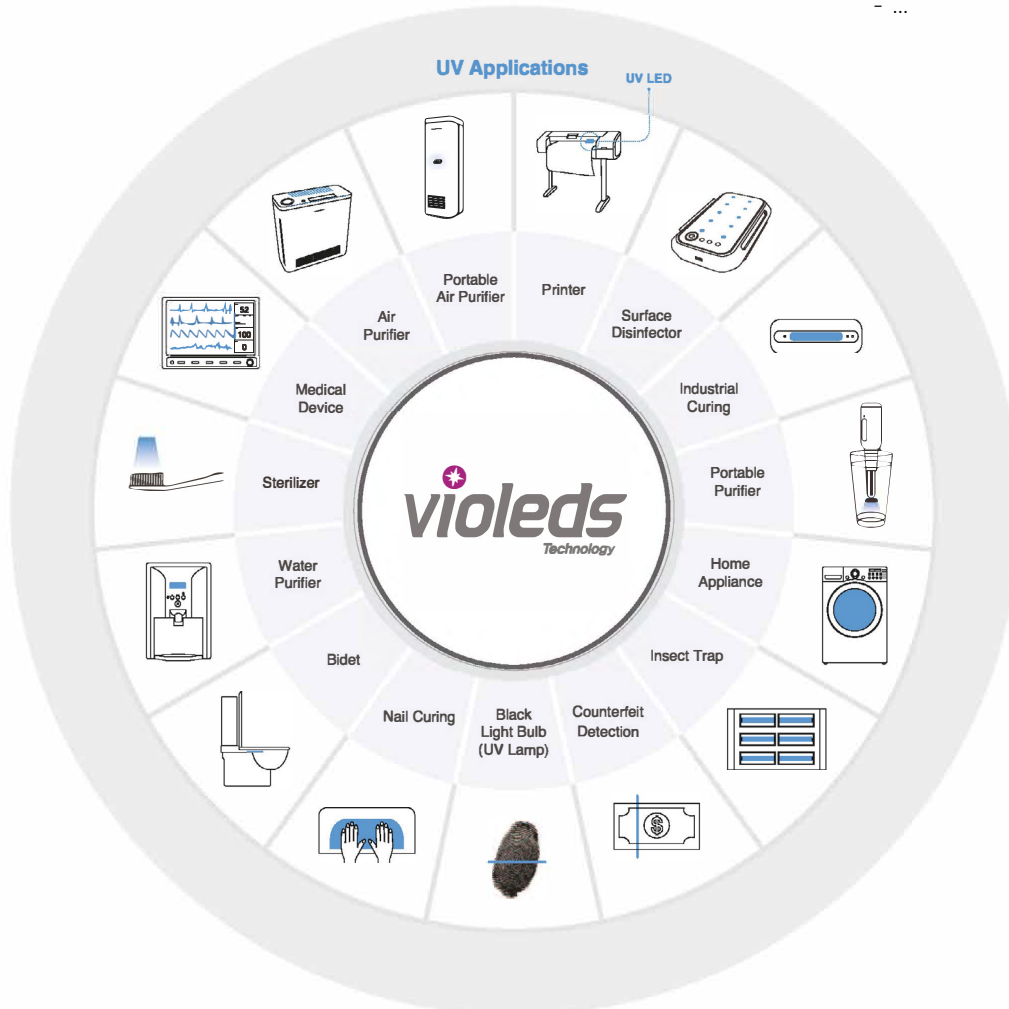
		WAVELENGTH	APPLICATIONS
Near UV	UV-A	315 - 400 nm	Curing of polymers and printer inks, blood gas and nitrogen urea measurements, bug zappers, optical sensing and imaging of dyes, inks, markers, fluorescent spectroscopy, etc.
	UV-B	280 - 315 nm	Phototherapy, Optical Sensing and imaging of dyes, inks and markers, forensic analysis, protein analysis, DNA sequencing, drug discovery, etc.
Deep UV	UV-C	100 - 280 nm	Disinfection, HVAC systems, water purification, degermation, decontamination, forensic analysis, protein analysis DNA sequencing, fluorescent spectroscopy, etc.

## Key Applications

- UV Curing
- Printing
- Coating
- Adhesive
- Counterfeit Detection/ Security
- UV Torch
- Fluorescence Photography
- Dental Curing
- Crime Inspection
- Oil leak Detection

## Key Industries

- Machine construction
- Machine-building
- Air condition, ventilation
- Medical
- Biological, chemical
- Hygiene industry
- Moving staircases
- Robotic
- Water treatment
- Aquaristics, swimming pool, fish tanks
- ...



Source: seoulviosys.com

## Possible Applications

### Sterilization

- 250 - 280 nm: Disinfection, Water / Air purifier
- 265 - 385 nm: Deodorization

### Medical & Scientific

- 265 - 340 nm: Spectroscopy
- 310 - 340 nm: Phototherapy
- 385, 395, 405 nm: Tooth Whitening

### Industrial

- 365 - 395 nm: UV Curing

### Security

- 310 - 395 nm: Money & ID detector
- 365 - 420 nm: Forensic applications: Blood stain identification

### Others

- 340 nm: Blood analysis
- 255 - 365 nm: Fluorescent light source

	LED	FEATURES
Near UV	Z5	 <ul style="list-style-type: none"> <li>- Z5 NUV LED is ideal UV light source for curing, printing and detecting applications</li> <li>- available from 365nm to 420nm</li> </ul>
	NZ5	 <ul style="list-style-type: none"> <li>- Silicone molding type, narrow view angle about 45 deg, high power output</li> <li>- available from 365nm to 420nm</li> </ul>
	CA3535 dome	 <ul style="list-style-type: none"> <li>- high thermal conductivity ceramic body UV PKG</li> <li>- UV transmission dome lens type, view angle about 60 deg, super high power</li> <li>- available from 365nm to 405nm</li> </ul>
	CA3535 flat	 <ul style="list-style-type: none"> <li>- high thermal conductivity ceramic body UV PKG</li> <li>- UV transmission flat lens type, view angle about 115 deg, super high power output.</li> <li>- available from 365nm to 405nm</li> </ul>
	CA6868	 <ul style="list-style-type: none"> <li>- high thermal conductivity ceramic body UV PKG, UV transmission Flat lens type</li> <li>- view angle about 115 deg, super high power output</li> <li>- available from 365nm to 405nm</li> </ul>
	3528	 <ul style="list-style-type: none"> <li>- designed for low current operation applications, incorporates state of the art design</li> <li>- 3528 is ideal UV light source for curing, Photocatalyst and detecting applications</li> <li>- available in 365nm and 400nm</li> </ul>
Deep UV	CA3535	 <ul style="list-style-type: none"> <li>- high thermal conductivity ceramic body UV PKG</li> <li>- UV transmission Flat lens type, view angle about 115 deg, super high power output</li> <li>- available in 275nm and 310nm</li> </ul>
	AAP 1 chip	 <ul style="list-style-type: none"> <li>- high thermal conductivity by Al body, view angle about 135 deg,</li> <li>- super high power output, Low thermal resistance</li> <li>- available in 275nm</li> </ul>
	AAP 1 chip	 <ul style="list-style-type: none"> <li>- high thermal conductivity by Al body, view angle about 135 deg,</li> <li>- super high power output, Low thermal resistance</li> <li>- available in 275nm</li> </ul>
	3030	 <ul style="list-style-type: none"> <li>- compacy package design, ideal for chemical and biological analysis, microscopy</li> <li>- view angle about 125°</li> <li>- peak emission 270nm – 280nm</li> </ul>

# WHY SEOUL VIOSYS UV LED?

The widest range of UV LED from 255nm to 405nm

World Top Chip, Package, Module technology

Patent portfolio

Mass production

Strategic partnership with LED Company (SETi, USA)

**Seoul Viosys is the only LED manufacturer which has capacity of development and production of UV products with every wavelength (225nm~405nm).**

# OFFICES

## AUSTRIA

Vienna  
Phone: +43 186 642 300  
Fax: +43 186 642 350  
wien@avnet.eu

## BELGIUM

Merelbeke  
Phone: +32 9 210 24 70  
Fax: +32 9 210 24 87  
gent@avnet.eu

## BULGARIA

Sofia  
sofia@avnet.eu

## CZECH REPUBLIC (SLOVAKIA)

Prague  
Phone: +420 234 091 031  
Fax: +420 234 091 030  
praha@avnet.eu

## DENMARK

Herlev  
Phone: +45 432 280 10  
Fax: +45 432 280 11  
herlev@avnet.eu

## ESTONIA

(LATVIA, LITHUANIA)  
Pärnu  
Phone: +372 56 637737  
paernu@avnet.eu

## FINLAND

Espoo  
Phone: +358 207 499 200  
Fax: +358 207 499 280  
helsinki@avnet.eu

## FRANCE (TUNISIA)

Rennes  
Phone: +33 299 838 485  
Fax: +33 299 838 083  
rennes@avnet.eu

## Illkirch

Phone: +33 390 402 020  
Fax: +33 164 479 099  
strasbourg@avnet.eu

## Massy Cedex

Phone: +33 164 472 929  
Fax: +33 164 470 084  
paris@avnet.eu

## Toulouse

Phone: +33 05 62 47 47  
toulouse@avnet.eu

## Vénissieux Cedex

Phone: +33 478 771 360  
Fax: +33 478 771 399  
lyon@avnet.eu

## GERMANY

Berlin  
Phone: +49 30 214 882 0  
Fax: +49 30 214 882 33  
berlin@avnet.eu

## Freiburg

Phone: +49 761 881 941 0  
Fax: +49 761 881 944 0  
freiburg@avnet.eu

## Hamburg

Phone: +49 40 608 235 922  
Fax: +49 40 608 235 920  
hamburg@avnet.eu

## Holzwickede

Phone: +49 2301 919 0  
Fax: +49 2301 919 222  
holzwickede@avnet.eu

## Lehrte

Phone: +49 5132 5099 0  
hannover@avnet.eu

## Leinfelden-Echterdingen

Phone: +49 711 782 600 1  
Fax: +49 711 782 602 00  
stuttgart@avnet.eu

## Leipzig

Phone: +49 34204 7056 00  
Fax: +49 34204 7056 11  
leipzig@avnet.eu

## Nürnberg

Phone: +49 911 24425 80  
Fax: +49 911 24425 85  
nuernberg@avnet.eu

## Poing

Phone: +49 8121 777 02  
Fax: +49 8121 777 531  
muenchen@avnet.eu

## Wiesbaden

Phone: +49 612 258 710  
Fax: +49 612 258 713 33  
wiesbaden@avnet.eu

## HUNGARY

Budapest  
Phone: +36 1 43 67215  
Fax: +36 1 43 67213  
budapest@avnet.eu

## ITALY

Cusano Milanino  
Phone: +39 02 660 921  
Fax: +39 02 660 923 33  
milano@avnet.eu

## Firenze

Phone: +39 055 428 2301  
Fax: +39 055 431 035  
firenze@avnet.eu

## Modena

Phone: +39 059 348 933  
Fax: +39 059 344 993  
modena@avnet.eu

## Padova

Phone: +39 049 807 368 9  
Fax: +39 049 773 464  
padova@avnet.eu

## Rivoli

Phone: +39 011 204 437  
Fax: +39 011 242 869 9  
torino@avnet.eu

## Roma Tecnocittà

Phone: +39 06 412 319 10  
Fax: +39 06 413 116 1  
roma@avnet.eu

## NETHERLANDS

Breda  
Phone: +31 765 722 700  
Fax: +31 765 722 707  
breda@avnet.eu

## NORWAY

Asker  
Phone: +47 667 736 00  
Fax: +47 667 736 77  
asker@avnet.eu

## POLAND

Gdansk  
Phone: +48 58 307 81 51  
Fax: +48 58 307 81 50  
gdansk@avnet.eu

## Katowice

Phone: +48 32 259 50 10  
Fax: +48 32 259 50 11  
katowice@avnet.eu

## Warszawa

Phone: +48 222 565 760  
Fax: +48 222 565 766  
warszawa@avnet.eu

## PORTUGAL

Vila Nova de Gaia  
Phone: +35 1 223 779 502  
Fax: +35 1 223 779 503  
porto@avnet.eu

## ROMANIA (BULGARIA)

Bucharest  
Phone: +40 21 528 16 32  
Fax: +40 21 529 68 30  
bucuresti@avnet.eu

## RUSSIA (BELARUS, UKRAINE)

Moscow  
Phone: +7 495 737 36 70  
Fax: +7 495 737 36 71  
moscow@avnet.eu

## Saint Petersburg

Phone: +7 812 245 1571  
stpetersburg@avnet.eu

## SLOVAKIA

Bratislava  
Phone: +421 232 242 211  
Fax: +421 232 242 210  
bratislava@avnet.eu

## SLOVENIA

(BOSNIA AND HERZEGOVINA,  
CROATIA, MACEDONIA, MONTENEGRO,  
SERBIA)

Ljubljana  
Phone: +386 156 097 50  
Fax: +386 156 098 78  
ljubljana@avnet.eu

## SPAIN

Barcelona  
Phone: +34 933 278 530  
Fax: +34 934 250 544  
barcelona@avnet.eu

## Galdàcano. Vizcaya

Phone: +34 944 572 777  
Fax: +34 944 568 855  
bilbao@avnet.eu

## Las Matas

Phone: +34 913 727 100  
Fax: +34 916 369 788  
madrid@avnet.eu

## SWEDEN

Sundbyberg  
Phone: +46 8 587 461 00  
Fax: +46 8 587 461 01  
stockholm@avnet.eu

## SWITZERLAND

Rothrist  
Phone: +41 62 919 555 5  
Fax: +41 62 919 550 0  
rothrist@avnet.eu

## TURKEY (GREECE, EGYPT)

Kadikoy Istanbul  
Phone: +90 216 528 834 0  
Fax: +90 216 528 834 4  
istanbul@avnet.eu

## UNITED KINGDOM (IRELAND)

Berkshire  
Phone: +44 1628 512 900  
Fax: +44 1628 512 999  
maidenhead@avnet.eu

## Bolton

Phone: +44 1204 547 170  
Fax: +44 1204 547 171  
bolton@avnet.eu

## Bucks. Aylesbury

Phone: +44 1296 678 920  
Fax: +44 1296 678 939  
aylesbury@avnet.eu

## Stevenage, Herts, Meadway

Phone: +44 1438 788 310  
Fax: +44 1438 788 250  
stevenage@avnet.eu

## ISRAEL

Tel-Mond  
Phone: +972 (0)9 7780280  
Fax: +972 (0)3 760 1115  
avnet.israel@avnet.com

## SOUTH AFRICA

Cape Town  
Phone: +27 (0)21 689 4141  
Fax: +27 (0)21 686 4709  
sales@avnet.co.za

## Durban

Phone: +27 (0)31 266 8104  
sales@avnet.co.za

## Johannesburg

Phone: +27 (0)11 319 8600  
Fax: +27 (0)11 319 8650  
sales@avnet.co.za