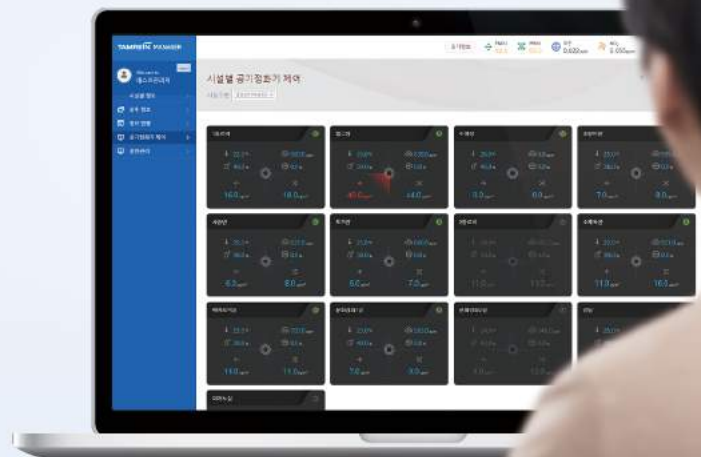


# TAMREIN

AIR PURIFICATION-STERILIZER for multi-use facilities  
Integrated Indoor Air Quality Management System



K-Innovation product, Excellent Performance Certification, Trial purchase of R&D products,  
Green Technology, Outstanding invention Certification by KOREA government

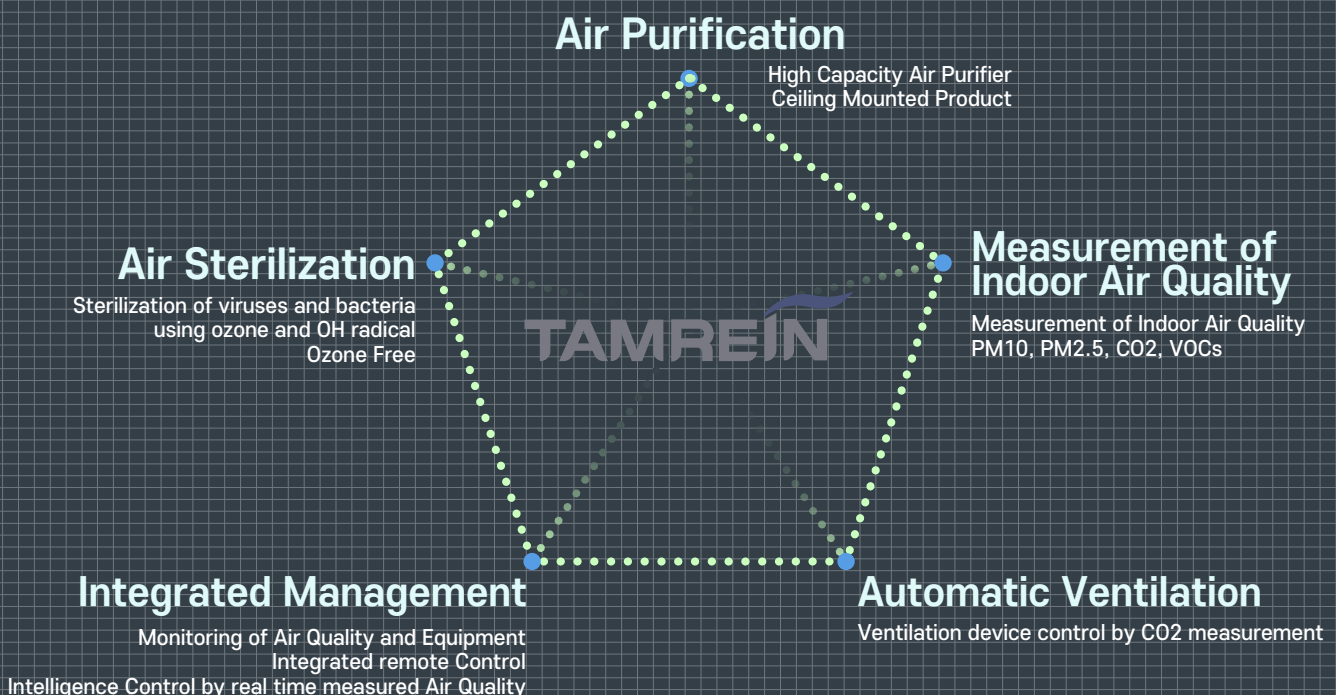
“Just removing fine dust does not improve indoor air.”  
**Airborne virus sterilization** and  
**removal of hazardous gases** are required.



- H1N1(Novel swine origin influenza A) removal rate **99.99%**
- Formaldehyde, Toluene (Class 1 carcinogen) removal rate **99.5%**
- 0.3µm particle removal rate **99.9%**
- Klebsiella Pneumoniae , E.coli, MRSA, Pseudomonas Aeruginosa removal rate **99.9%**
- Airborne Virus, Bacteria removal rate **96%**

Accredited testing agency **KCL** 한국건설생활환경시험연구원 Korea Conformity Laboratories **ktl** 한국산업기술시험원 Korea Testing Laboratory **test results**

## Comprehensive Solution for Indoor Air Quality Management



# Air Purification Sterilizer (Ceiling mounted type)

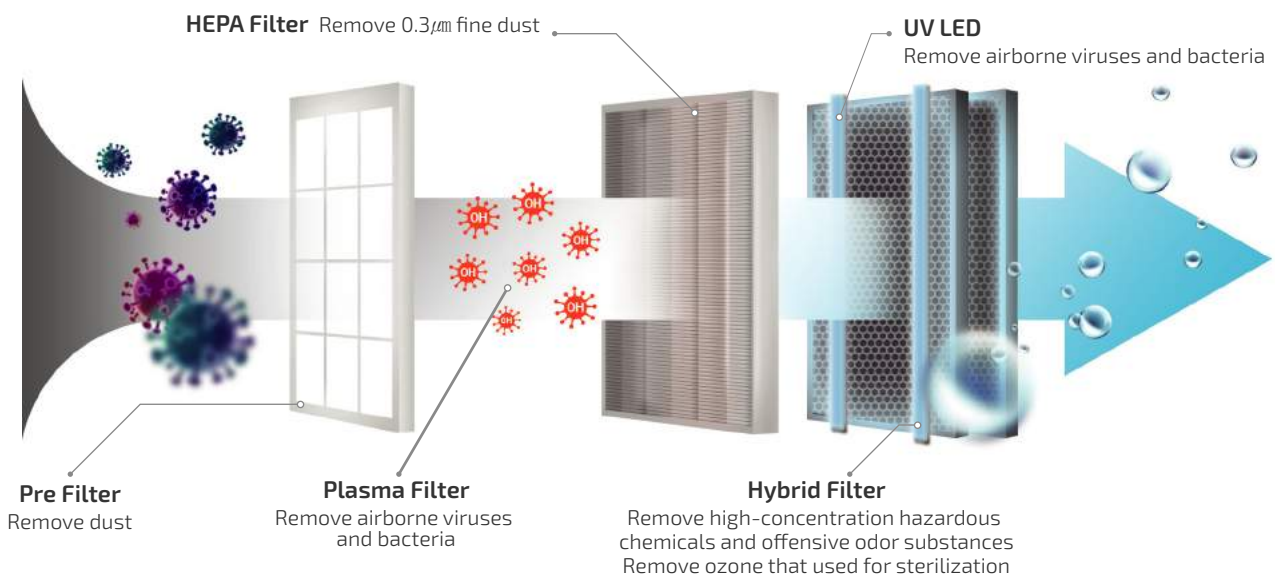


## Specification

<b>Dimension</b>	950 x 950 x 500(H) mm		<b>Air Volume</b>	approximately 1,000CMH	
<b>Filter System</b>	<b>Particle Filter</b>	Pre Filter - Remove dust	<b>Control</b>	<b>Manual Mode</b>	4 Step Speed Control
		HEPA Filter - Remove fine dust, H13		<b>Auto Mode</b>	Automatic operation by real-time measured indoor air pollution levels
	<b>Hybrid Filter</b>	Remove high-concentration hazardous chemicals & offensive odor substances		<b>Sterilization Mode</b>	Plasma sterilization
	<b>Plasma Filter</b>	Remove airborne viruses and bacteria	<b>Power</b>	220V-50/60Hz, Max. 230W	

## Indoor Air Quality Monitor

- ▶ Real-time indoor pollution level measurement (PM10, PM2.5, CO2, VOC, Temp/Humid)
- ▶ Display remaining filter life
- ▶ Mode (Auto, Manual, Sterilization)
- ▶ Operation status display
- ▶ Interlinked with Integrated indoor air quality management system

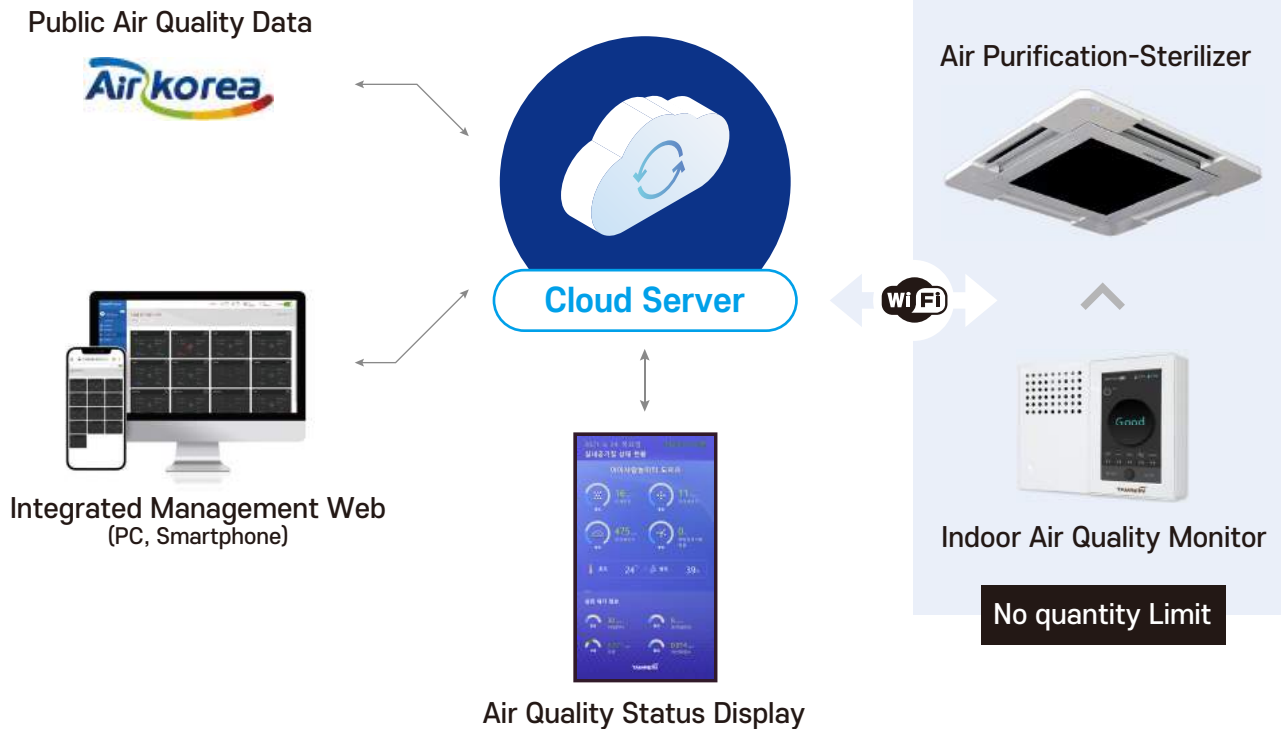


**Filter size is proportional to filter life and purification efficiency.**

**HEPA Filter(H-13)** 610x610x100(t)mm

**GAS Filter(Hybrid)** 610x550x40(t)mm

# Integrated Indoor Air Quality Management System



Integrated operation of multiple equipment by one manager

check indoor air quality anytime, anywhere and manage comprehensively

No need to build additional communication facilities because using Wi-Fi Manager can access the integrated management system anytime, anywhere with Web access.

Spread of mass infection in multi-use facilities  
It's solved with plasma ozone.



广微测  
Gmicro Testing

Novel swine origin influenza A (H1N1) removal Test

TEST STRAIN :: H1N1 (A/PR/8/34) ; MDCK cell culture

TEST CHAMBER :: 30 m<sup>3</sup>



## A Study on the Ozone Removal of the Covid 19 Virus

- ▶ Collaborative research at Tel Aviv Univ., Baylan Univ. and Azrieli Univ. in Israel.
- ▶ Covid 19 sterilization proposals for hospitals, school hotels, aircraft, halls, etc.
- ▶ Ozone is the strongest oxidant.(the sterilization power of ozone is 3,000 times that of chlorine)
- ▶ Presentation in the Journal of Environmental Chemistry Letters, 2021. 2.
- ▶ Ozone effectively eliminates Covid 19 with short contact times and low concentrations.

# TAMREIN Installation Case



Civil Office



Office



Lecture Room



Classroom



Kindergarten



Indoor Playground



Assembly Hall



Gymnasium



Restaurant



Lobby



Exhibition Hall



Cafe



Hospital



Operating Room



Bus Station

**TAMREIN is used in numerous multi-use facilities** such as public institutions, offices, medical facilities, schools, gyms and commercial facilities.

## Hybrid Filter Performance

Test Gas		Removal Rate
VOCs	Acetaldehyde, Formaldehyde, Acetic acid, Benzene, Toluene, Ethylbenzene	100%
Offensive Odor	Ammonia, Hydrogen sulfide, Methyl mercaptan	100%
Air Pollution	Nitrogen dioxide, Sulfur dioxide	100%

## Air Purification Performance

	KOREA CA Standard	TAMREIN
Dust Collecting Rate(0.3µm)	More than 80 %	99.9 %
Avg. Noxious Gas Removal Rate	More than 70 %	More than 90.0 %
Formaldehyde Removal Rate	More than 70 %	More than 99.5 %
Toluene Removal Rate	More than 70 %	More than 99.5 %
Ozone Emission Concentration	Less than 0.03 ppm	0.005 ppm
Maximum Noise	Less then 55 dB	50.3 dB
Usage Area	-	103.2 m <sup>3</sup>

## Air Sterilization Performance

Airborne Bacteria			Airborne Virus			Airborne Bacteria					
Strain	Staphylococcus epidermidis	E.coli phage Phi X174	Strain	Klebsiella Pneumoniae	E-Coil	MRSA	Pseudomonas Aeruginosa				
Initial Conc.	1×10 <sup>5</sup> CFU/m <sup>3</sup>	1×10 <sup>9</sup> PFU/m <sup>3</sup>	Initial Conc.	1.3×10 <sup>4</sup> CFU/m <sup>3</sup>	1.0×10 <sup>4</sup> CFU/m <sup>3</sup>	1.1×10 <sup>4</sup> CFU/m <sup>3</sup>	1.3×10 <sup>4</sup> CFU/m <sup>3</sup>				
Operating time	Max. fan speed 60min.	Max. fan speed 30min.	Operating time	60min.							
Reference value	More than 80%	More than 60%	Reduction Rate	99.9%							
Reduction Rate	97.8%	96.9%									

- ▶ Air Sterilization Standard (KOUVA AS 01:2015) Airborne Virus and Bacteria Removal Test
- ▶ Test Chamber : 60m<sup>3</sup>

- ▶ Bacteria Removal Test
- ▶ Test Chamber : 8m<sup>3</sup>

## Certification & Patent



Certification

Patent

