

DIT EMI/EMC Solutions

DONG IL TECHNOLOGY LTD.



Nov, 2024 (ver 1.0)



DIT is

We have cooperated with our customers using all of our technical capabilities to find a solution suitable for them.

Profile

Overview

• Year Founded	1986
• Headquarters	Hwaseong, South Korea
• CEO	Mr. Dong-Joon Sohn (Founder/Co-CEO) Mr. Soo-Yeol Jeong (Co-CEO)
• Stock Information	Listed on KOSDAQ (032960KQ)
• No. Employees	130
• Intellectual Property	No. of Registered IPs: 44
• Quality Management	IATF16949, ISO9001/13485
• Subsidiary	ACH Medical, Dong Il Vision, Saehan Ozone, CREPAS Technologies
• Website	https://dongiltech.co.kr

Business Area

1 EMI/EMC Solution



2 Environmental Solution



3 Industrial Solution



4 Ceramic Solution



5 Medical Solution

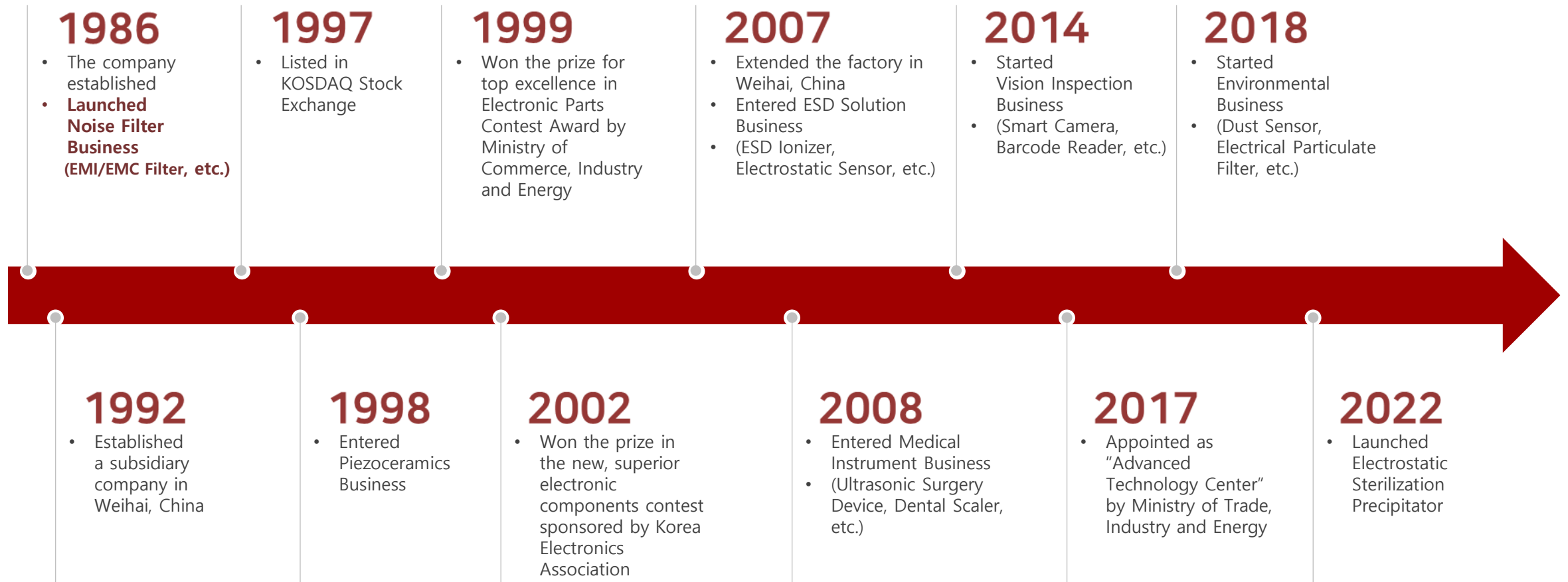


Locations



Milestone

DIT – Business History



Our Goal

EMI/EMC Solutions

for Home Appliance & Industrial

Single Phase
Filter
(IEC Connector)

3-Phase
Filter

Choke Coil

Inlet/Outlet



Application

Single Phase Filter (with Inlet Filter)

A product that removes electromagnetic generated from various products (~250VAC)



Inlet filter

2-Phase Filter

3-Phase Filter

A product that removes electromagnetic generated from various products (~500V)



3-Phase Filter

3-Phase Filter (Four-Wire System)



Home Appliance

Inlet/Outlet

Connector terminal component for SMPS and applied to the home appliance



Inlet Socket

Outlet Socket

Choke Coil

Blocking or limiting the passage of high-frequency current and alternating current



Common Mode

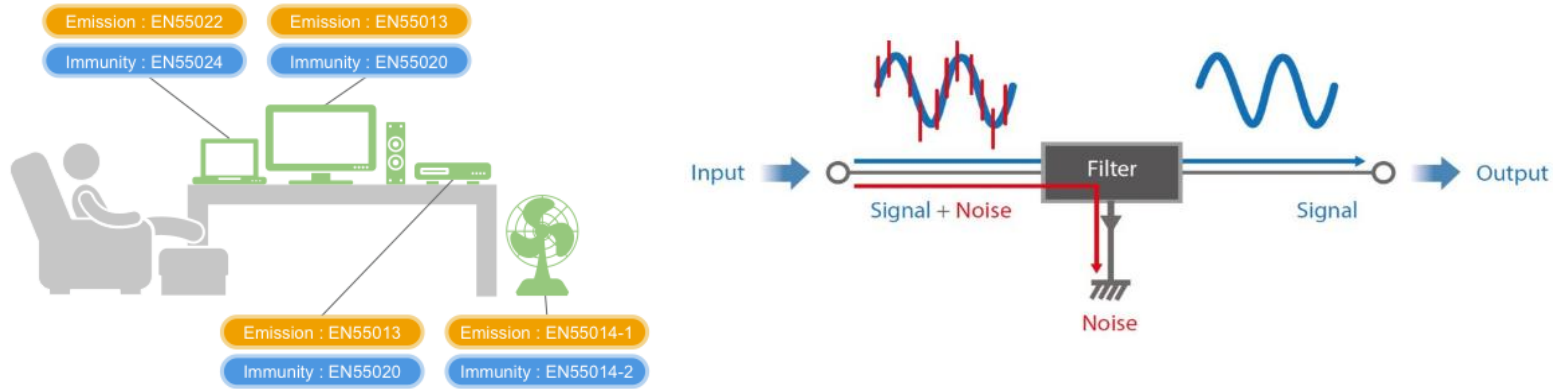
Differential Mode



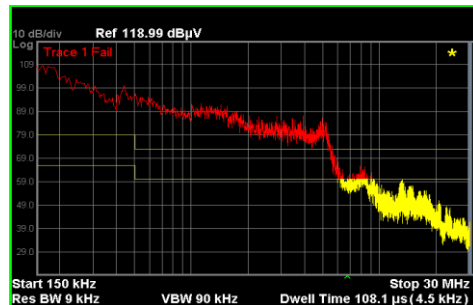
Industrial Automation

Principle

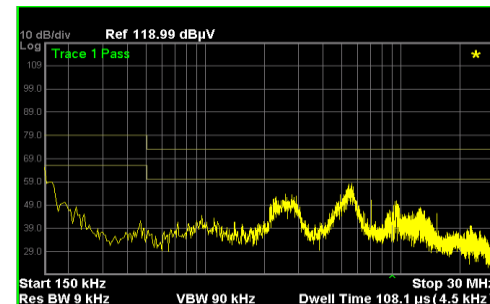
EMI/EMC filter is an electronic component installed at the power input of electronic devices, which removes unnecessary electromagnetic waves generated inside the device, preventing malfunction and damage of other devices.



The application of an EMI/EMC filter ensures compliance with Quasi Peak Limit and Average Peak Limit regulations as specified in electromagnetic compatibility standards both domestically and internationally(FCC, CISPR, KN, etc.).



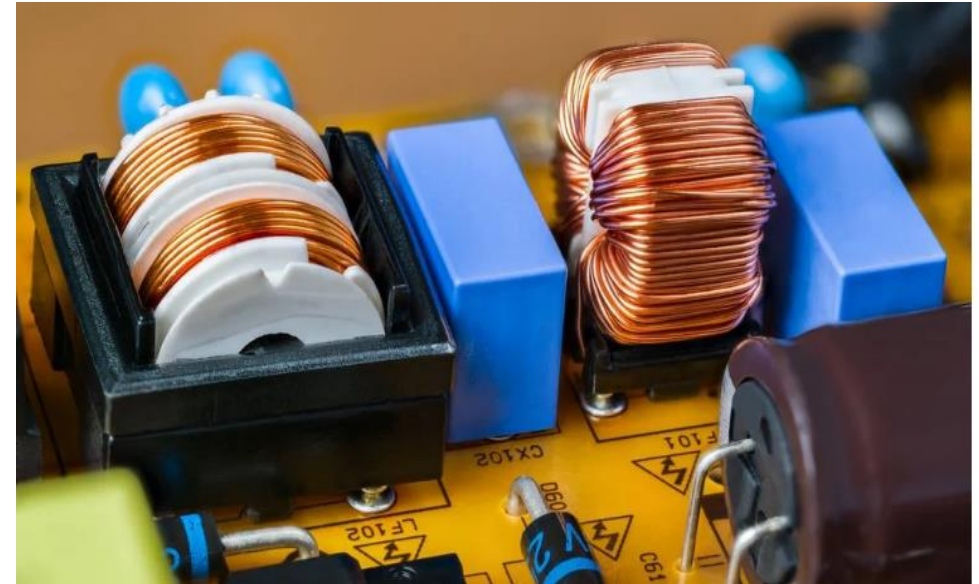
EMC Filter (Before)



EMC Filter (After)







01

Single Phase Filter (IEC Connector)



Product

DIT AC Inlet Filter products are used in a variety of industries.



Item	Inlet					
Product P/N	IS Series	IQ Series	IP Series	IR3 Series	IR2 Series	IR Series
Image						
Rated Voltage	~250V AC 50/60Hz	~250V AC 50/60Hz	~250V AC 50/60Hz	~250V AC 50/60Hz	~250V AC 50/60Hz	~250V AC 50/60Hz
Rated Current	2A, 4A, 6A	2A, 4A, 6A	2A, 4A, 6A	3A, 6A, 10A	2A, 4A, 6A	2A, 4A, 6A
Approvals	KC, UL, CSA, SE MKO+ENEC	KC, UL, CSA, TUV	KC, UL, CSA, TUV	KC, UL, CSA, VDE+ENEC	KC, cULus, VDE+ENEC	KC, UL, CSA, TUV
Cover	Metal	Metal	Metal	Metal	Metal	Metal
Mounting Method	Screw	Snap-in with Lock Spring	Screw	Screw	Screw	Screw
Output Method	Faston Tab #250	Faston Tab #250	Faston Tab #250	Faston Tab #250	Faston Tab #250	Faston Tab #250

Product

DIT AC Inlet Filter products are used in a variety of industries.





Item	Inlet					
Product P/N	IJ1 Series	IX Series	ID Series	IH Series	IF Series	IK Series
Image						
Rated Voltage	~250V AC 50/60Hz	~250V AC 50/60Hz	~250V AC 50/60Hz	~250V AC 50/60Hz	~250V AC 50/60Hz	~250V AC 50/60Hz
Rated Current	3A, 6A, 8A, 10A, 15A	1A, 2A, 3A, 6A	1A, 2A, 3A, 6A, 8A, 10A, 15A	1A, 2A, 3A, 6A, 8A, 10A, 15A	1A, 2A, 3A, 6A, 10A	1A, 2A, 3A, 6A, 10A
Approvals	KC, VDE+ENEC, CQC, UL, CSA (15A: UL only)	KC, UL, CSA, VDE+ENEC, TUV, CQC	KC, UL, CSA, VDE+ENEC, TUV, CQC(15A: UL, CSA only)	KC, UL, CSA, VDE+ENEC, TUV, CQC(15A: UL, CSA only)	KC, UL, CSA, VDE+ENEC, TUV, CQC (10A: except for UL, CSA)	KC, UL, CSA, VDE+ENEC, TUV, CQC (10A: except for UL, CSA)
Cover	Metal	Metal	Metal	Metal	Metal	Metal
Mounting Method	Screw	Screw, PCB	Screw, PCB	Snap-in with Lock Spring	Screw	Snap-in with Lock Spring
Output Method	Snap-in with Lock Spring	Faston Tab #250, PCB Pin, Soldering Lug	Faston Tab #250, Soldering Lug, PCB Pin	Faston Tab #250, Soldering Lug	PVC insulated Wire UL 1617 AWG #22	PVC insulated Wire UL 1617 AWG #22

DIT AC Inlet Filter products are used in a variety of industries.

Item	Inlet			
Product P/N	IM Series	IG Series	IE3 Series	IE1 Series
Image				
Rated Voltage	~250V AC 50/60Hz	~250V AC 50/60Hz	~250V AC 50/60Hz	~250V AC 50/60Hz
Rated Current	1A, 2A, 3A, 6A	1A, 2A, 3A, 6A, 8A, 10A	3A	3A, 6A, 10A
Approvals	KC, UL, CSA, VD E+ENEC, TUV, CQC	KC, UL, CSA, VD E+ENEC, TUV, CQC	KC	KC, CSA, UL
Cover	Plastic	Metal	Metal	Metal
Mounting Method	PCB	Screw, PCB	Screw	Screw
Output Method	PCB Pin	Faston Tab #250, PCB Pin, Soldering Lug	Faston Tab #250	Faston Tab #250

Product

DIT Single Phase Filter products are used in a variety of industries.

Item	Single Phase Filter					
Product P/N	HP1 Series	HP4 Series	PC Series	CL Series	CN Series	CA5 Series
Image						
Rated Voltage	~250V AC 50/60Hz	~100V DC	~250V AC 50/60Hz	~250V AC 50/60Hz	~250V AC 50/60Hz	~250V AC 50/60Hz
Rated Current	1A, 1.6A, 2.5A, 3.6A	2A, 5A, 3A, 6A, 10A	5A, 8A, 10A, 15A	1A, 1.6A, 3A, 4.5A, 6A	1A, 2A, 3A, 6A	1.5A, 3A, 5A
Approvals	KC, UL, CSA, TUV	CE	KC, UL, CSA, TUV	KC, UL, CSA, TUV	KC, UL, CSA, TUV	KC, UL, CSA, TUV
Cover	Plastic	Plastic	Aluminum Cylinder	Metal	Plastic	Metal
Mounting Method	PCB	SMD Type	Panel with M8-Hex.Nut	Screw	Screw	Screw
Output Method	PCB Pin	SMD Terminal	Faston Tab #250	Faston Tab #110	Faston Tab #110, #250	PVC insulated Wire UL 1015 AWG #20

DIT Single Phase Filter products are used in a variety of industries.

Item	Single Phase Filter					
Product P/N	DS1 Series	ES1 Series	TBB Series	TBA Series	TB1 Series	TB1 Series (Metal case)
Image						
Rated Voltage	~250V AC 50/60Hz	~250V AC 50/60Hz	~250V AC 50/60Hz	250, 300VAC AC 50/60Hz	~250V AC 50/60Hz	~250V, 300V AC 50/60Hz
Rated Current	3A, 5A, 8A, 10A	5A, 8A, 10A, 15A, 20A, 30A	6A, 10A, 16A, 20A	6A, 10A, 16A, 20A, 30A, 40A	6A, 10A, 16A, 20A, 30A, 40A	40A, 50A, 60A, 80A
Approvals	KC, UL, CSA, TUV	KC, UL, CSA, TUV, CQC	6A, 10A, 16A, 20A	KC, cCSAus, SE MKO+ENEC, CE, CQC	KC, cCSAus, SE MKO+ENEC, CE, cULus	KC, SEMKO+EN EC, CE, cCSAus
Cover	Metal	Metal	Plastic	Plastic	Plastic	Metal
Mounting Method	Screw	Screw	Screw, Din Rail	Screw, Din Rail	Screw	Screw
Output Method	Faston Tab #250, M4 stud	Faston Tab #250, M4 stud, M5 stud	Terminal Block	Terminal Block	Terminal Block	Terminal Block

02

3-Phase Filter



DIT 3-Phase Filter products are used in a variety of industries.

Item	3-Phase Filter				
Product P/N	TB3 Series	TB4 Series	TB6-B Series	TB6-2,4 Series	TB6-2,5 G/H Series
Image					
Rated Voltage	~500V AC 50/60Hz(3 Line)	289/500V AC 50/60Hz(4 Line)	254/440V, 277/480V AC 50/60Hz(3 Line)	~440V AC 50/60Hz(3 Line)	289/500V AC 50/60Hz
Rated Current	6A, 10A, 16A, 20A, 30A, 40A	16A, 20A, 30A, 40A, 60A, 80A, 100A, 120A, 150A, 200A, 250A, 400A, 500A, 600A, 700A	6A, 10A, 16A, 20A, 30A, 40A, 60A, 80A, 100A, 150A, 200A, 250A, 300A, 400A	10A, 16A, 20A, 30A, 40A, 60A, 80A, 100A, 150A, 200A, 250A, 300A, 400A, 500A, 600A, 700A	10A, 16A, 20A, 30A, 40A, 60A, 80A, 100A, 150A, 200A
Approvals	CE	SEMKO+ENEC, CE, cCSAus, KC	KC, SEMKO+ENEC CE, cCSAus	SEMKO+ENEC, CE	CE, cULus SEMKO+ENEC, KC
Cover	Plastic	Metal	Metal	Metal	Metal
Mounting Method	Screw, Din Rail	Screw	Screw	Screw	Screw
Output Method	Terminal Block	Terminal Block	Terminal Block, Bus Bar	Terminal Block, Bus Bar	Terminal Block







03

Choke Coil



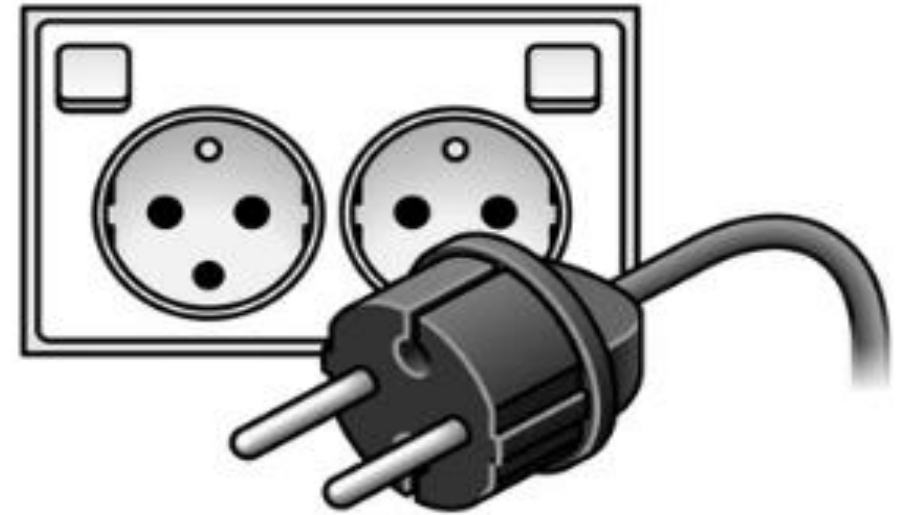
Product

DIT Coil products are used in a variety of industries.

Item	Common Mode					Differential Mode
Product P/N	LC2 Series	LS3/LH3 Series	LSA/LHA Series	LC4/LS4 Series	LC4/LS4 Series	LB/LDB/LE Series
Image						
Rated Current	1.5A, 2.0A	1A~20A	1A~20A	1A~20A	1A~5A	3A, 5.5A, 6A
Inductance	~27mH	~16mH	~16mH	~30mH	~20mH	~120uH
Temperature	- 25°C~ + 105°C	- 25°C~ + 105°C	- 25°C~120°C	- 25°C~120°C	- 25°C~120°C	- 25°C~ + 120°C/ - 40°C~ + 120°C
Cover	Plastic	Plastic	Plastic	Plastic	Plastic	
Mounting Method	PCB	PCB	PCB	PCB	PCB	PCB

04

Inlet/Outlet



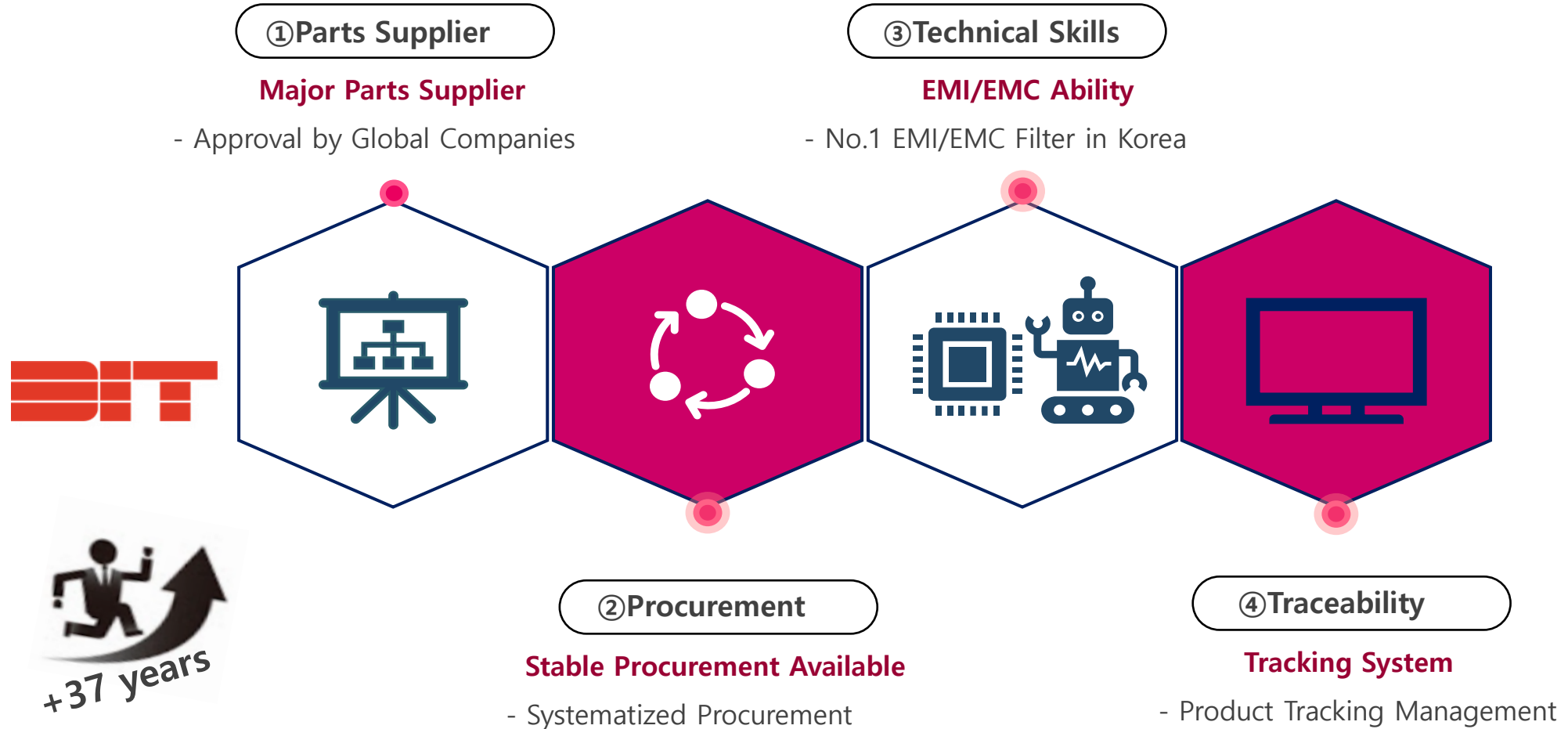
DIT Inlet/Outlet products are used in a variety of industries.

Item	Inlet					
Product P/N	DAC-30	DAC-29	DAC-18C	DAC-18E	DAC-18R5/DACR5A	DAC15
Image						
Rated Voltage	~250V AC 50/60Hz	~250V AC 50/60Hz	~250V, ~125V AC 50/60Hz	~250V, ~125V AC 50/60Hz	~250V AC 50/60Hz	~250V AC 50/60Hz
Rated Current	10A, 15A	10A	2.5A, 7A	2.5A, 7A	2.5A, 7A	16A, 20A
Approvals	cULus, KC, CCC, CE	cULus, KC, CCC, CE	cULus, KC, CCC, CE(2.5A, 250V) cULus(7A, 125V)	cULus, KC, CCC, CE(2.5A, 250V) cULus(7A, 125V)	cULus, KC, CCC, CE(2.5A, 250V) cULus(7A, 125V)	TUV, KC, CCC, CE(16A) cULus(20A)
Mounting Method	Screw	Screw	PCB	PCB	PCB	PCB
Output Method	Faston Tab #187/250, Soldering Lug	Faston Tab #187/250, Soldering Lug	PCB Pin	PCB Pin	PCB Pin	PCB Pin

DIT Inlet/Outlet products are used in a variety of industries

Item	Inlet				Outlet
Product P/N	DAC-14	DAC-13	DAC-12	DAC-11	DAC-18R5/DACR5A
Image					
Rated Voltage	~250V AC 50/60Hz	~250V AC 50/60Hz	~250V AC 50/60Hz	~250V AC 50/60Hz	~250V AC 50/60Hz
Rated Current	10A, 15A	10A	10A, 15A	10A, 15A	10A(KC, SEMKO, CCC, CE) 15A(cULus)
Approvals	TUV, KC, CCC, CE(10A)/cULus	cULus, SEMKO, KC, CE	VDE, KC, CCC, CE(10A)/cULus	KC, VDE, CCC, CE(10A)/cULus	cULus, KC, SEMKO, CCC, CE)
Mounting Method	PCB	Screw	PCB	Screw	Snap-in with Lock Spring
Output Method	PCB Pin	Faston Tab #187/250, Soldering Lug	PCB Pin	Faston Tab #187/250, Soldering Lug	Faston Tab #187

Business based on Manufacturing Experience



Customers



SAMSUNG

SAMSUNG ELECTRONICS
SAMSUNG SDI
SAMSUNG
ELECTRO-MECHANICS



EVSIS



SEMES

SFA



LG Electronics
LG Energy Solution
LG Innotek
LG Chem
LG Display

Credit Report

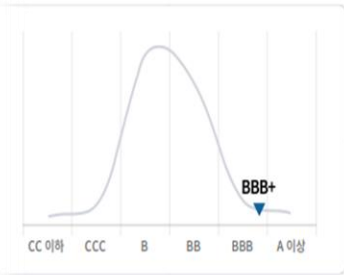
기업정보

기업명	(주)동일기연 (Dongil Technology Co.,Ltd.)		
사업자번호	123-81-15843	법인번호	134111-0012687
대표자	손동준, 정수열	설립일자	1986.03.06
산업분류	(C26299) 그 외 기타 전자부품 제조업		
본사 주소	[18255] 경기도 화성시 남양읍 남양로930번길 28		
결산기준일	2023.12.31	신용등급 유효기간	2024.04.19 ~ 2025.04.18

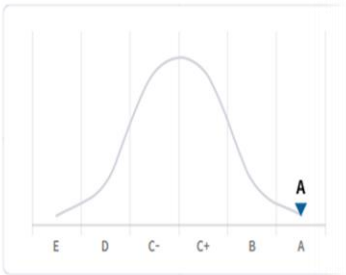
주요 신용정보

DNA 신용등급	현금흐름등급	WATCH 등급
BBB+	A	정상
평가 기준일: 2024.04.19	평가 기준일: 2024.04.19	평가 기준일: 2024.04.14

신용등급 분포



현금흐름등급 분포



결산 기준일	정기 평가		하반기 평가			
	평가일	신용등급	현금흐름등급	평가일	신용등급	현금흐름등급
2023.12.31	2024.04.19	BBB+	A	-	-	-
2022.12.31	2023.07.13	BBB+	A	2023.12.08	BBB+	A
2021.12.31	2022.04.27	A-	A	2022.09.26	A-	A

Second Half of 2023

Certificate



ISO9001

ISO13485



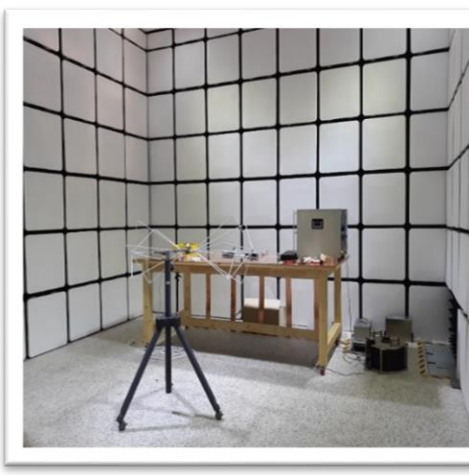
IATF16949

R&D Certificate

EMC Chamber



Chamber External



Chamber Internal

Our Goal

Environmental Solutions

for IAQ monitoring & Improving Air Quality

PM
Sensor

E.P.F

Cu+ care

Ionizer

Application

PM Sensor

Particulate Matter Sensing Module



- HVAC Controller
- Airpurifier
- Airconditioner
- IAQ device

E.P.F

Electrical Particulate Filter



- HVAC system (ERV)
- Airpurifier
- Airconditioner

Ionizer

Cluster Ion Generator Module



- Ventilation Fan
- Airpurifier
- Airconditioner
- Kitchen hood

Cu+Care

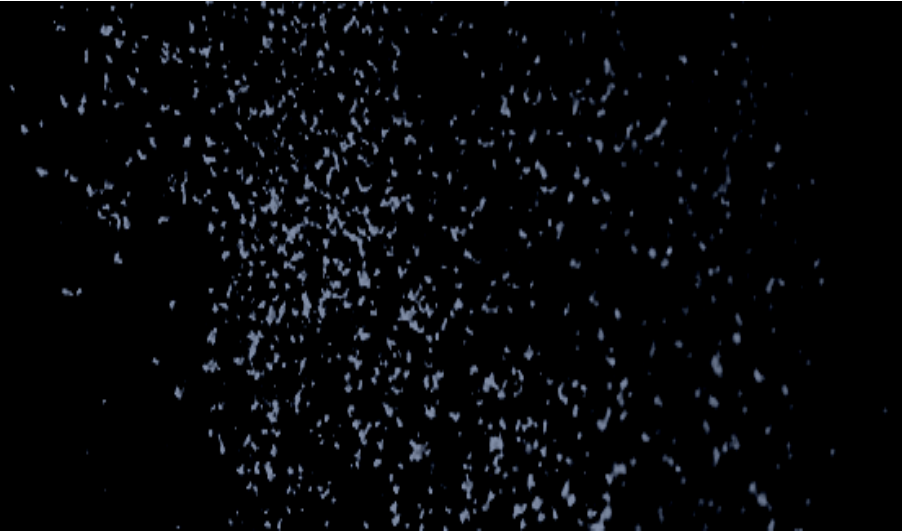
Electrostatic Sterilization Filter



- Sterilizer
- Airpurifier
- Airconditioner
- HVAC system





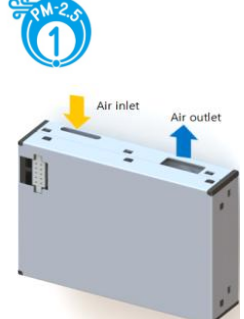

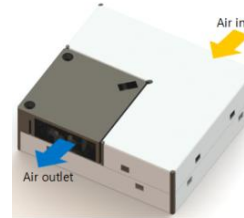
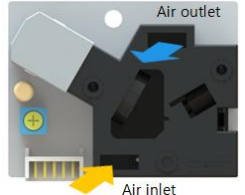
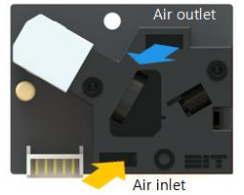
PM Sensor



Accurately & Quietly detects
invisible & vital fine particulate matter in your place

PM Sensor Line-up

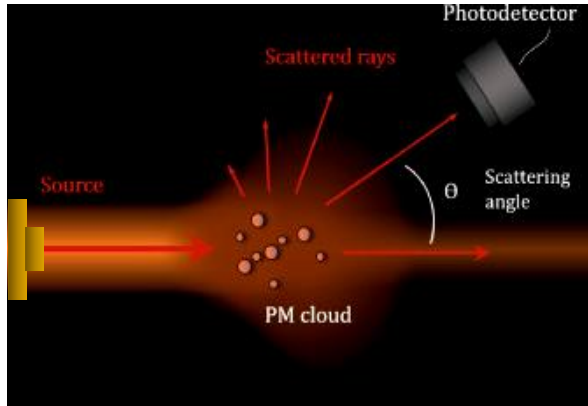
DIT developed from PM sensor Integrated Circuit (designed by Crepas Technologies) to Modules, in-house

Item	LASER PM Sensor					IR LED PM Sensor	
Product P/N	UPD-M010UAL	UPD-M010UBL	UPD-M010UCL	UPD-M010UDL	UPD-M010UEL	UPD-M025WC	UPD-M010WD
Image							
Output Information	PM1/2.5/10 ($\mu\text{g}/\text{m}^3$)	PM1/2.5/10 ($\mu\text{g}/\text{m}^3$)	PM1/2.5/10 ($\mu\text{g}/\text{m}^3$)	PM1/2.5/10 ($\mu\text{g}/\text{m}^3$)	PM1/2.5/10 ($\mu\text{g}/\text{m}^3$)	LPO (Low Pulse Occupancy)	PM1/2.5/10 ($\mu\text{g}/\text{m}^3$)
Communication	UART (M.P) I ² C (25.Q4)	UART (M.P) I ² C (25.Q4)	UART (M.P) I ² C (25.Q4)	UART (M.P) I ² C (25.Q4)	UART (M.P) I ² C (TBD)	PWM (M.P)	UART (M.P)
Dimension	41x36x11.6mm	48x40x12mm	48x37x12mm	48x40x12mm	38x35x12mm	59x45x22mm	59x45x22mm
Pin	8Pins	8Pins	10Pins	10pins	10pins	5Pins	5Pins
Measurement Range	0~1000 $\mu\text{g}/\text{m}^3$	0~1000 $\mu\text{g}/\text{m}^3$	0~1000 $\mu\text{g}/\text{m}^3$	0~1000 $\mu\text{g}/\text{m}^3$	0~1000 $\mu\text{g}/\text{m}^3$	Max 29000pcs/liter	0~500 $\mu\text{g}/\text{m}^3$
Accuracy	$\pm 10\mu\text{g}@0\sim 100\mu\text{g}/\text{m}^3$, $\pm 10\%@101\sim 500\mu\text{g}/\text{m}^3$	$\pm 10\mu\text{g}@0\sim 100\mu\text{g}/\text{m}^3$, $\pm 10\%@101\sim 500\mu\text{g}/\text{m}^3$	$\pm 10\mu\text{g}@0\sim 100\mu\text{g}/\text{m}^3$, $\pm 10\%@101\sim 500\mu\text{g}/\text{m}^3$	$\pm 10\mu\text{g}@0\sim 100\mu\text{g}/\text{m}^3$, $\pm 10\%@101\sim 500\mu\text{g}/\text{m}^3$	$\pm 10\mu\text{g}@0\sim 100\mu\text{g}/\text{m}^3$, $\pm 10\%@101\sim 500\mu\text{g}/\text{m}^3$	$\pm 30\%@$ Reading Value	$\pm 20\mu\text{g}@0\sim 100\mu\text{g}/\text{m}^3$, $\pm 20\%@101\sim 500\mu\text{g}/\text{m}^3$
Response Time	1s (Single Response)	1s (Single Response)	1s (Single Response)	1s (Single Response)	1s (Single Response)	1s (First reading 60s)	
Supply Volatage	5.0V $\pm 5\%$	5.0V $\pm 5\%$	5.0V $\pm 5\%$	5.0V $\pm 5\%$	5.0V $\pm 5\%$	5.0V $\pm 10\%$	

Principle

PM Sensor

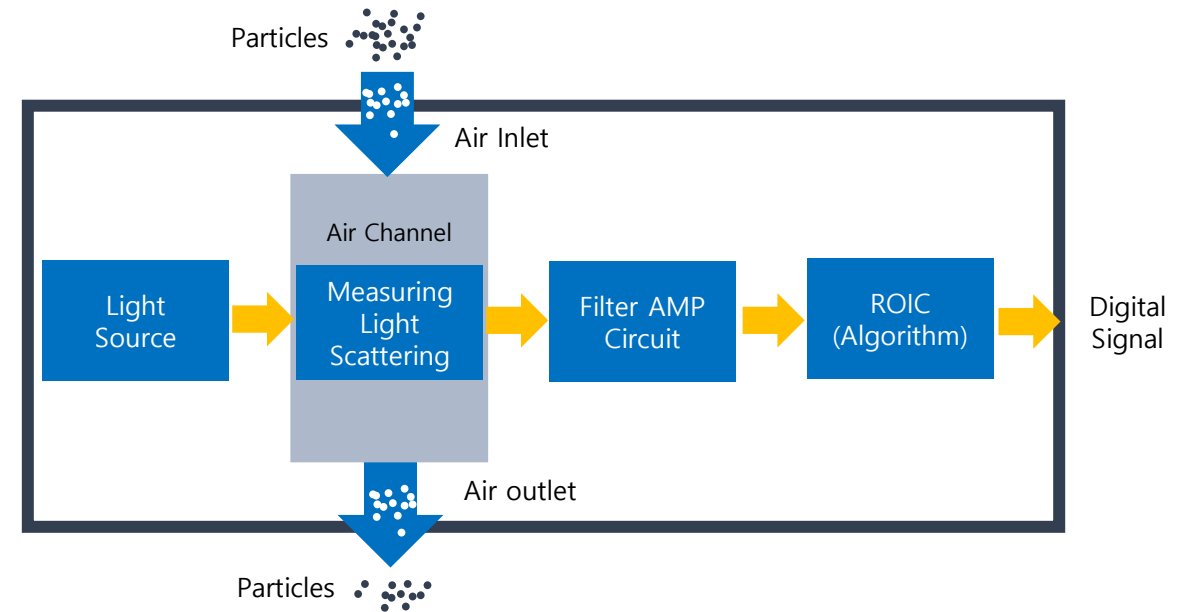
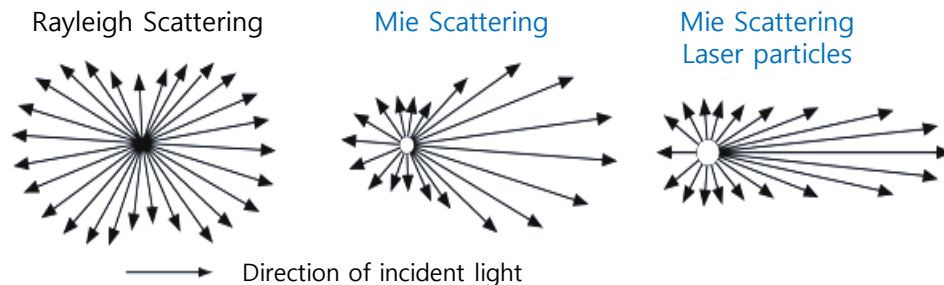
Particulate Matter Sensing Module



PM sensor is an optical sensor utilizing the principle of Mie Scattering among the light scattering methods

When fine particles enter into the sensor by fan or heater, they receive light from light sources such as Laser or IR LED and reflect it

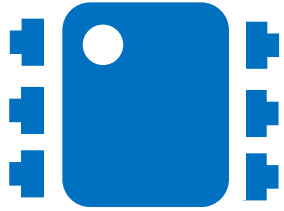
The amount of light scattering varies depending on the size and amount of dust particles, and if it is amplified and outputted (Analog, Digital) by an algorithm, the level or concentration of dust can be inferred in real time



Benefits

PM Sensor

Particulate Matter Sensing Module



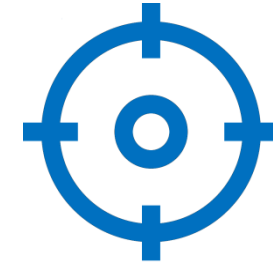
Optimized ROIC

In-house PM Sensor exclusively
for ROIC application
(developed by Crepas Technologies)



Low noise & constant speed Fan

Fan exclusively for
fine dust sensor



High accuracy

Excellent calibration technology
In-house chamber and
calibration system operation



Compatibility

Mechanical compatibility with
market products
Gain & offset available



Compact & slim

Easy to install



Superior economic efficiency

Superior cost competitiveness
compared to competitors





Ionizer

Improve your life with the ozone-free ion generator
created by Ceratrens® technology



Ionizer Line-up

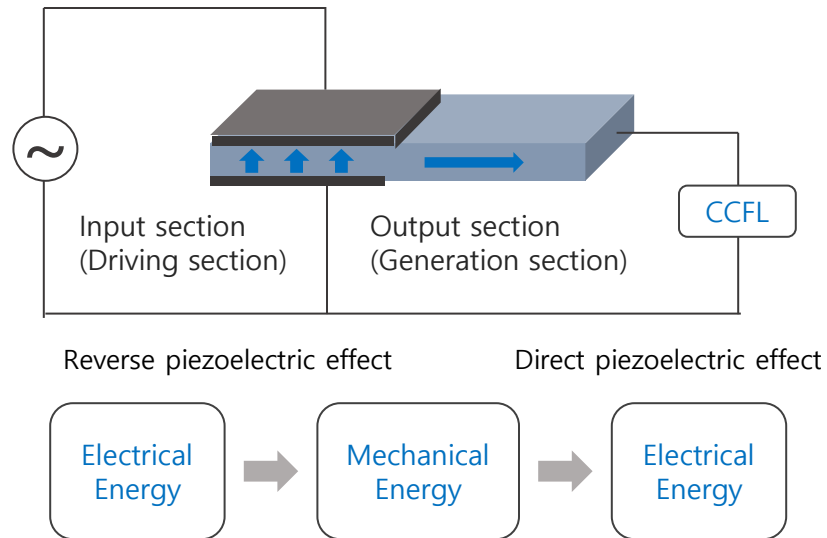
DIT provides safe high voltage solutions (HVPS: High Voltage Power Supply) and ionizer technology based on piezo ceramics

Item	AC Pulse Type		DC Pulse Type	
Product P/N	VCF-D40BA	VCF-D40BD1	VCF-D40NA	VCF-D40ND
Image				
Electrodes	Carbon Brush	Etching Pin (SUS304CSP-TA Material)	Etching Pin (SUS304CSP-TA Material)	Etching Pin (SUS304CSP-TA Material)
Dimension	55.8 x 50.7 x 17.1mm	55.8 x 50.7 x 17.1mm	55.8 x 50.7 x 17.1mm	55.8 x 50.7 x 17.1mm
Wire/ Housing	450±10mm / SMH250-04L	450±10mm / SMH250-04L	120±10mm / 12505HS-02	100±10mm / SMH200-04H
Ion Concentration	>1.2M/cc	>1.2M/cc	>1.2M/cc	>1.2M/cc
Input Current	20mA~50mA	20mA~50mA	20mA~50mA	20mA~50mA
Output Voltage	+3.5kV±0.5kV -4.0kV±0.5kV	+3.5kV±0.5kV -4.0kV±0.5kV	+3.7kV±0.7kV -3.7kV±0.7kV	+3.5kV±0.5kV -4.0kV±0.5kV
Input Voltage	DC12.0V±0.5V	DC12.0V±0.5V	DC12.0V±0.5V	DC12.0V±0.5V
Current Consumption	<1.0W	<1.0W	<0.54W	<0.54W
Operating RH&Temp Storage RH&Temp	-10~70°C / 20~85%RH -30~80°C / 20~90%RH	-10~70°C / 20~85%RH -30~80°C / 20~90%RH	-10~60°C / 20~85%RH -20~70°C / 20~90%RH	-10~60°C / 20~85%RH -20~70°C / 20~90%RH

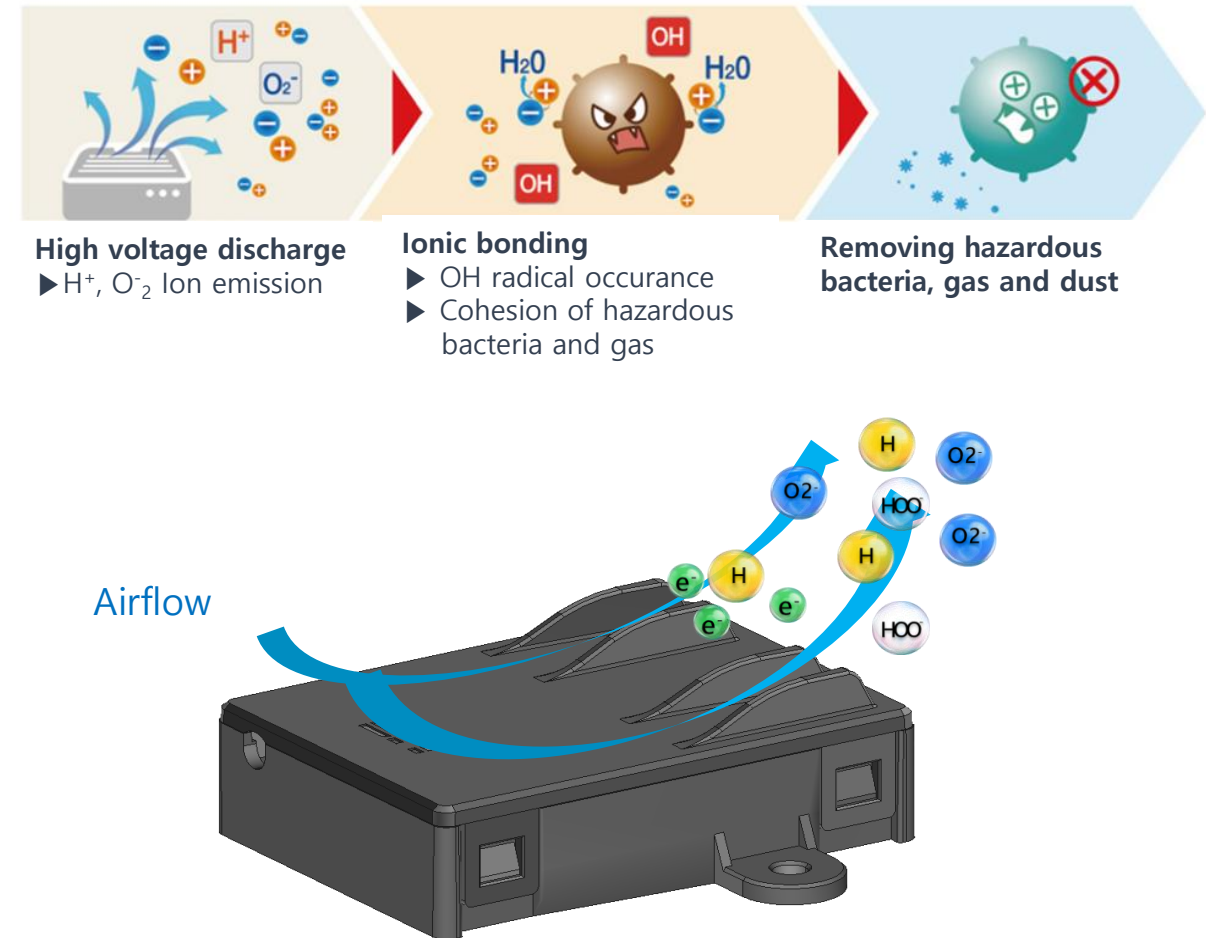
Principle

Cluster Ionizer

+/- Ion Generator in one Module



- I. High voltage generated by Ceratrans®
- II. Corona discharge occurs from (+) and (-) electrodes
- III. Generates over 1.2 million/cc ions & OH radical and spreads out in the air



Anti-fungi Test

Anti-fungi Test Summary

- I. Subject: Anti-Fungal Effectiveness Test of Ionizer
- II. Specimen: Black fungi (*Aspergillus niger*)
- III. Test Condition
 - 1) Temperature: 25~28°C, Relative Humidity: 65~75%RH
 - 2) Test Chamber: Acryl Box (50cm³)
- IV. Test Method:
 - 1) Extracts Black fungies and mix them into distilled water
 - 2) Discharge a certain amount of the fungal strain into the culture medium placed in test chamber with pipette
 - 3) Conduct comparison test with/ without ionizer for 5 days
- V. Test Result: Refer to the right pictures

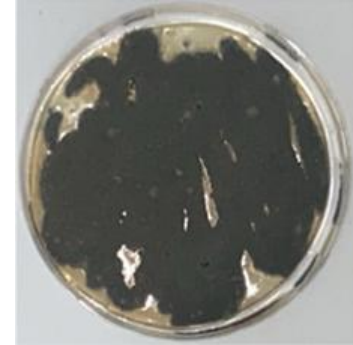
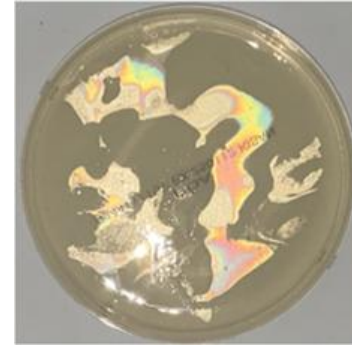


※ The test shows that ionizer can prevent the spread of fungi that reproduce well in place with high humidity such as bathroom, basement and so on.

Ionizer Off

Before Test

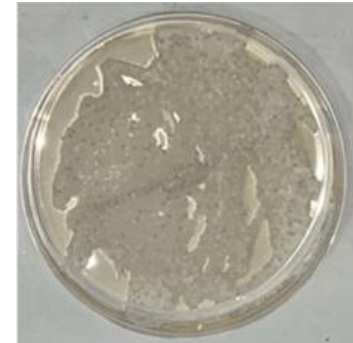
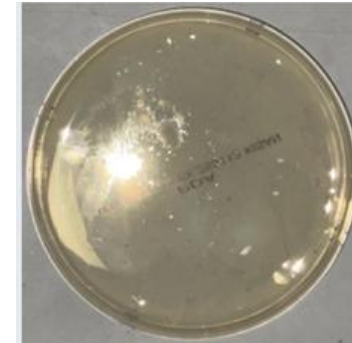
5 days later



Ionizer On

Before Test

5 days later



Benefits

PIEZO-CERAMIC

Ceratrans®

In-house developed Piezo-ceramic applied
Best awarded in Electronic parts contest in 1999



Ozone Free

Ozone Free
(Standard product basis: < 5ppb)



25 years of History

Piezo ceramic development in 1998.
Joint development for
Spi of company 'S'
(Sole Provider)



Customization

Customer requirement spec development available
(Output, Electrode, Ozone, Ion density and more)



Safety

Fire prevention
Dust, foreign matter, moisture prevention

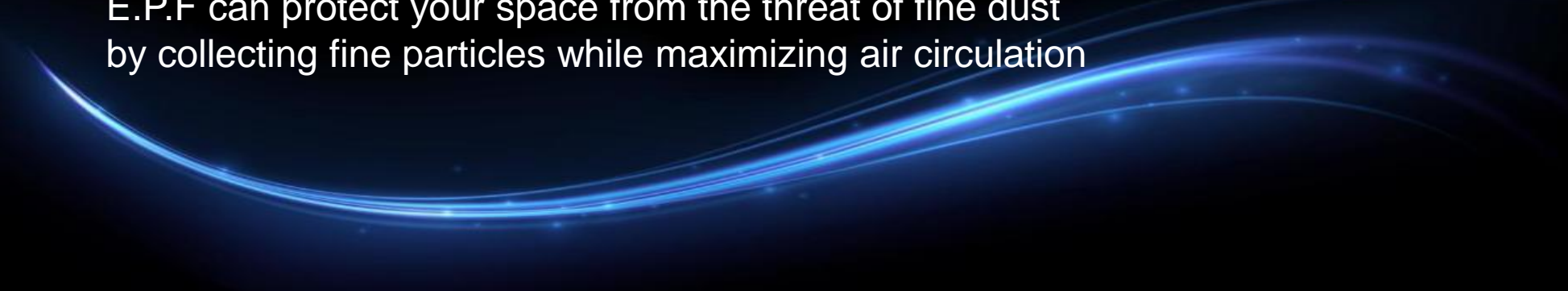


Superior economic efficiency

In-house production for Key Components
Decades of production know-how

E.P.F (Electrical Particulate Filter)


E.P.F can protect your space from the threat of fine dust
by collecting fine particles while maximizing air circulation

The background of the text area features several glowing blue wavy lines that sweep across the frame from left to right, creating a sense of motion and air circulation. Small, faint blue particles are scattered along these lines, representing the fine dust being collected by the filter.

E.P.F Line-up (Customization Required for optimization)

DIT provides an optimized solution depend on your application (The table below are examples)

Ion Generator Type (Air Circulation)

Image		
HVPS Spec.	Operating voltage, current	12V ± 5%, <100mA
	Output voltage	-6kVdc ± 2kVdc
Filter Spec.	Ozone generation concentration	Ozone free (<5ppb: @30m³, 200CMH, 24hrs)
	Filter consuming voltage	None
	Input voltage	-6kVdc ± 2kVdc
	Pressure loss	about 10 Pascal
	Operating temperature	-10~60°C (without condensation)
	Storage temperature	-10~60°C (without condensation)
	Weight	300g
	Size	225(W) x 225(H) x 23(D) mm
Purifying ability	Coverage area	23.1m²

Charging Part Type (One-pass Air)

Image		
HVPS Spec.	Operating Voltage, current	12V ± 5%, <100mA
	Size	80(W) x 44(H) x 16(D)mm
Filter spec	Filter consuming voltage	1.8W (8.9kVdc, 200µA)
	Operating temp.	-10~60°C (no condensation)
	Storage temp.	-10~60°C (no condensation)
	Weight	300g
	Size	225(W) x 225(H) x 40(D) mm
Test condition	Reference	Aerosol Spectrometer Model 11-A (GRIMM)
	Air flow rate	200CMH
	Test chamber pipe line size	250 x 250 mm
Purifying ability	Efficiency	95%
Ozone	Concentration	< 30ppb (@30m³, 200CMH, 24hrs)

Principle

E.P.F

Electrical Particulate Filter

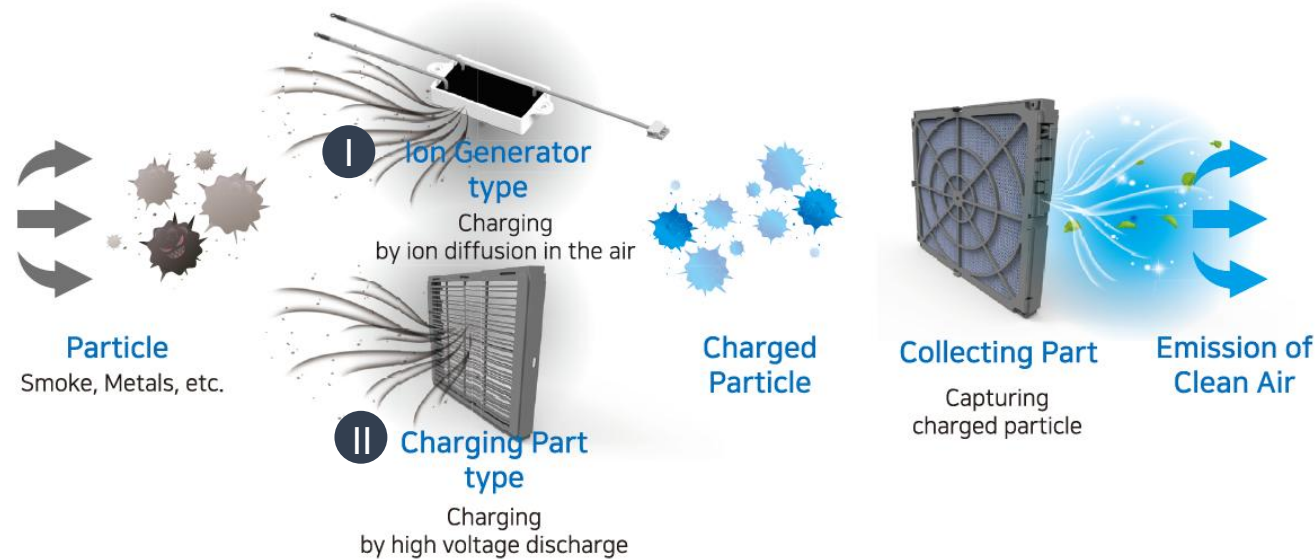
E.P.F is a method in which a positive(+) or negative(-) charge is applied to the particles using corona discharge by direct current high voltage so that they are collected to the opposite polarity of the dust collecting part

I. Ion generator type

It is a method in which an ionizer is installed at the set air discharge part so that the ions released to the outside charge the fine particles of the surrounding air, and the charged particles are introduced into the set and concentrated in the dust collection part

II. Charging part type

It is a method of charging and collecting fine particles of air entering the set by installing an electrification unit and a dust collection unit in order inside the set.



Benefits

E.P.F

Electrical Particulate Filter



PIEZO-CERAMIC

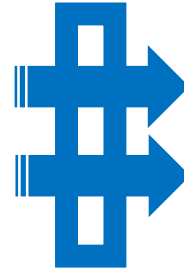
Ceratrans®

In-house developed Piezo-ceramic applied
Best awarded in Electronic parts contest in 1999



Patents related to Electric precipitators

Mass Production Optimized
Design & Technology owned



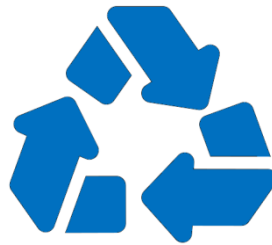
Low pressure loss

Lower static pressure compared to HEPA filter.
Abundant wind volume coverage for same area



Low noise

Low noise = Less power consumption,
Energy efficiency



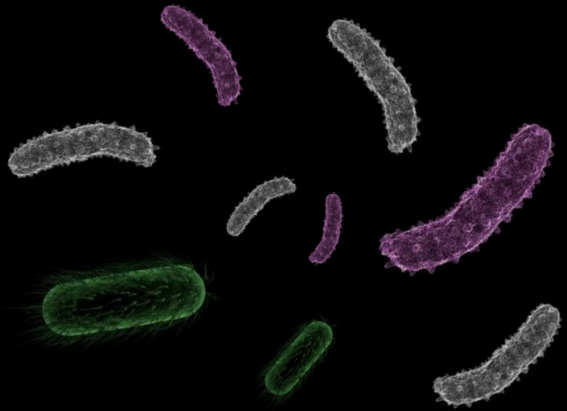
Semi-permanent lifespan

Washable and Reusable
Eco-friendly components



Superior economic efficiency

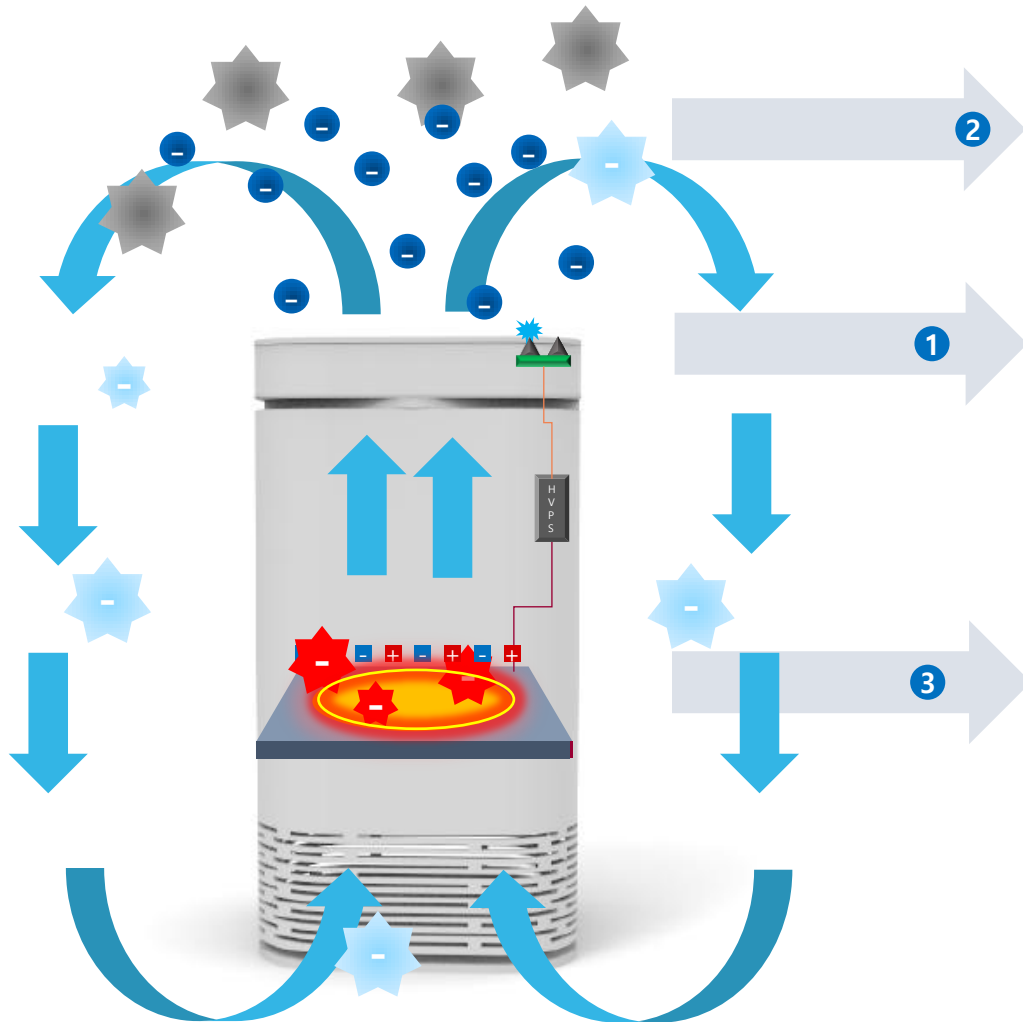
Superior cost competitiveness



Experience DIT's unique air sterilization technology
using electric dust collection and copper ion technology

Principle

Cu⁺Care Hybrid Air Filter



Cu⁺Care is a hybrid filter system that enables air sterilization and air cleaning at the same time

Particulate matter charging

Ions generated from ionizer electrodes charge and sterilize particles in the atmosphere

Ionizer

Ion generation by air discharge electrode



Cu⁺Care

Bacteria & virus sterilization

STEP 1 : by Electric Collision

STEP 2 : by **Copper Ion** ¹⁾

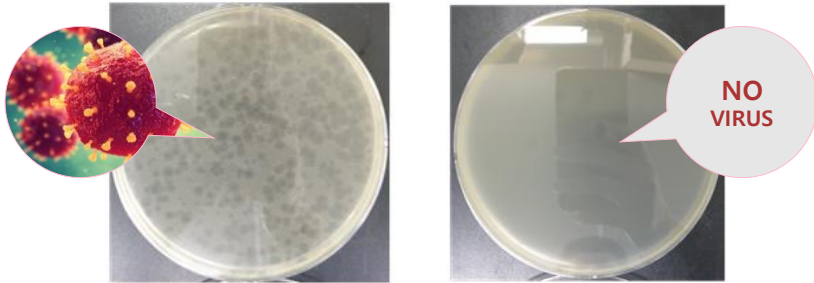
Collecting charged fine dust



※ 1) [Oligodynamic Effect](#)

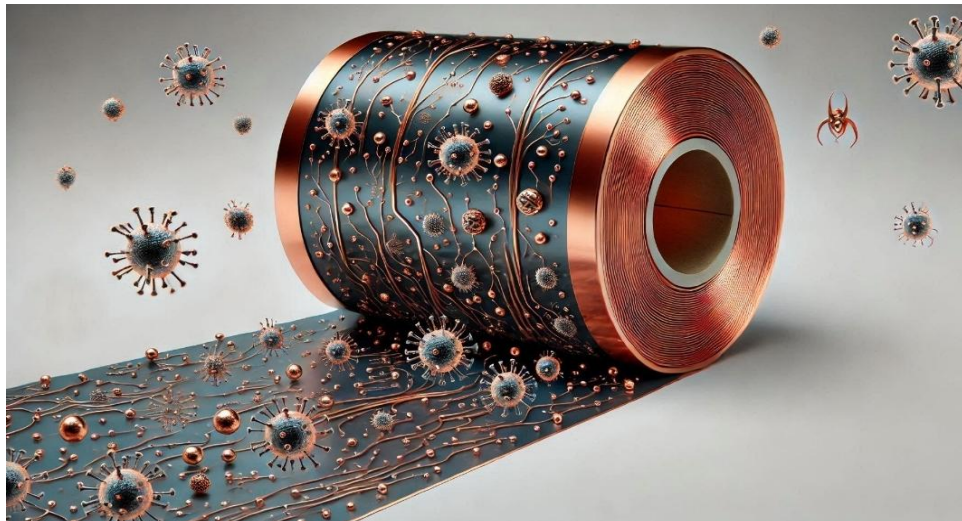
Sterilization Test

96% of the viruses were killed once it touched the Cu⁺Care film and 99.9994% within 30 min.
(Testing Lab: Y University)



[HEPA filter]

[Cu⁺ Care]



The floating viruses were sterilized by 97.9% within 30 min. and the floating bacteria were sterilized by 99.8% within 60 min.
(Testing Lab: KTL ; Korea Testing Laboratory)

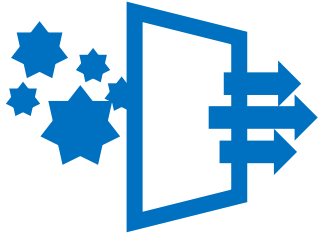


[Test report for sterilization of airborne viruses & bacteria in KTL]



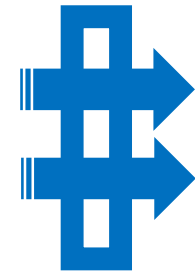
Benefits

Cu+Care
Hybrid Air Filter

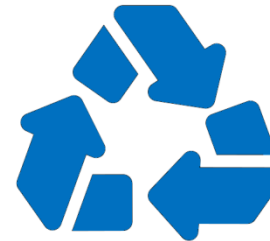


Active air sterilization
Sterilizing 99% of Virus and Bacteria

PIEZO-CERAMIC



Hybrid system
Air sterilization and Air purification implemented with one filter



Customers

HVAC



Room & HVAC Controller
ERV (Energy recovery ventilation)
System airconditioner
Kitchen hood
Ventilation system

Consumer Appliance



Airpurifier
Airconditioner
Air sterilization
Shoes / Pet dryer
Bidet

ETC.



IoT device
IAQ monitor for home
IAQ monitor for automotive
ETC.

Smart Factory + DIT ESD Solutions




ESD Line up

Bar Type Ionizer

Type	Series	Frequency	Size	HVPS	Controller	Length(mm)	Application	Distance		
								1m	2m	
H/F AC	 ASG-P	29KHz	Slim	Built-in	Built-in	350~3000	Air Injection (CDA) Short/Medium Distance (within 500mm) Very Good Ion Balance			
	 ASG-PG	29KHz	Slim	Built-in	Built-in	250~300				
	 ASM-P*	29KHz	Slim	Built-in	Outer	150~3000				
Pulsed AC	 ASG-A	0.5~60Hz (Adjustable)	Slim	Built-in	Built-in	500~3000	Air Injection (CDA) Medium/Long Distance (within 200~2000mm) General Purpose			
	 ASM-A*	0.5~60Hz (Adjustable)	Slim	Built-in	Outer	300~3000				
	 ASR-A*	0.5~30Hz (Adjustable)	Ultra Slim	Outer	Outer	150~3000				
	 ASG-AU*	0.5~100Hz	Slim	Built-in	Built-in	450~3000	Air Injection (CDA) Optimum performance at ultra-close static removal distances (10~100mm)			
	 MB-L (Laminar Flow)	0.1~10Hz (Adjustable)	Normal	Built-in	Built-in	250~1500	<ul style="list-style-type: none"> • No Air Injection • Under EFU/FFU • Specialized in Room Ionizing 			
	 MB-LS (Laminar Flow)	0.1~10Hz (Adjustable)	Normal	Built-in	Built-in	400~1000				

ESD Line up

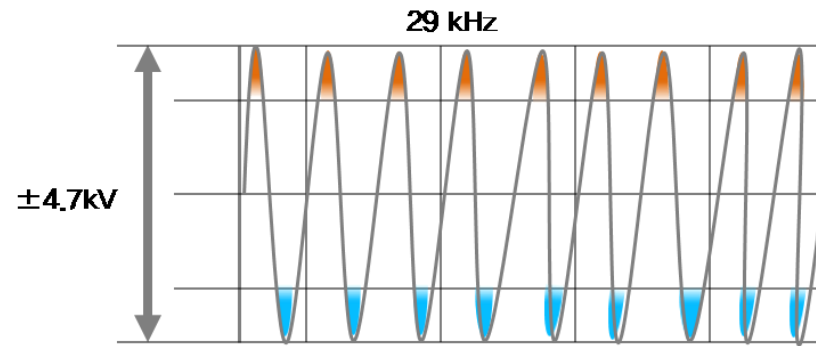
Ion Blower/Nozzle/Gun

Type	Series	Fan size (mm)	Auto Cleaning	Fan	Frequency	Airflow (per1 fan)	Ion Balance	Decay Time	Features	Application	Distance	
											1m	2m
Pulsed AC	 AMF-AE	140	Auto Cleaning	1~3	10~50Hz	Max. 6.425m³/ min	Under ±30V	≤1sec @300mm	<ul style="list-style-type: none"> Stable Ion Balance Module Assembly Type : Various Combination Available Easy Maintenance : Auto Pin Cleaning Function 	No Air Injection Short/Medium /Long Distance General Purpose Class over 1000  		
	 ASF-AD	120	Auto Cleaning/ Manual Cleaning	1	10~50Hz	Max. 4.6m³/ Min			<ul style="list-style-type: none"> Stable Ion Balance Single Fan Type Easy Maintenance : Auto Pin Cleaning Function Separated Rare Fan Cover 			
	 MF-A90	90	N/A	1~5	10Hz	Max. 1.75m³/ min		≤2sec @300mm	<ul style="list-style-type: none"> Stable Ion Balance Module Assembly Type : Various Combination Available Easy Maintenance 			
H/F AC	 ASF-PD	120	Auto Cleaning/ Manual Cleaning	1	29KHz	Max. 4.6m³/ Min	Under ±10V	≤1sec @300mm	<ul style="list-style-type: none"> Stable Ion Balance Single Fan Type Easy Maintenance : Auto Pin Cleaning Function Separated Rare Fan Cover 			
	 MF-90/95	90	Auto Cleaning/ Manual Cleaning	1~5	50kHz	Max. 1.75m³/ min		≤2sec @300mm	<ul style="list-style-type: none"> Stable Ion Balance Module Assembly Type : Various Combination Available Easy Maintenance 			
	 SF-40	40	N/A	1		Max. 0.27m³/ Min		≤1.5sec @150mm	<ul style="list-style-type: none"> Stable Ion Balance Compact Size High voltage alarm output Easy Maintenance 	Air Injection (CDA) Short Distance (within 100~400mm) General Purpose Class 1000		
	 ZM-G (Nozzle/Gun)	-	-	-	50kHz	128L/ cm² [0.3pa]	Under ±15	≤1sec @150mm	<ul style="list-style-type: none"> Air Injection (CDA) Very Short Distance (within 100mm) General Purpose Class 100 	Air Supply (CDA, N₂) Optimized for Close range Class 100		

Ionizer Method

■ Comparison of high-frequency AC and pulsed AC types

H/F-AC Method



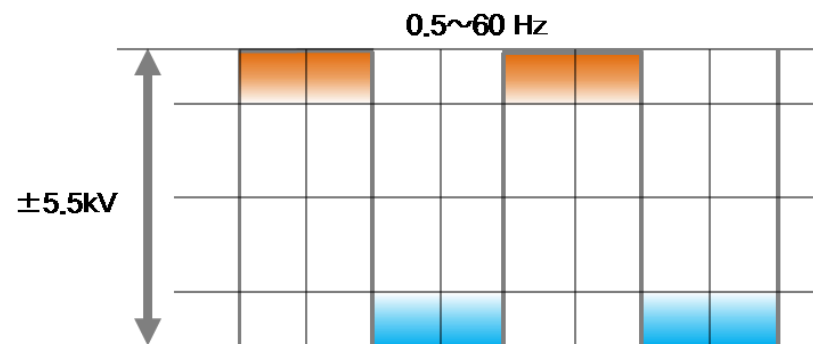
This method generates positive(+) and negative(-) ions alternately at high frequency of 29kHz.



High Frequency AC type is suitable for medium-short distance.

- *Recommended distance is,
 - Bar type(G/P Series) : within 500mm
 - Fan type : within 500mm
 - Nozzle/Gun type : within 100mm

Pulsed-AC Method



This method generates positive(+) and negative(-) ions alternately at general frequency of 60Hz.






Pulsed AC type is suitable for medium-long distance.


- *Recommended distance is,
 - Bar type(A, L Series) : 200mm~2000m
 - Fan type : within 500mm

※ Above data can be changed with operating environment and product setting.

ESD Line up

Electrostatic Meter

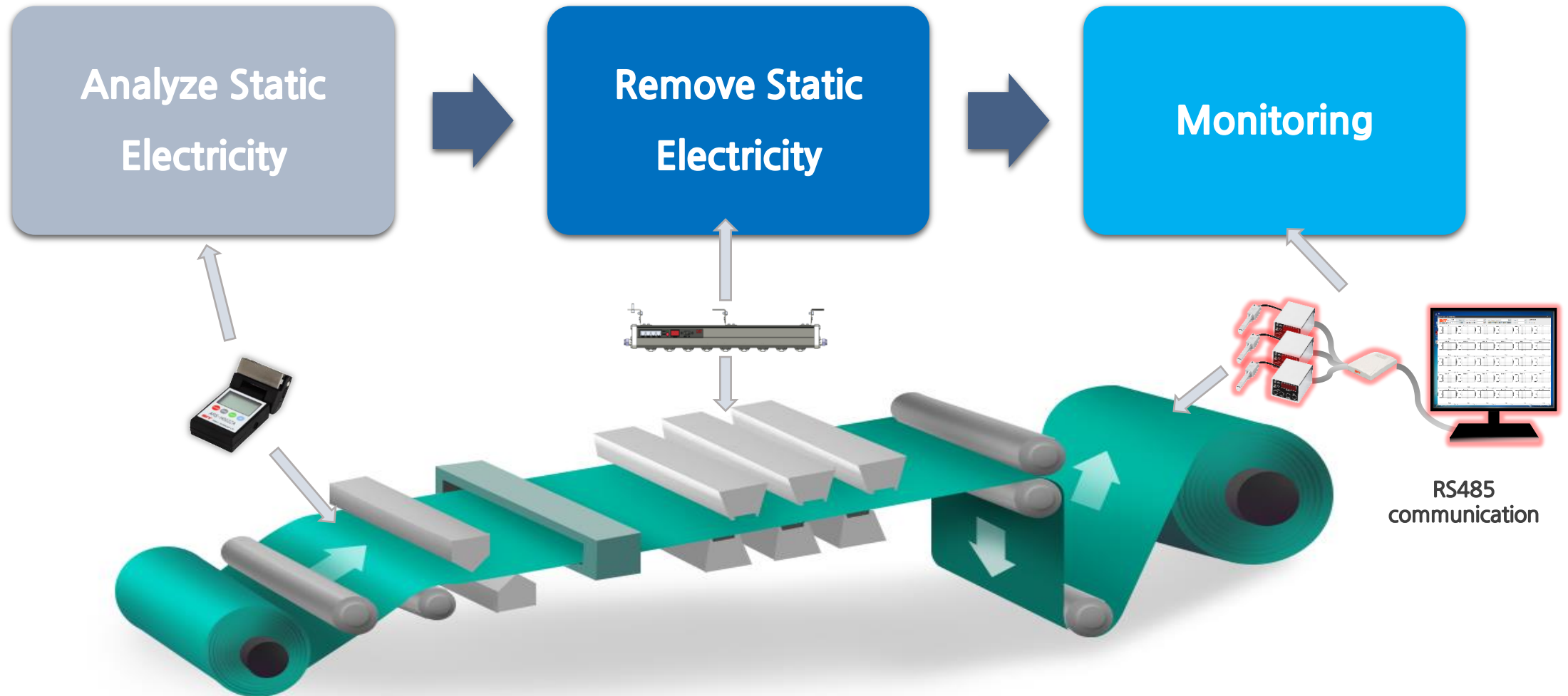
Type	Series	Sensor	Mode	Distance	Range	Resolution	Application
Hand-held Field meter	 ARS-H002ZA	Oscillating Chopper Type(DIT)	Precise mode	25mm (±0.5mm)	±2kV (±10%)	10V (-9.99kV~+9.99kV)	Measuring Both Electrostatic Level and Ion Balance Real time monitoring and data logging Function (USB communication)
			Expanded mode		±20kV (±10%)	100V (≤10.0 kV~≥10.0kV)	
			Ion Balance mode		±300V (±10%)	1V	
Stationary Field meter	 ARS-S005	Oscillating Chopper Type(DIT)	Precise mode	25mm (±0.5mm)	±2kV (±5%)	1V	Measuring Electrostatic Charging Status on the Target Surface Monitoring up to 30 units in real time with one computer (RS-485 communication)
			Expanded mode	50~100mm (±0.5mm)	±20kV (±10%)	10V	
Ion Balance Checker	 ARS-M002ZA	Oscillating Chopper Type(DIT)	Ion Balance mode	Measure according to the electrostatic discharge distance	±100V (±10%)	1V	Compact Size Real time Analog output (RS232communication)

Type	Series	Sensor	Mode	Accuracy	Time Resolution	Decay time (adjustable)	Application
Charged Plate Monitor	 ARC-P102ZA	Oscillating Chopper Type(DIT)	Ion Balance mode	Start/Stop-Accuracy: ≤ setting value ±1V	0.1 sec / 0.1~999.9 sec	Start Voltage: 1~±1000 / 1V Stop Voltage: 0~±999 / 1V	Measuring Both Ion Balance and Decay Time It is possible to check and save a measured value on PC with free software (USB communication) Plate Handle Structure Compact controller Light weight & Portability
			Decay Time mode				

DIT Advantage

Static Electricity Monitoring/Control Solutions

DIT Develops and manufactures entirely with pure DIT technology, offering a complete line-up of static electricity monitoring and control solutions.

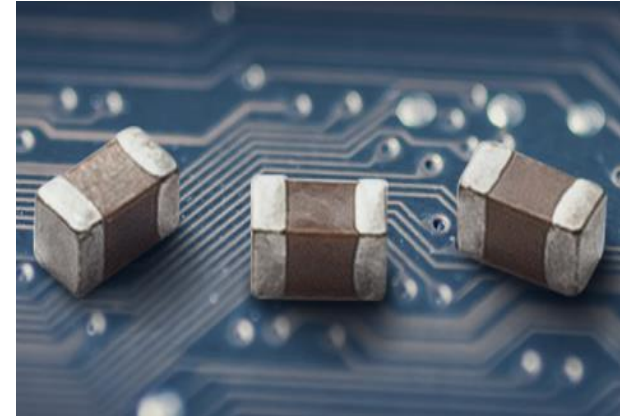


ESD Application

Semiconductors



MLCC and Precision components



ESD Application



PCB



Secondary battery



Benefits



Improved Portability

Minimized structure



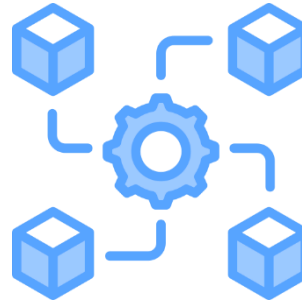
R&D Capability

Manufactures the entire process.
Strong capability of technical response



High Accuracy

High Accuracy for measuring ESD environments



Complete Line-up

Diverse Line-up available to suit different environments



Free Software

Real Time Monitoring in Computer



Competitive Price

We are offering competitive price to customers

ELECTRICAL PARTICULATE FILTER



DIT E.P.F

ELECTRICAL PARTICULATE FILTER

ELECTRICAL PARTICULATE FILTER

- feature

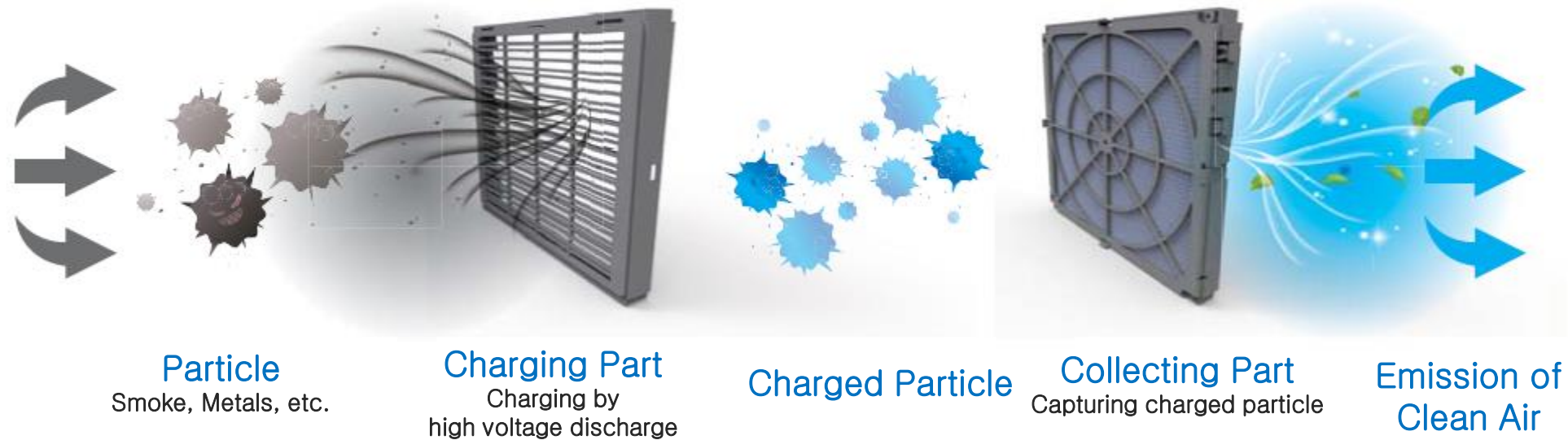
- ✓ Powerful dust removal capability and high breathability [Electric particulate filter](#)
- ✓ Installed and used in areas with contamination issues in cleanrooms, equipment, etc. ([replace HEPA filters](#))
- ✓ Capable of collecting all types of dust and preventing the [re-entrainment of collected dust](#)



- Specification

	VQ3-225X1 Series			VQ3-100X1
	1 Cell	2 Cells	3 Cells	1 Cells
Input Voltage	12VDC or 24VDC			24VDC
Input Current (Filter+Fan)	Max 1.25±0.15A	Max 2.50±0.30A	Max 3.75±0.45A	Under 400mA
Dust Collecting Rate	0.3um - 92.0%~99.5% / 0.5um - 94.0%~99.5% / 1.0um - 99.5%			
Size(mm)	272*312*45 272*312*80(Fan)	272*580*45 272*580*80(Fan)	272*848*45 272*848*80(Fan)	175* 140* 80

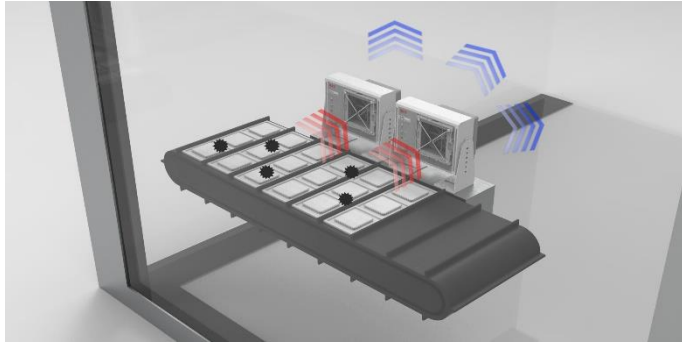
How it works



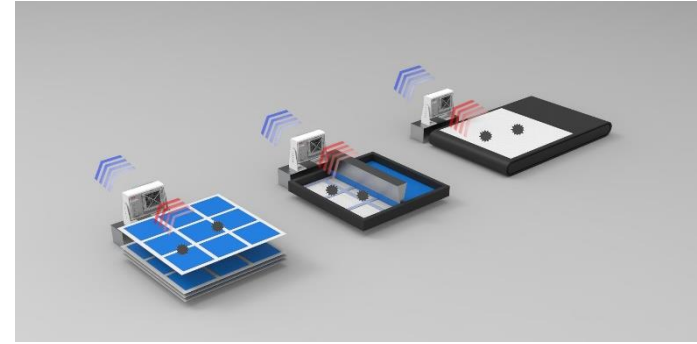
E.P.F is a method in which a positive(+) or negative(-) charge is applied to the particles using corona discharge by direct current high voltage so that they are collected to the opposite polarity of the dust collecting part

E.P.F Application

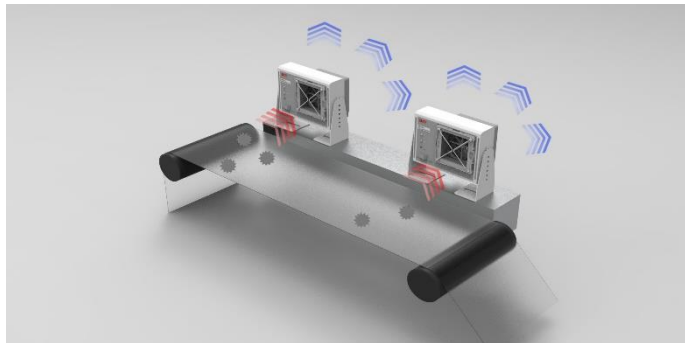
Semiconductors



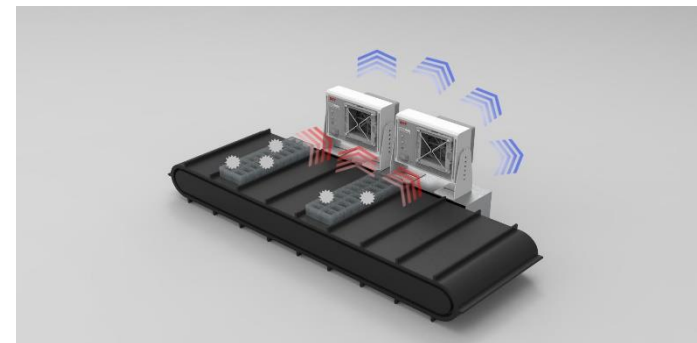
MLCC



Film manufacturing



Pharmaceutical/food packaging
process



Benefits



Semi-Permanent

Washable and Reusable



Low Noise

Minimized Fan Noise



Efficient Energy Use

Low-power product design



Excellent Dust Removal

Excellent Purification Performance with Minimal Airflow Loss

Customers

Semiconductor

SAMSUNG



TechWing



Semiconductor

Display

SAMSUNG DISPLAY



etc



**SAMSUNG
ELECTRO-MECHANICS**



SAMSUNG SDI





Thank you!

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Gyeonggi-do, Republic of Korea**

Tel : +82-31-299-5454