Fan Type Ionizer

New

CE RoHS

Thinnest and Fastest

Thickness **40** mm

Rapid static neutralization **0.5*** seconds



Compact fan type ▶ Page 18

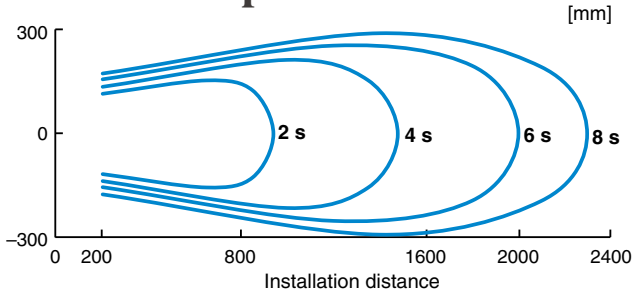
■ Slim design

[mm]

Model	Thickness (Depth)	Width	Height
IZF21	40	104	155
IZF31		144	195

■ Offset voltage (Ion balance) : ±5 V

■ Extensive rapid static neutralization*



* When neutralizing static electricity from 1000 V to 100 V at a distance of 300 mm from the workpiece (front surface). When air flow of IZF31 is maximum.

Series IZF

SMC

CAT.ES100-113A

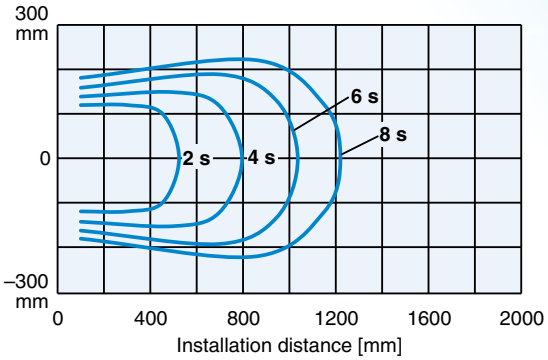
Extensive Rapid Static Neutralization

Extensive static neutralization

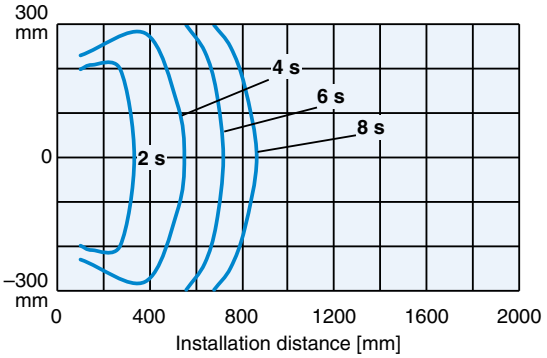
▶For the IZF21. For details about the IZF31, refer to page 8.
▶Refer to page 4 for flow rate adjustment and the description below for angle adjustment of the adjustable louver.



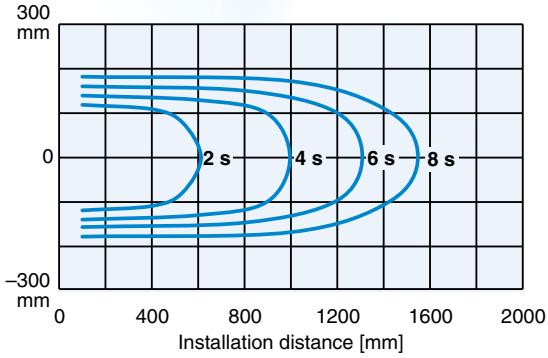
At maximum flow rate



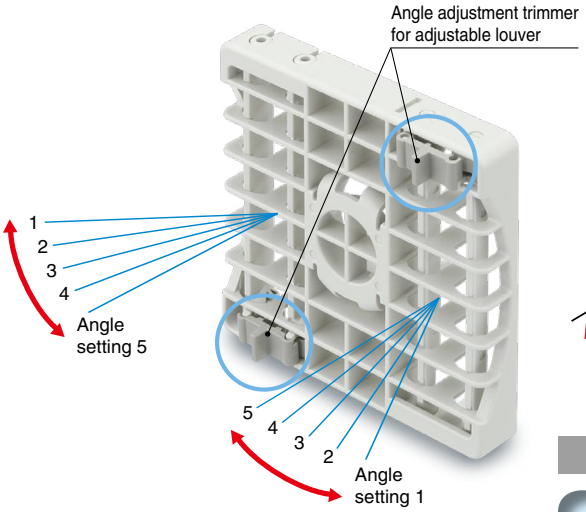
At maximum flow rate, with adjustable louver/largest angle



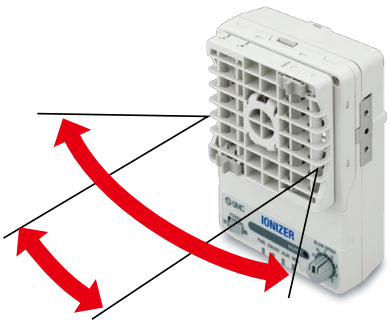
At maximum flow rate, with adjustable louver/smallest angle



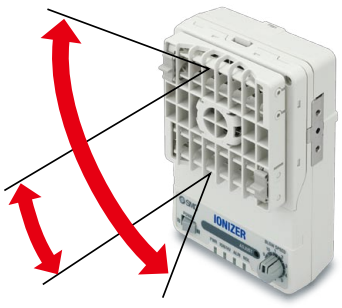
Extensive static neutralization area can be covered with adjustable louver. Option



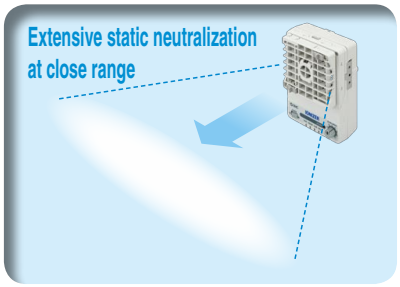
Adjustable in 5-stages from wide to narrow angle

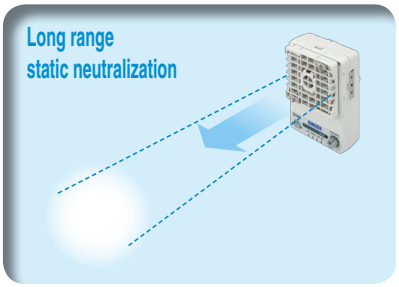


90-degree rotation mounting available
(Adjustable in a vertical direction)



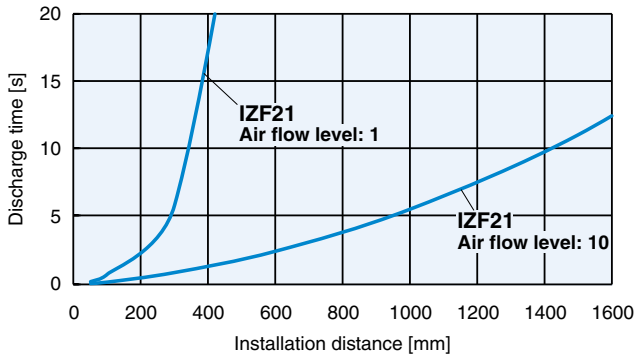
Application Examples

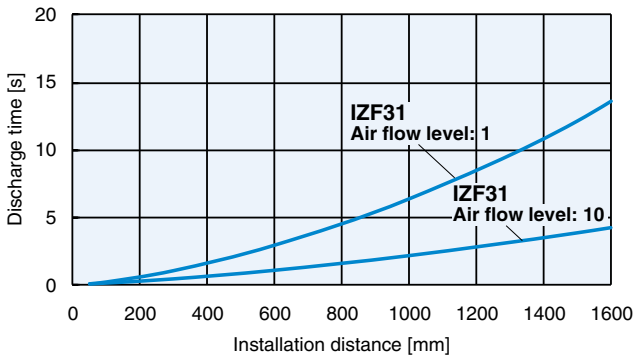




Rapid static neutralization

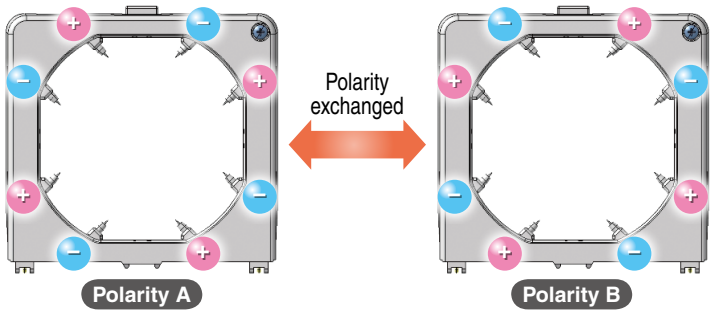
Installation distance and discharge time (Discharge time from 1000 V to 100 V)





Stable Static Neutralization Performance, Easier Maintenance

The emitters life is almost doubled with averaging function.



Averaging Function

The life of the emitters is almost doubled by switching the polarity of the applied high voltage every time the power is supplied hence averaging the wear level of the emitters.

∗ Compared with the IZF10.

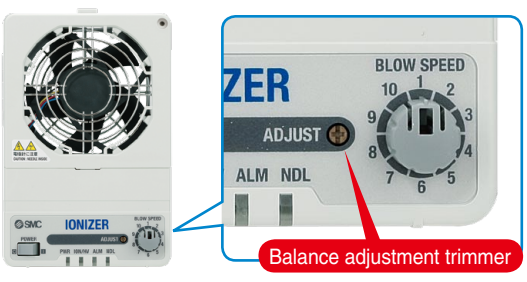
Built-in sensor constantly monitors offset voltage.

Automatic balance adjustment function achieves stable offset voltage and reduces adjustment time.

Automatic adjustment — Prevents reduction of offset voltage performance due to emitters contamination when the ionizer is used for a long period of time.

Manual adjustment — Corrects offset voltage displacement due to the installation environment.

Constantly monitors offset voltage by use of a sensor. Prevents reduction of offset voltage performance due to emitters contamination when the ionizer is used for a long period of time. Balance adjustment trimmer can provide offset voltage adjustment suitable for the installation environment.

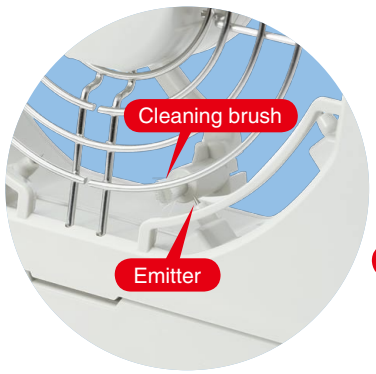


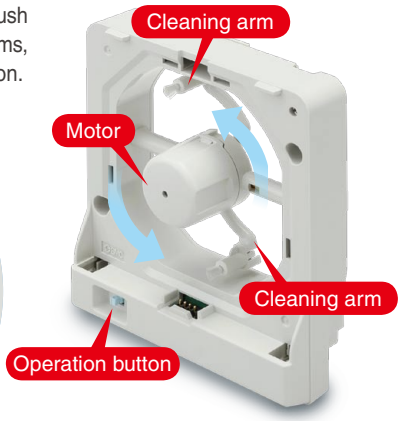
Stable Static Neutralization Performance, Easier Maintenance

Emitter contamination can be reduced by automatic cleaning function. Option

Cleaning arms are installed inside. Emitter cleaning is started by external input or operation button.

The emitter points are cleaned with a brush by the motor driven rotating cleaning arms, which reduces the emitters' contamination.





Automatic cleaning unit

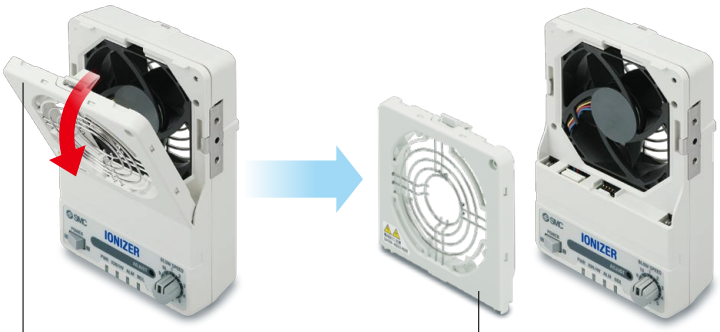


Contamination of the emitters can be detected.

Emitter contamination level is constantly monitored.
When maintenance is required, the user is alerted by a signal output and the LED turning ON.



Emitter cartridge is easily replaceable. (No tools are required.)



Emitter cartridge

Emitter cartridge

Emitter cartridge drop prevention



Emitter cartridge retaining screw
M3 x 12 1 pc. (Provided by customer)

Related equipment



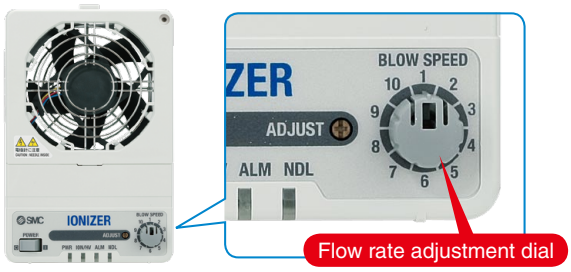
Cleaning kit
IZS30-M2

Flow Rate Adjustment Function

Flow rate is adjustable in 10 steps using the flow rate adjustment dial. The flow rate adjustment dial is removable to prevent unexpected changes of adjustment.

Flow Rate Adjustment Range [m³/min]

Model	Flow rate adjustment level									
	1	2	3	4	5	6	7	8	9	10
IZF21	0.4	0.5	0.6	0.7	0.8	0.9	1.1	1.4	1.7	1.8
IZF31	1.3	1.7	1.9	2.3	2.5	2.7	3.2	3.7	4.2	4.4



7 types of alarms are provided.



1 Power supply failure



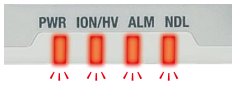
2 Incorrect high voltage



3 Fan motor failure



4 CPU failure



5 Maintenance warning



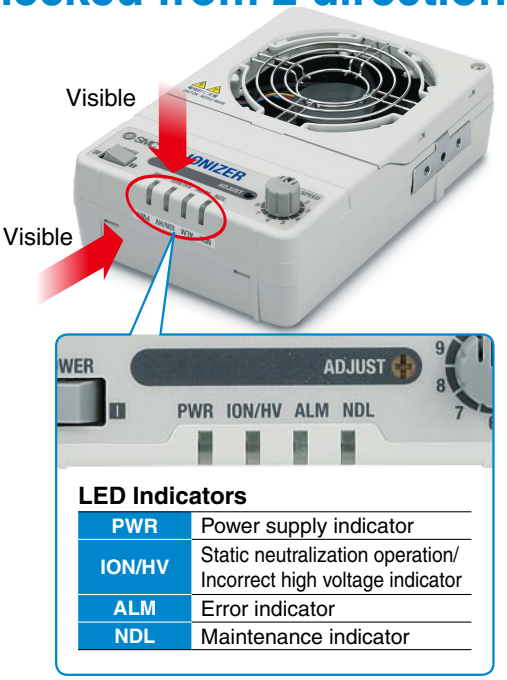
6 Emitter cartridge mounting failure



7 Automatic cleaning failure



LED indicator can be checked from 2 directions!



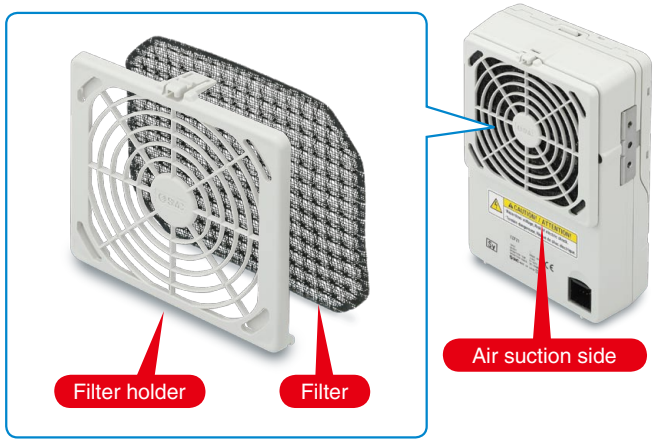
LED Indicators

PWR	Power supply indicator
ION/HV	Static neutralization operation/ Incorrect high voltage indicator
ALM	Error indicator
NDL	Maintenance indicator

Filter

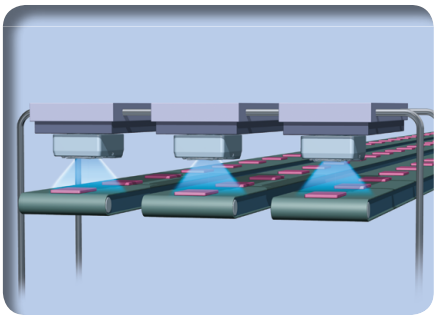
Option

Prevents ingress of lint and foreign matter to the motor and possibility of short-circuit between emitters!

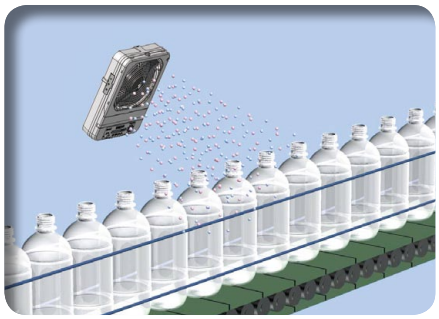


Application Examples

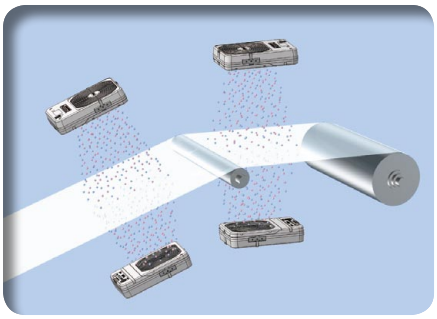
Static neutralization on a conveyor
Static neutralization in a narrow space



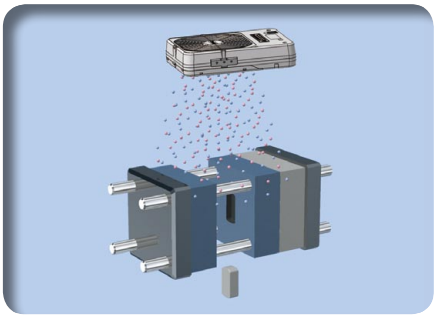
Neutralizing static electricity on PET bottles
Trip-resistance during conveying/Prevents adhesion of dust.



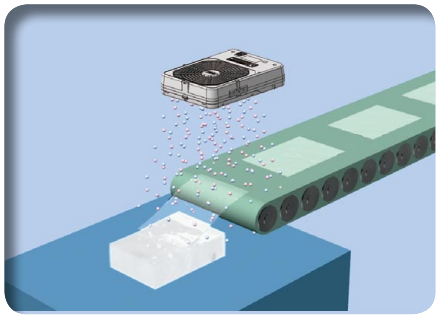
Neutralizing static electricity from films
Prevents winding failure./Prevents adhesion of dust.



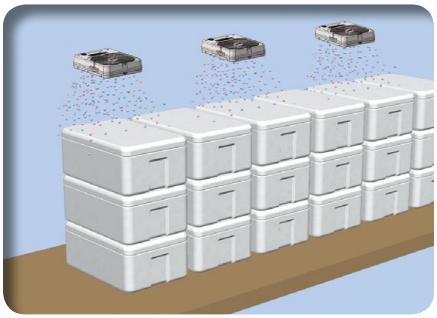
Neutralizing static electricity on molded goods
Improves detachability of molded goods from a die.



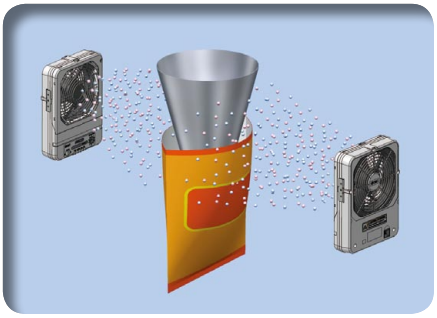
Neutralizing static electricity on film molded goods
Sticking and scattering prevention on a conveyor



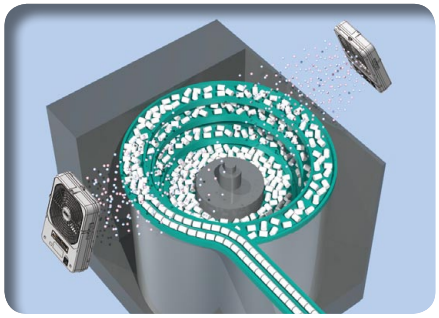
Static neutralization on packaging materials made from polystyrene foam.
Darkening due to dust adhesion prevented



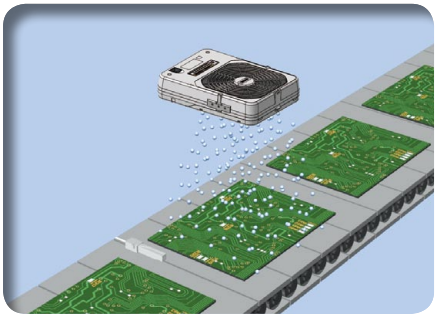
Neutralizing static electricity from packing films
Prevents the filled substance from adhering to the packing film and reduces packing mistakes.



Neutralizing static electricity from parts feeder
Prevents clogging.



Neutralizing static electricity on an electric substrate
Prevents element disruption due to discharge, and adhesion of dust.



Compact fan type with simple functions *Series IZF10* *Page 18*

- Compact design (H x W x D): 80 mm x 110 mm x 39 mm
- Weight: 280 g
- 2 types of fans available
  - ◎Rapid static neutralizing fan: Discharge time (Static neutralization time)*
    1.5 s (When neutralizing static electricity from 1000 V to 100 V at a distance of 300 mm from the workpiece (front surface))
  - ◎Low-noise fan: 48 dB(A) (Measured at a distance of 300 mm from the workpiece),
    Rapid static neutralizing fan: 57 dB(A)
- Offset voltage (Ion balance)*: ±13 V
- With alarm
  Incorrect high voltage, Emitter dirt detection

* Based on ANSI/ESD-STM3.1-2006 standards



CONTENTS

Series IZF21/31
Series IZF10



Fan Type Ionizer *Series IZF21/31*

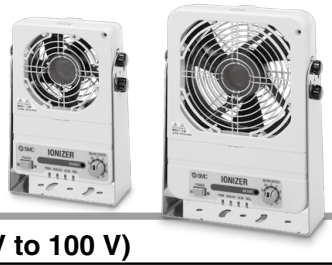
Technical Data/ Static Neutralization Performance
① Installation Distance and Discharge Time ····· Page 7
② Static Neutralization Range ····· Page 8
How to Order ····· Page 9
Accessories ····· Page 10
Accessories Sold Separately ····· Page 10
Specifications ····· Page 11
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Wiring Circuit ····· Page 12
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Fan Type Ionizer *Series IZF10*

Technical Data/ Static Neutralization Performance
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Wiring Circuit ····· Page 21
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Series IZF21/31
Technical Data

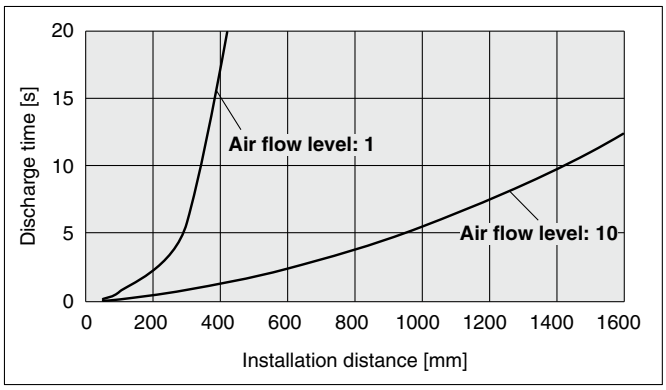


Static Neutralization Performance

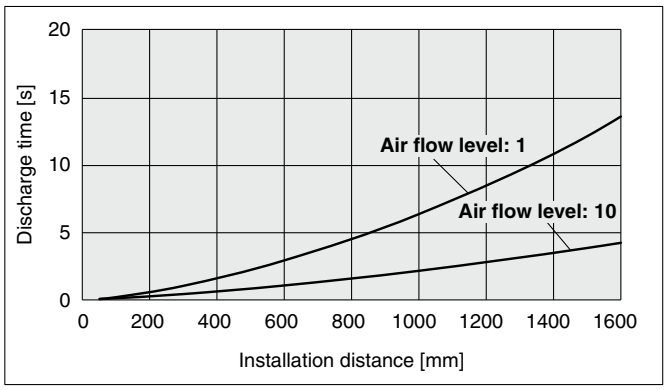
Note) Static neutralization performance is based on the data using the charged plate (size: 150 mm x 150 mm, capacitance: 20 pF) as defined in the U.S. ANSI standards (ANSI/ESD, STM3.1-2006). Use this as a guideline purpose only for model selection because the value varies depending on the material and/or size of a subject.

① Installation Distance and Discharge Time (Discharge time from 1000 V to 100 V)

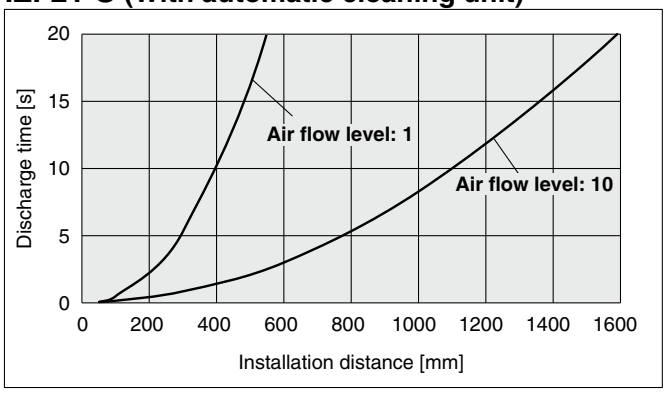
IZF21



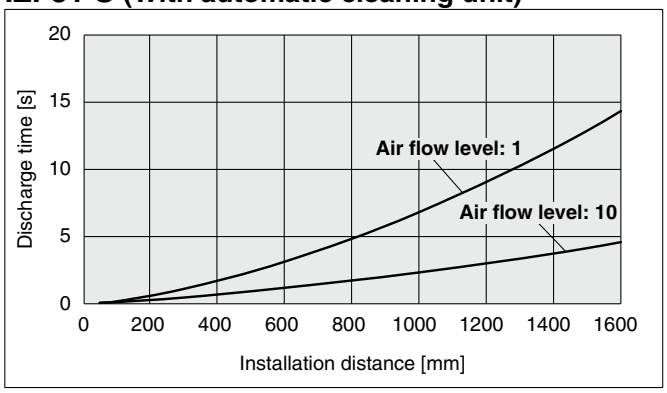
IZF31



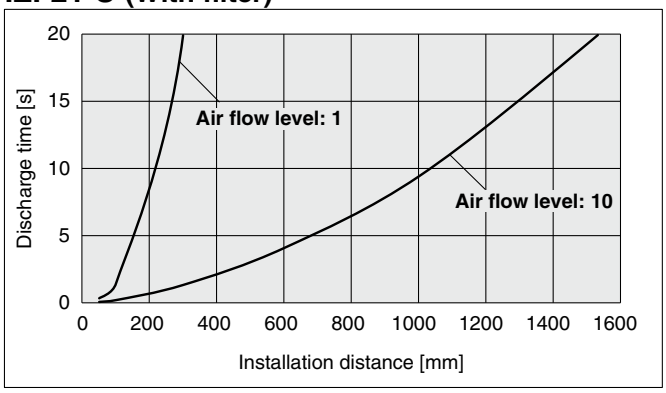
IZF21-S (With automatic cleaning unit)



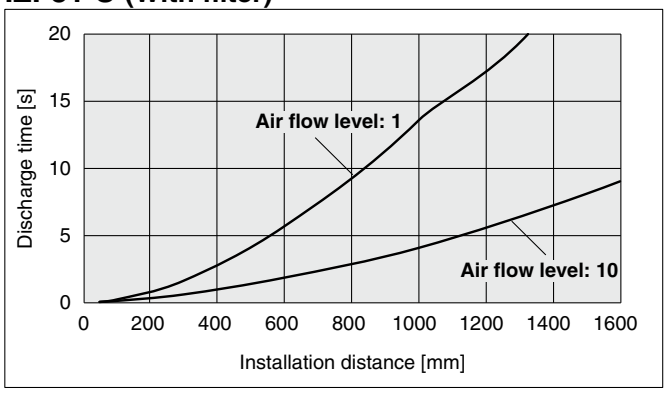
IZF31-S (With automatic cleaning unit)



IZF21-U (With filter)



IZF31-U (With filter)

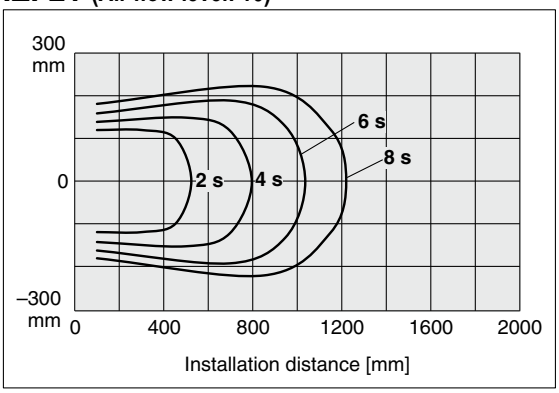


Note) Static neutralization performance is based on the data using the charged plate (size: 150 mm x 150 mm, capacitance: 20 pF) as defined in the U.S. ANSI standards (ANSI/ESD, STM3.1-2006). Use this as a guideline purpose only for model selection because the value varies depending on the material and/or size of a subject.

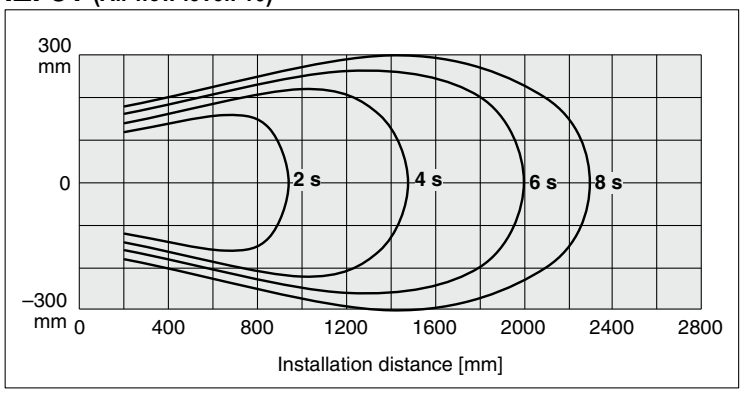
Static Neutralization Performance

② Static Neutralization Range

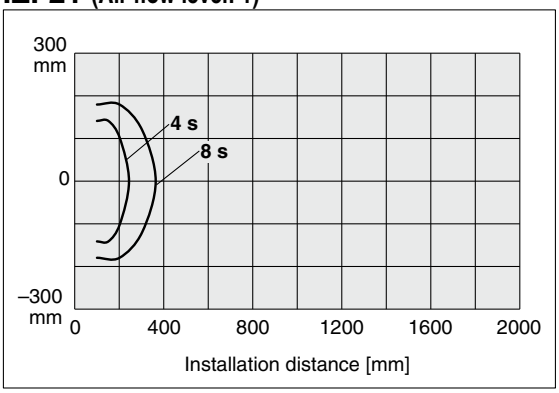
IZF21 (Air flow level: 10)



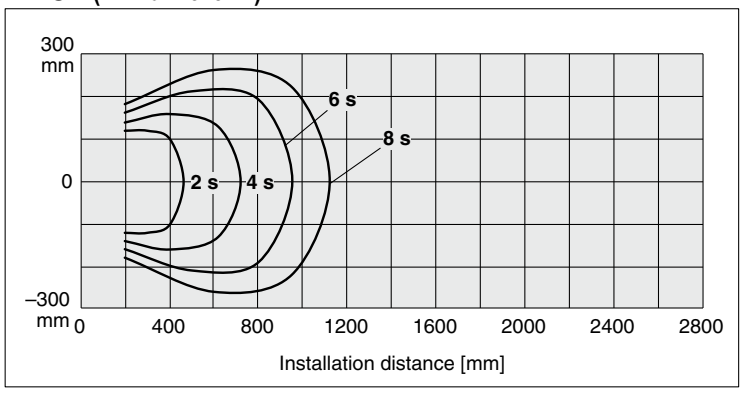
IZF31 (Air flow level: 10)



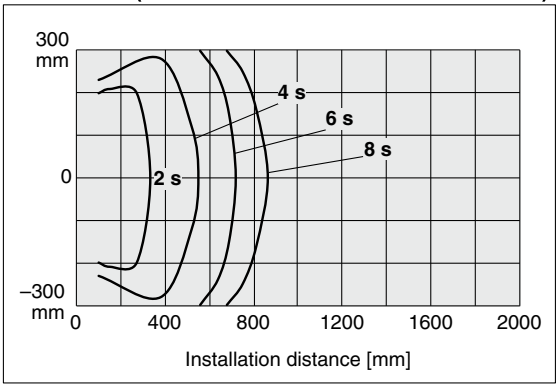
IZF21 (Air flow level: 1)



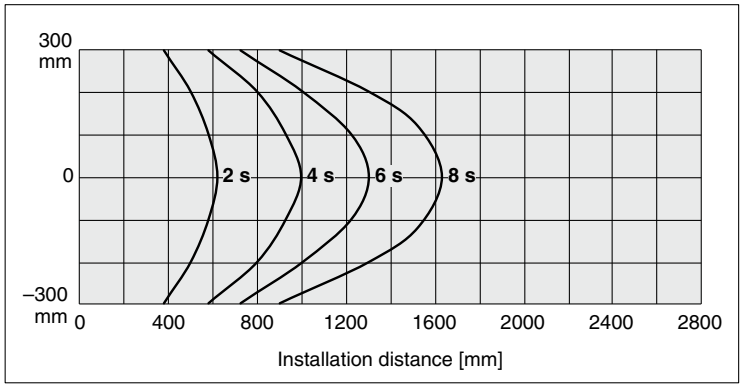
IZF31 (Air flow level: 1)



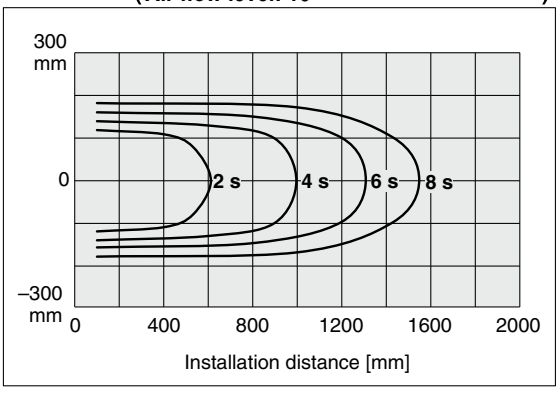
IZF21-W (With adjustable louver: Angle setting 1, Air flow level: 10)



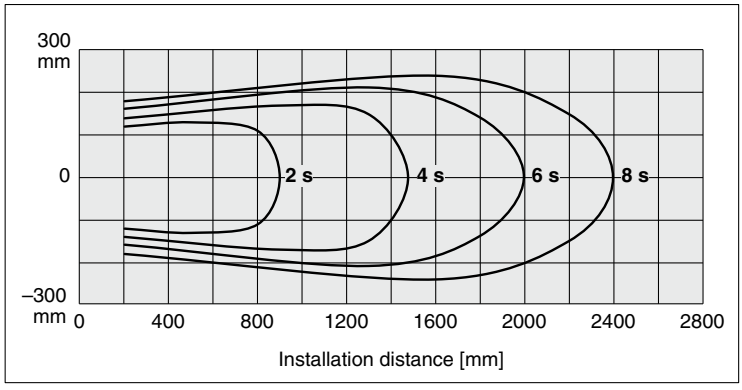
IZF31-W (With adjustable louver: Angle setting 1, Air flow level: 10)



IZF21-W (With adjustable louver: Angle setting 5, Air flow level: 10)



IZF31-W (With adjustable louver: Angle setting 5, Air flow level: 10)



Fan Type Ionizer

Series IZF21/31



How to Order

IZF 21 – □ – □ B □ □

Model

Symbol	Max. air flow
21	1.8 m³/min
31	4.4 m³/min

Input/Output specifications

Nil	NPN input/output
P	PNP input/output

Power supply cable, AC adapter

Nil	With power supply cable (3 m)
Z	With power supply cable (10 m)
Q	With AC adapter (with AC cord)
R	With AC adapter (without AC cord)
N	None

Bracket

Nil	None
B	With bracket

Automatic cleaning unit, Louver

Nil	None
S	With automatic cleaning unit
W	With adjustable louver
Y	With automatic cleaning unit + adjustable louver

Filter

Nil	None
U	With filter*

* Filter + Filter holder

Accessories (for Individual Parts)

Emitter cartridge

IZF 21 – NT

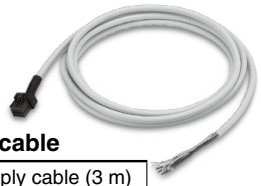


Model

21	For IZF21
31	For IZF31

Power supply cable

IZS41 – CP □



Power supply cable

Nil	Power supply cable (3 m)
Z	Power supply cable (10 m)

IZS41 – CP □ – X13

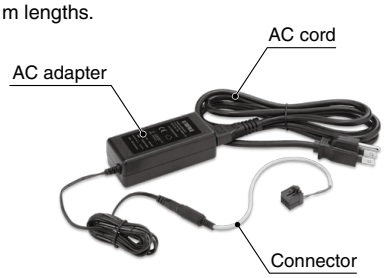
Power supply cable length

01	Total length: 1 m
02	Total length: 2 m
⋮	⋮
19	Total length: 19 m
20	Total length: 20 m

∗ Available in 1 m increments from 1 m to 20 m. Use standard power supply cables for 3 m and 10 m lengths.

AC adapter

IZF21 – C G1



AC adapter

G1	AC adapter (with AC cord)
G2	AC adapter (without AC cord)

Adjustable louver

IZF 21 – HW



Model

21	For IZF21
31	For IZF31

Bracket

IZF 21 – B1



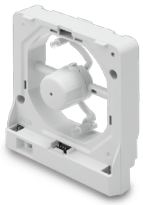
Model

21	For IZF21
31	For IZF31

∗ 4 retaining bolts are included.

Automatic cleaning unit

IZF 21 – HS

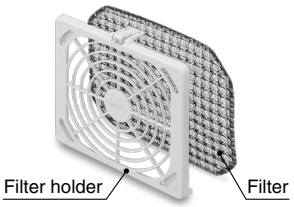


Model

21	For IZF21
31	For IZF31

Air suction side filter

IZF 21 – F L



Model

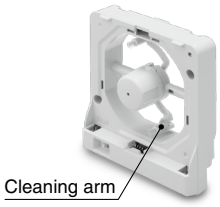
21	For IZF21
31	For IZF31

Air suction side filter

L	Filter
U	Filter + Filter holder

Cleaning arm (for automatic cleaning unit)

IZF 21 – M3



Model

21	For IZF21
31	For IZF31

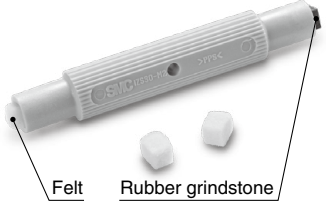
∗ Removable.

Accessories Sold Separately

Cleaning kit

IZS30 – M2

(With 1 felt pad, 1 rubber grindstone, and 2 replacement felt pads)



IZS30 – A0201

(10 replacement felt pads)



IZS30 – A0202

(1 replacement rubber grindstone)



Driver for ion balance adjustment trimmer

IZS30 – M1



Specifications

Model		IZF21-□ NPN	IZF21-P PNP	IZF31-□ NPN	IZF31-P PNP
Maximum air flow		1.8 m³/min		4.4 m³/min	
Applied voltage		±5 kV			
Ion generation method		Corona discharge type			
Method of applying voltage		DC type			
Offset voltage (Ion balance) Note)		±5 V			
Power supply voltage		24 VDC ±10%			
Current consumption		0.9 A or less		1.3 A or less	
Input signal	**Ionizer stop signal**	Connect with 0 V Voltage range: 5 VDC or less Current consumption: 5 mA or less	Connect with +24 V Voltage range: 19 VDC to power supply voltage Current consumption: 5 mA or less	Connect with 0 V Voltage range: 5 VDC or less Current consumption: 5 mA or less	Connect with +24 V Voltage range: 19 VDC to power supply voltage Current consumption: 5 mA or less
	Cleaning input signal				
Output signal	**Maintenance signal**	Maximum load current: 100 mA Residual voltage: 1 V or less (Load current: 100 mA) Maximum applied voltage: 26.4 VDC	Maximum load current: 100 mA Residual voltage: 1 V or less (Load current: 100 mA)	Maximum load current: 100 mA Residual voltage: 1 V or less (Load current: 100 mA) Maximum applied voltage: 26.4 VDC	Maximum load current: 100 mA Residual voltage: 1 V or less (Load current: 100 mA)
	Error signal				
Ambient temperature		Operating: 0 to 50°C Stored: –10 to 60°C			
Ambient humidity		Operating, Stored: 35 to 80%RH (No condensation)			
Material		Case: ABS/PBT/Stainless steel Emitter: Tungsten			
Impact resistance		100 m/s²			
Applicable standard/directive		CE (EMC directive: 2014/30/EC)			

Note) Based on ANSI/ESD-STM3.1-2006 standards

AC Adapter Specifications

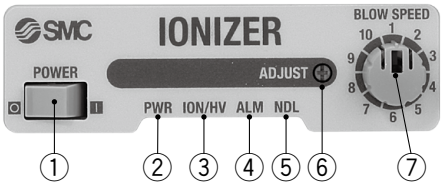
Input voltage	100 to 240 VAC, 50/60 Hz
Output voltage	24 VDC
Output current	1.9 A max
Ambient temperature	0 to 40°C, Stored: –20 to 65°C
Ambient humidity	Operating, Stored: 5 to 95%RH (No condensation)
Weight	375 g (including AC cord, connector)
Applicable standard/directive	CE/cUL

Weights

	IZF21	IZF31
Body	430 g	605 g
Bracket	146 g	220 g
Automatic cleaning unit	96 g	127 g
Louver	33 g	58 g
Filter	15 g	26 g

Functions and Indications

No.	Name	Panel display	Type	Description
1	**Power supply switch**	POWER	Switch	Turns the ionizer ON/OFF.
2	**Power supply indicator**	PWR	LED (Green/Red)	Green lights up when the power supply is ON. Green flashes if the power supply is abnormal. Red flashes if the CPU is abnormal.
3	**Static neutralization operation/Incorrect high voltage indicator**	ION/HV	LED (Green/Red)	Green lights up when static neutralization is operated. Red lights up if incorrect high voltage is detected. Red flashes if the CPU is abnormal.
4	**Error indicator**	ALM	LED (Red)	Red lights up if fan motor failure or automatic cleaning failure is detected. Red flashes if the CPU is abnormal.
5	**Maintenance indicator**	NDL	LED (Green/Red)	Green lights up when emitters require cleaning. Green flashes when automatic cleaning is performed. Red flashes if emitter cartridge mounting failure, automatic cleaning failure or CPU failure is detected.
6	**Balance adjustment**	ADJUST	Trimmer	Adjusts offset voltage (ion balance).
7	**Air flow adjustment**	BLOW SPEED	Rotary switch	Adjusts air flow with fan.

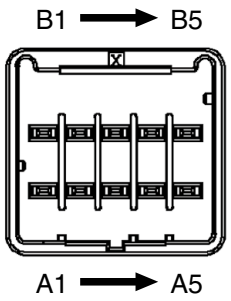


Alarm

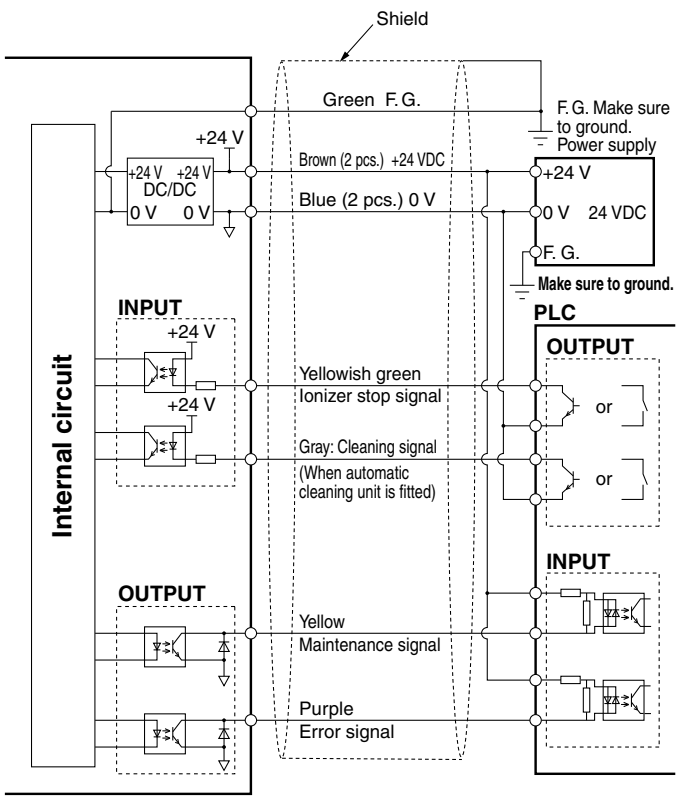
Alarm name	Output signal	LED ON	LED (Flashes at 1 Hz)	Ionizer operation after alarm generated	Description	Action to reset alarm
Power supply failure	Error signal OFF (B contact)	—	PWR (Green)	Stop	Connected power supply voltage is outside of specification.	Reset automatically.
Incorrect high voltage	Error signal OFF (B contact)	ION/HV (Red)	—	Stop	If an abnormal high voltage discharge occurs.	Input the ionizer stop signal or supply power again.
Fan motor failure	Error signal OFF (B contact)	ALM (Red)	—	Stop	Incorrect ionizer operation due to foreign matter in fan motor	Input the ionizer stop signal or supply power again.
CPU failure	Error signal OFF (B contact)	—	PWR (Red) ION/HV (Red) ALM (Red) NDL (Red)	Stop	CPU error due to noise etc.	Supply power again.
Excess current on output circuit	Error signal OFF (B contact) Maintenance signal OFF (A contact)	—	—	Continue	If excess current is present on the output circuit and protection circuit is activated.	Reset automatically.
Maintenance warning	Maintenance signal ON (A contact)	NDL (Green)	—	Continue	When static electricity neutralization performance is reduced due to contamination, wear or damage to emitters.	Input the ionizer stop signal or supply power again.
Emitter cartridge mounting failure	Error signal OFF (B contact)	NDL (Red)	—	Stop	Emitter cartridge is not mounted.	Supply power again.
Automatic cleaning failure	Error signal OFF (B contact)	ALM (Red)	NDL (Red)	Stop	Error during automatic cleaning operation	Supply power again.

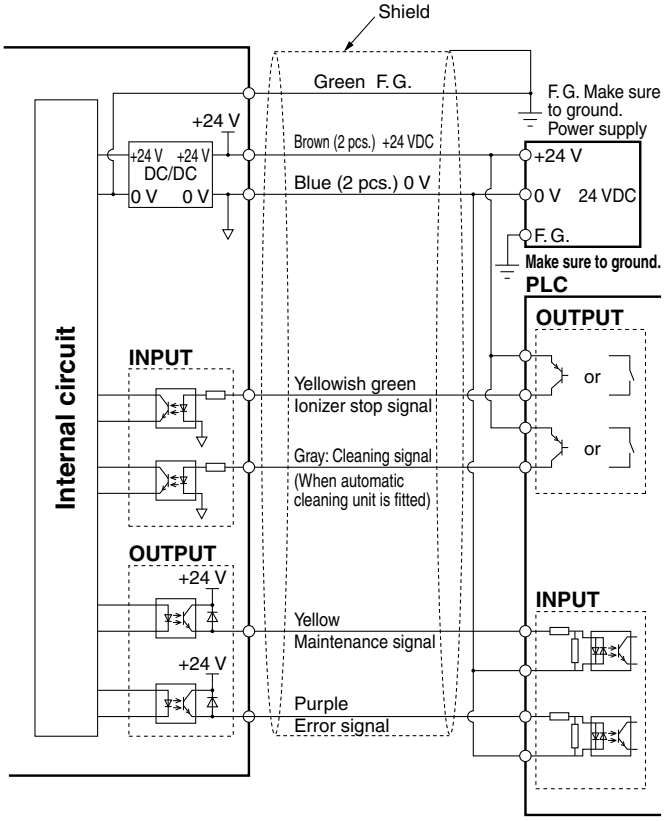
Wiring

Pin no.	Cable color	Signal name	Signal direction	Description
A1	Brown	+24 VDC	IN	Connect the power supply to operate the ionizer.
B1				
A2	Blue	0 V	IN	
B2				
A3	Green	F. G.	—	Ground terminal with 100 Ω or less to use it as a reference electric potential for ionizer.
B3	Yellowish green	Ionizer stop signal	IN	Signal input to turn ON/OFF the ventilation with fan and ion generation. NPN type: To stop fan and ion generation, connect to 0 V. (It operates when disconnected) PNP type: To stop fan and ion generation, connect to +24 VDC. (It operates when disconnected)
A4	Gray	Cleaning signal	IN	When an automatic cleaning unit is fitted, cleaning of the emitters will start.
B4	Yellow	Maintenance signal	OUT (A contact)	Turns ON when cleaning due to emitter contamination and/or replacement due to wear is required or when automatic cleaning is being performed (when an automatic cleaning unit is fitted). Turns off during output circuit over current error.
A5	Purple	Error signal	OUT (B contact)	Turns OFF if power supply failure, incorrect high voltage, fan motor failure, CPU failure, excess current on the output circuit, emitter cartridge mounting failure, or automatic cleaning failure (for product with automatic cleaning function) is detected. (ON when there is no problem)
B5	White	—	—	—



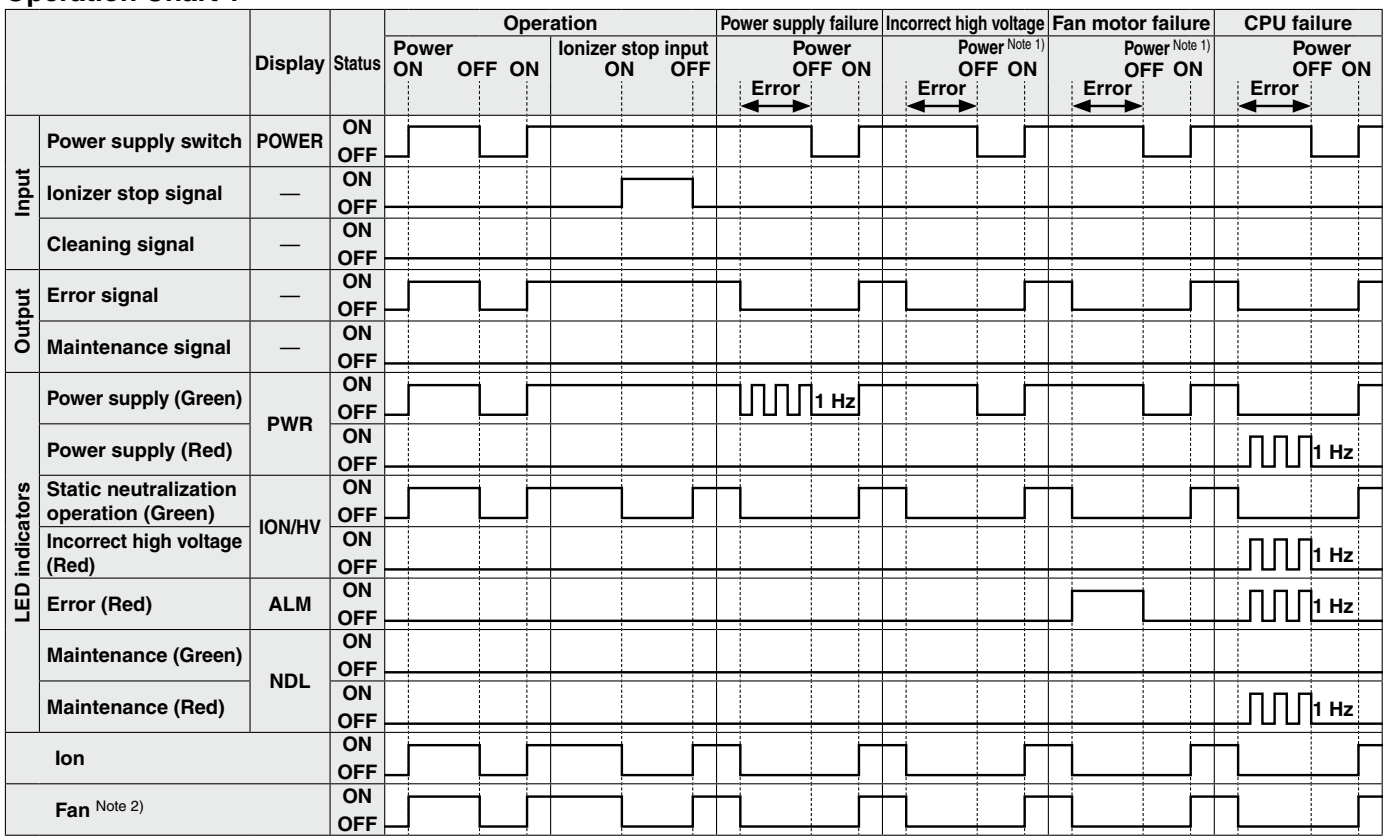
Wiring Circuit



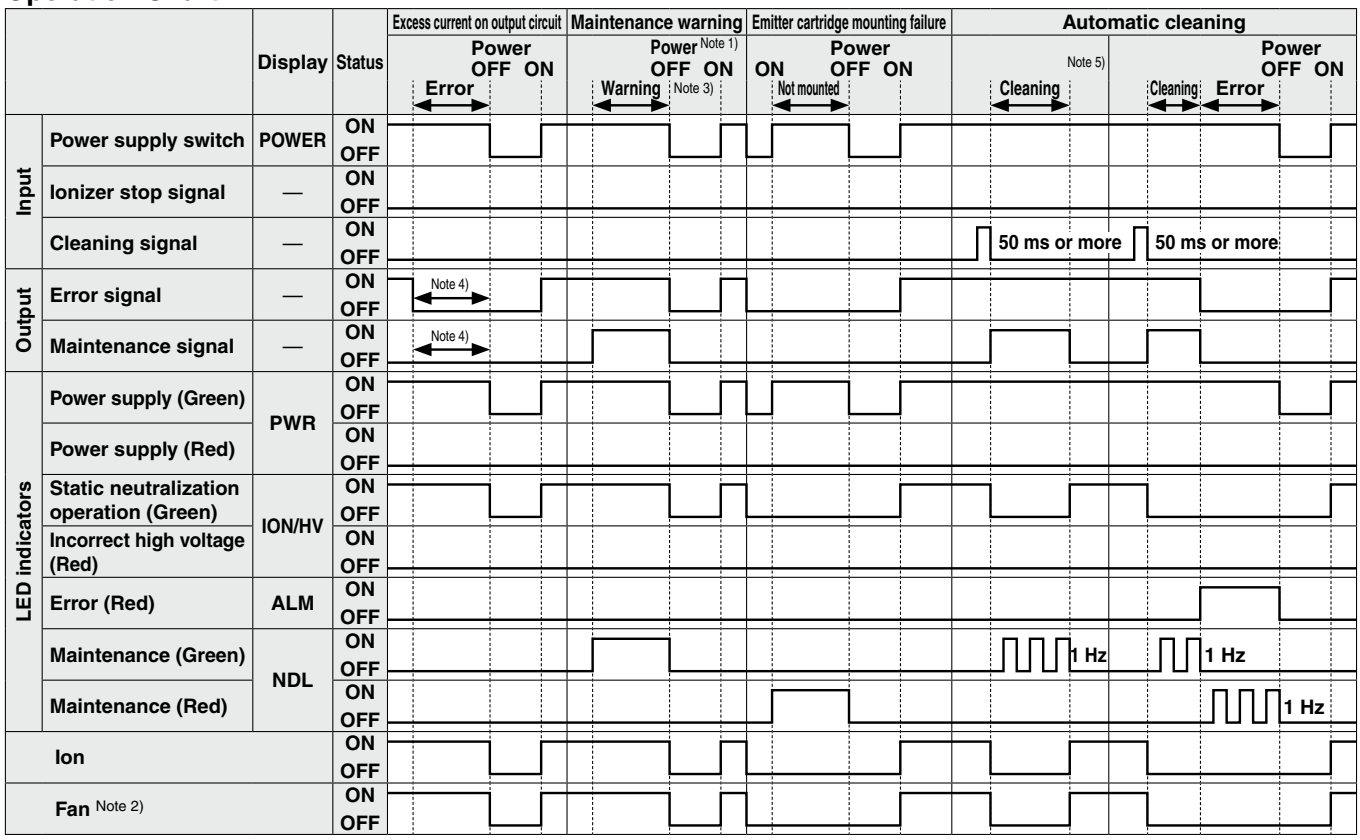


Operation Chart

Operation Chart 1



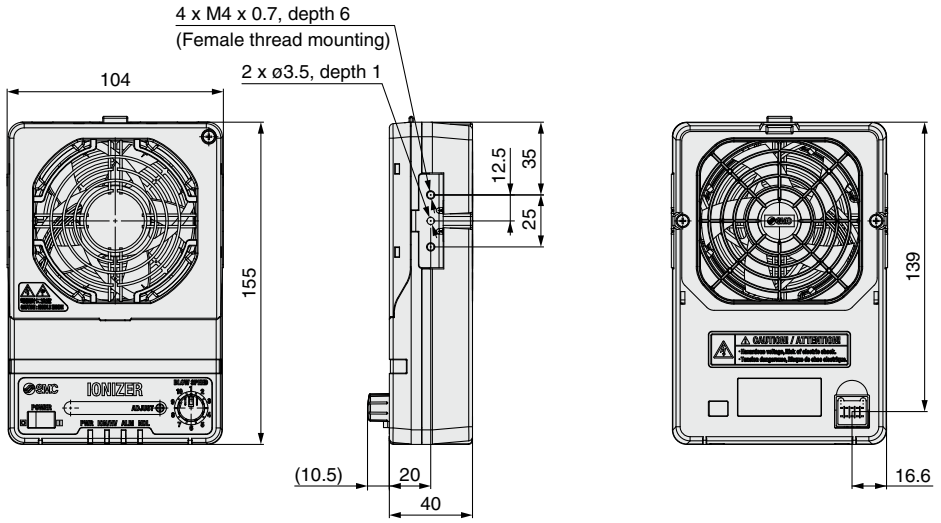
Operation Chart 2



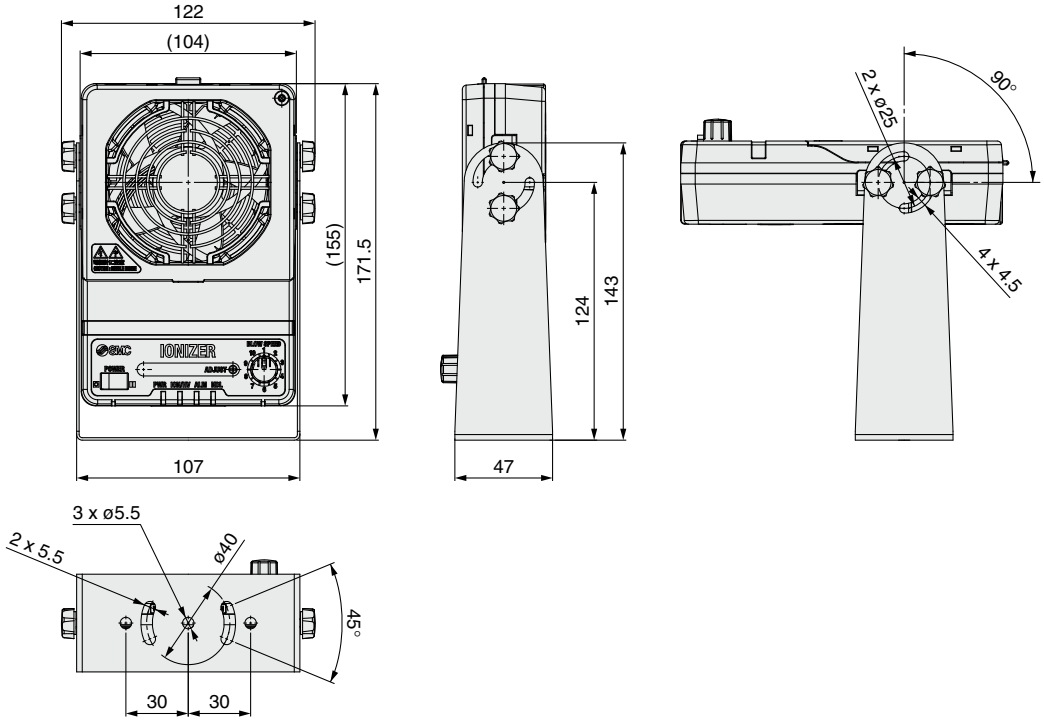
Note 1) Incorrect high voltage, fan motor failure, and maintenance warning can also be released by the ionizer stop signal after resolving the error.
Note 2) Fan rotation stops gradually because of its rotational inertia.
Note 3) Ensure the power supply is turned off before clearing errors or cleaning emitters. If an alarm continues to be generated even after cleaning, the emitters may be worn out or damaged. If wear or damage to the emitters is detected, replace the emitter cartridge with a new one.
Note 4) When excess current flows to the error signal or maintenance signal, the signal will be turned OFF to protect the output circuit.
Note 5) The cleaning time is approximately 2 seconds.

Dimensions

IZF21-□-□□□□

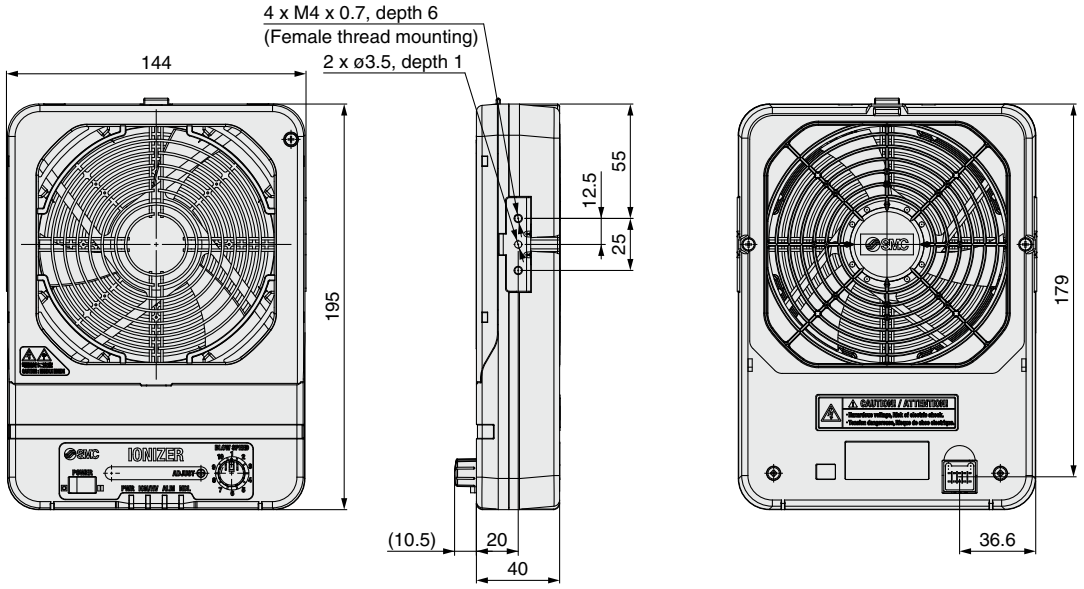


Bracket
IZF21-□-□B□□

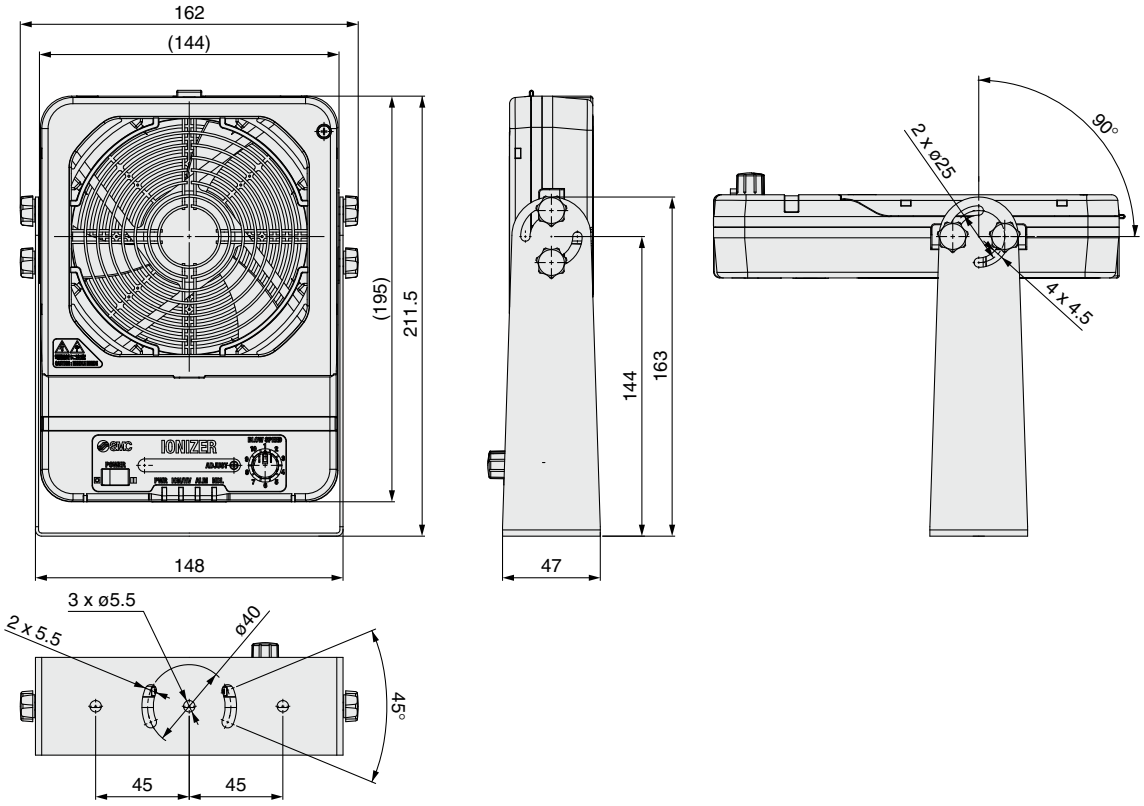


Dimensions

IZF31-□-□□□□

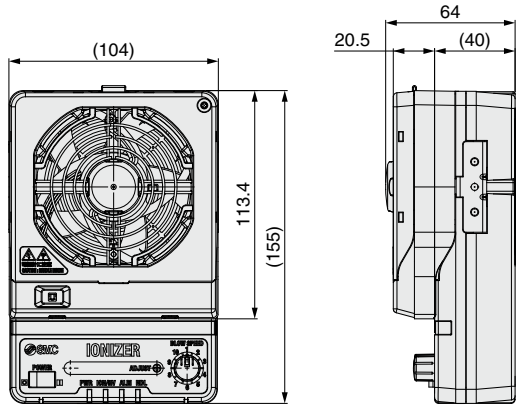


Bracket
IZF31-□-□B□□

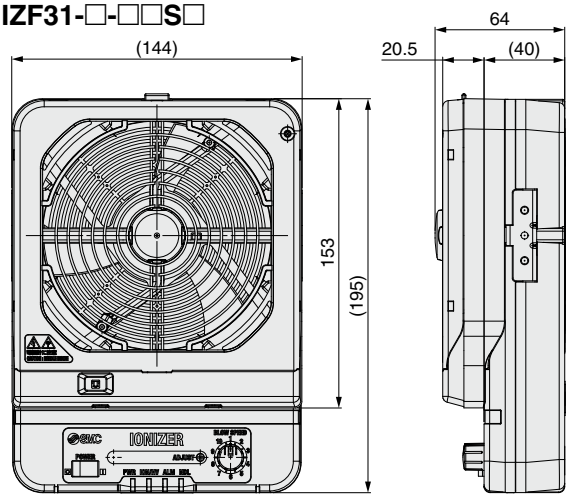


Dimensions

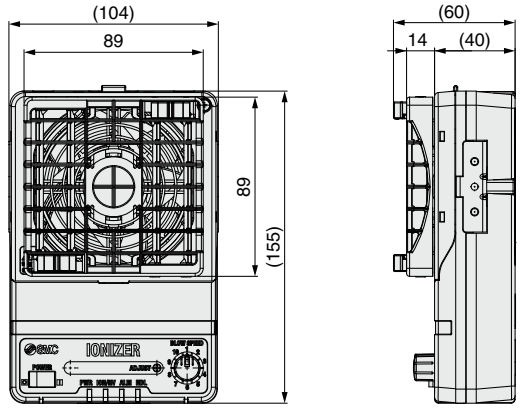
With automatic cleaning unit
IZF21-□-□□S□



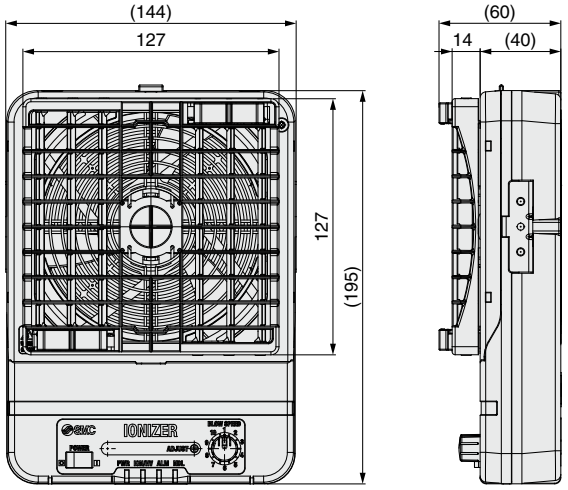
IZF31-□-□□S□



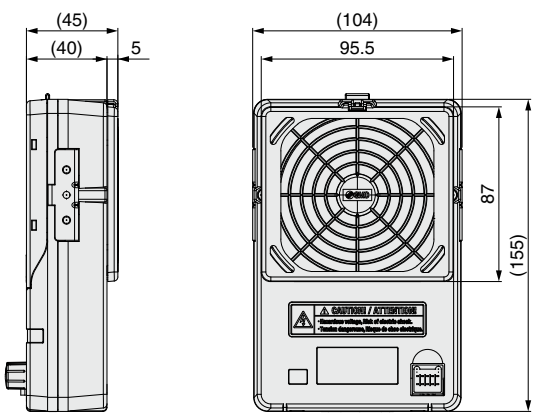
With adjustable louver
IZF21-□-□□W□



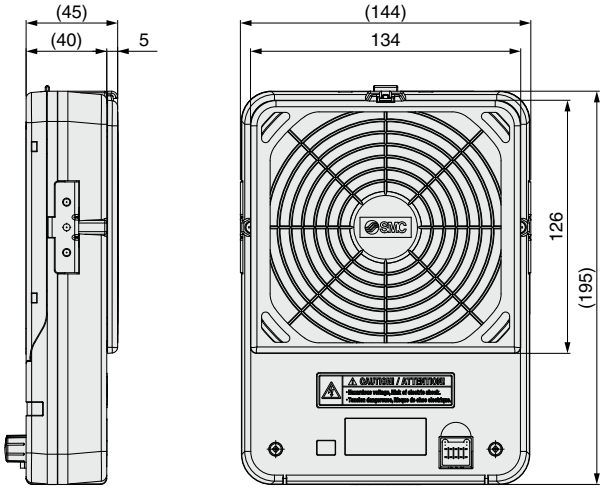
IZF31-□-□□W□



With filter
IZF21-□-□□□U



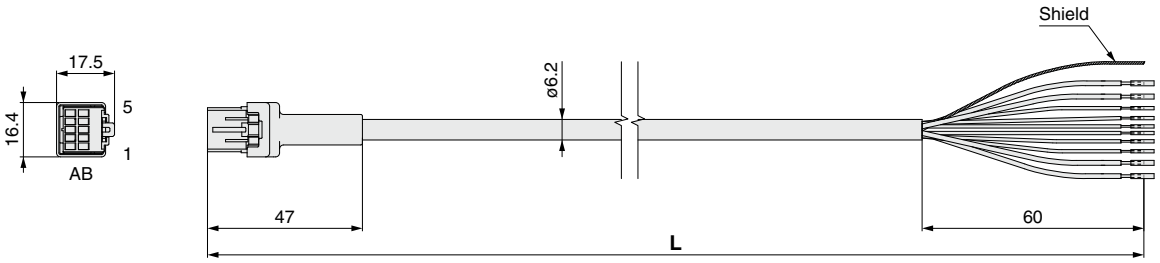
IZF31-□-□□□U



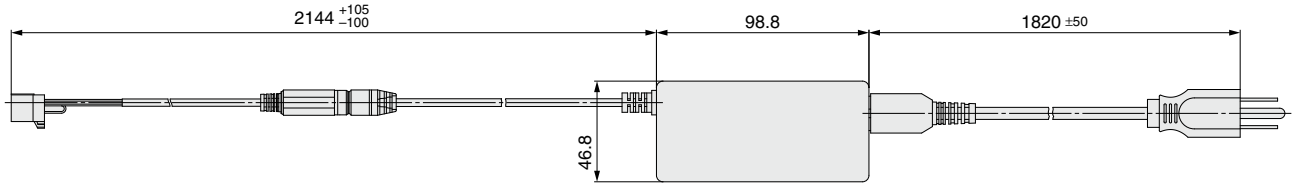
Dimensions

Power supply cable
IZS41-CP

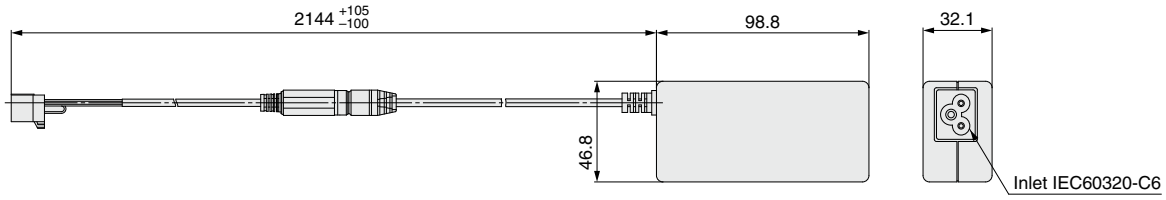
Part no.	L
IZS41-CP	3000 $^{+60}_{0}$
IZS41-CPZ	9850 $^{+100}_{0}$



AC adapter
IZF21-CG1 (with AC cord)



IZF21-CG2 (without AC cord)



Technical Data

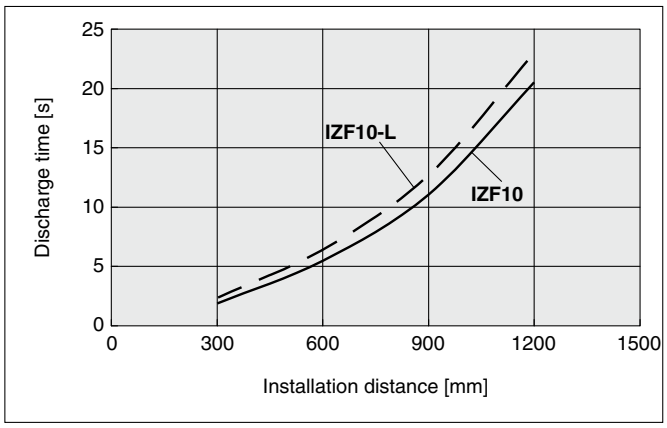


Static Neutralization Performance

Note) Static neutralization performance is based on the data using the charged plate (size: 150 mm x 150 mm, capacitance: 20 pF) as defined in the U.S. ANSI standards (ANSI/ESD, STM3.1-2006). Use this as a guideline purpose only for model selection because the value varies depending on the material and/or size of a subject.

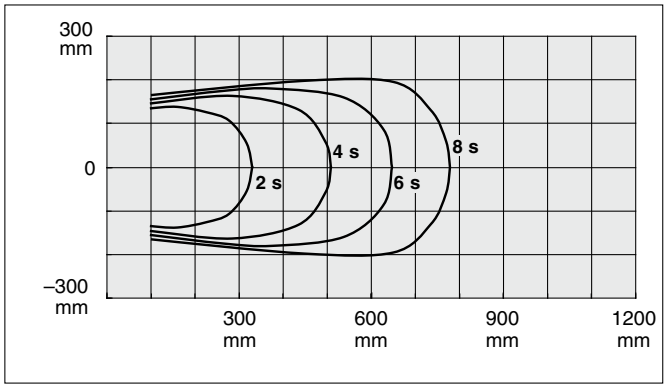
① Installation Distance and Discharge Time (Discharge time from 1000 V to 100 V)

IZF21

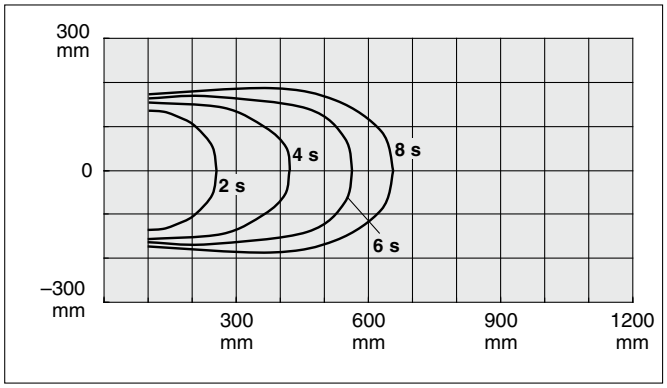


② Static Neutralization Range

IZF10



IZF10-L



Fan Type Ionizer

Series IZF10

CE

RoHS



How to Order

IZF10 – □□ – □□

Compact fan type

Air flow

Nil	0.66 m³/min
L	0.46 m³/min

Output

Nil	NPN output
P	PNP output

Bracket

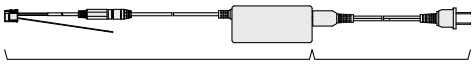
Nil	None
B	With bracket

Power supply cable

Nil	With power supply cable (3 m)
Z	With power supply cable (10 m)
H Note)	e-con connector
Q	With AC adapter (with AC cord)
R	With AC adapter (without AC cord)
N	None

Note) Option (H) is a supply connector for customers who prepare a cable.

AC adapter



Accessories (for Individual Parts)

Power supply cable

IZF10 – C P

Power supply cable, AC adapter

P	Power supply cable (3 m)
PZ	Power supply cable (10 m)
G1	AC adapter (with AC cord)
G2	AC adapter (without AC cord)



Power supply cable

AC adapter



AC cord

Note) AC cord is only for use in Japan. (Rated voltage 125 V, Plug JIS C8303, Inlet IEC60320-C8)

e-con connector

ZS – 28 – C



Note) Applicable wire size: AWG26 to 24, Conductor cross sectional area: 0.14 to 0.2 mm², Finished outside diameter: ø0.8 to ø1.0 mm.

Cartridge case

IZF10 – A1



Bracket

IZF10 – B1

Note) 4 retaining bolts are included.

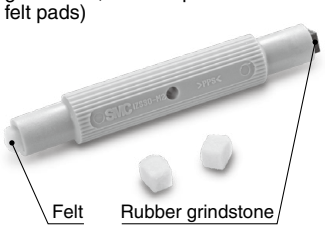


Accessories Sold Separately

Cleaning kit

IZS30 – M2

(With 1 felt pad, 1 rubber grindstone, and 2 replacement felt pads)



IZS30 – A0201

(10 replacement felt pads)



IZS30 – A0202

(1 replacement rubber grindstone)



Driver for ion balance adjustment trimmer

IZS30 – M1



SMC

Specifications

Model	IZF10-□□	IZF10-L-□□	IZF10-P-□□	IZF10-LP-□□
Air flow	0.66 m³/min	0.46 m³/min	0.66 m³/min	0.46 m³/min
Ion generation method	Corona discharge type			
Method of applying voltage	DC type			
Applied voltage	±5 kV			
Offset voltage (Ion balance) Note)	Within ±13 V			
Power supply voltage	24 VDC ±10 (%)			
Power consumption	6.1 W or less	3.7 W or less	6.6 W or less	4.8 W or less
Switch output	NPN open collector output Maximum load current: 80 mA Residual voltage: 1 V or less (Load current: 80 mA) Maximum load voltage: 26.4 VDC		PNP open collector output Maximum load current: 80 mA Residual voltage: 1 V or less (Load current: 80 mA)	
Ambient temperature	Operating: 0 to 50°C, Stored: –10 to 60°C			
Ambient humidity	Operating, Stored: 35 to 80%RH (No condensation)			
Material	Case: ABS/Stainless steel, Emitter: Tungsten			
Weight	280 g (With bracket: 360 g)			
Applicable standard/directive	CE (EMC directive: 2004/108/EC)			

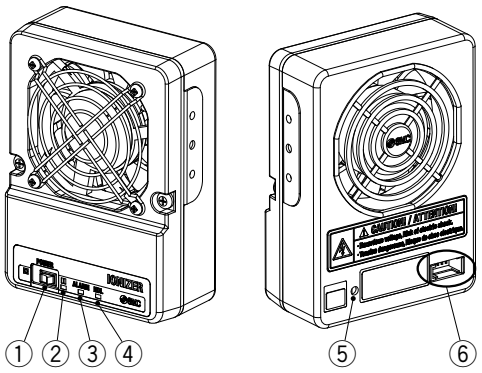
Note) Based on ANSI/ESD-STM3.1-2006 standards

AC Adapter (IZF10-CG1/IZF10-CG2)

Input voltage	100 to 240 VAC, 50/60 Hz
Output voltage	24 VDC
Output current	1 A max
Ambient temperature	0 to 40°C, Stored: –20 to 65°C
Ambient humidity	Operating, Stored: 10 to 90%RH (No condensation)
Applicable standard/directive	CE/cUL

Functions and Indications

No.	Name	Type	Description
1	**Power supply switch**	Switch	Turns the ionizer ON/OFF.
2	**Power supply indicator**	LED (Green/Orange)	Turns ON (Green) when the power is supplied. Turns ON (Orange) if a high voltage error or excess current on the output is detected.
3	**Error indicator**	LED (Red)	Turns ON if an abnormal discharge continues for 100 ms or more.
4	**Maintenance indicator**	LED (Green)	Turns ON when emitters require cleaning.
5	**Balance adjustment**	Trimmer	Adjusts offset voltage (ion balance).
6	**Connector**	e-con	Connects the power supply, F.G., and output.



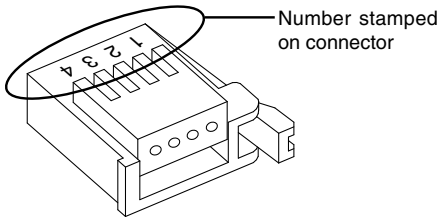
Alarm

Alarm name	Output Note)	LED	Ion generation during alarm	Fan rotation during alarm	Description	Action to reset alarm
Excess current on output circuit	Turns OFF if error occurs.	POWER (Orange)	Continue	Continue	If excess current is present on the output circuit and protection circuit is activated.	Supply power again.
Incorrect high voltage	Turns OFF if error occurs.	POWER (Orange) ALARM (Red)	Stop	Continue	If an abnormal high voltage discharge continues for 100 ms or more.	Supply power again.
Maintenance warning	—	NDL (Green)	Continue	Continue	When static neutralization performance is reduced due to contamination, wear or damage to emitters.	—

Note) NPN/PNP open collector output

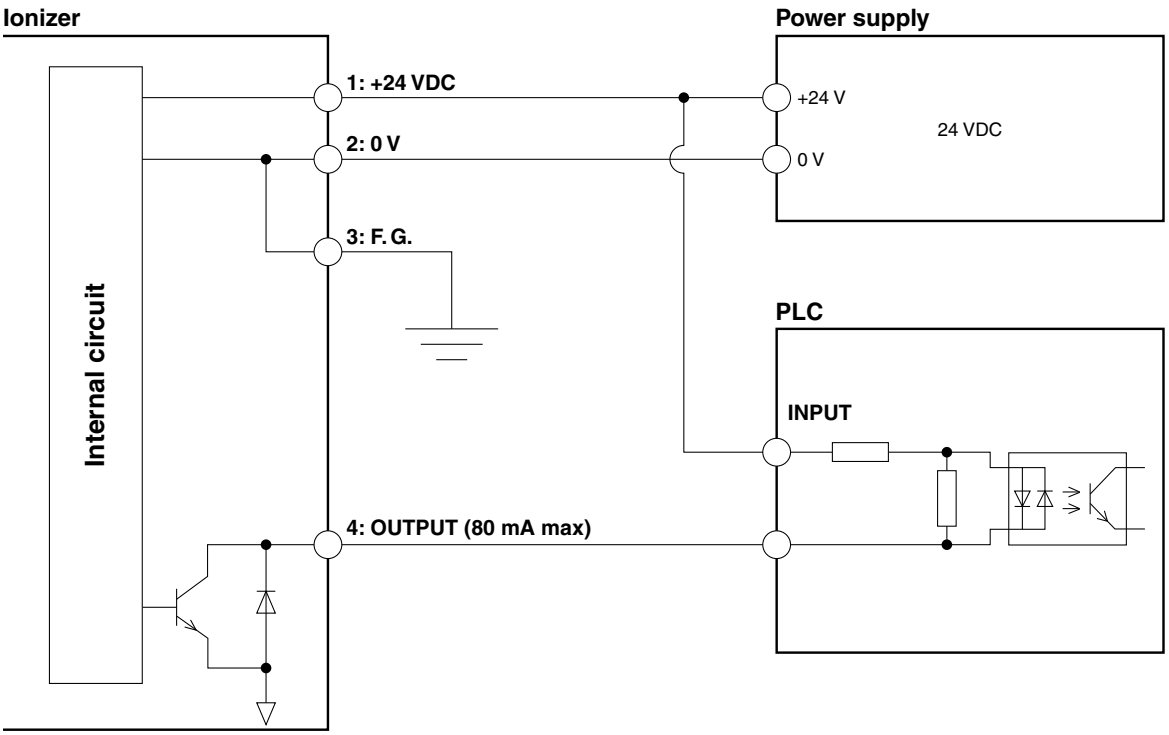
Wiring

Number stamped on connector	Signal name	Description
1	+24 VDC	Connect the power supply to operate the ionizer.
2	0 V	
3	F. G.	Ground terminal to use it as a reference electric potential for ionizer.
4	Error signal	Turns OFF if any of the errors below occur (normally ON). · If an abnormal high voltage discharge continues for 100 ms or more. · If excess current is present on the output circuit.

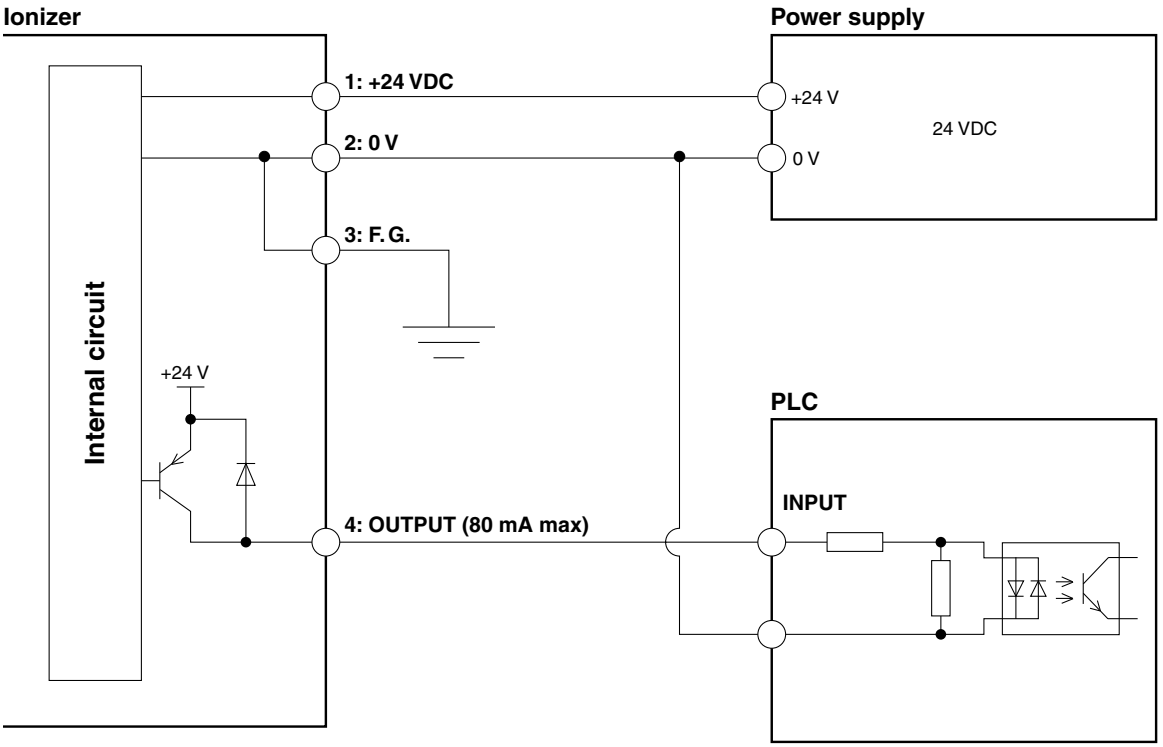


Wiring Circuit

NPN output



PNP output



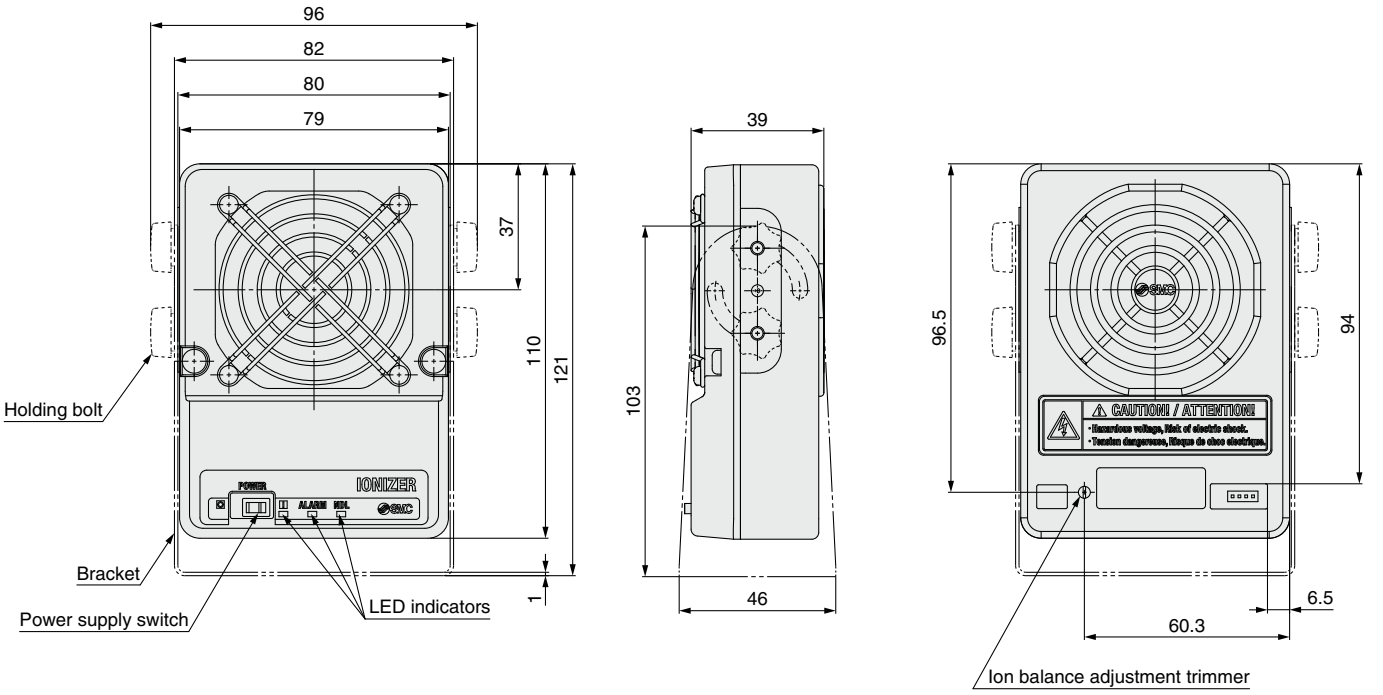
Operation Chart

Timing Chart

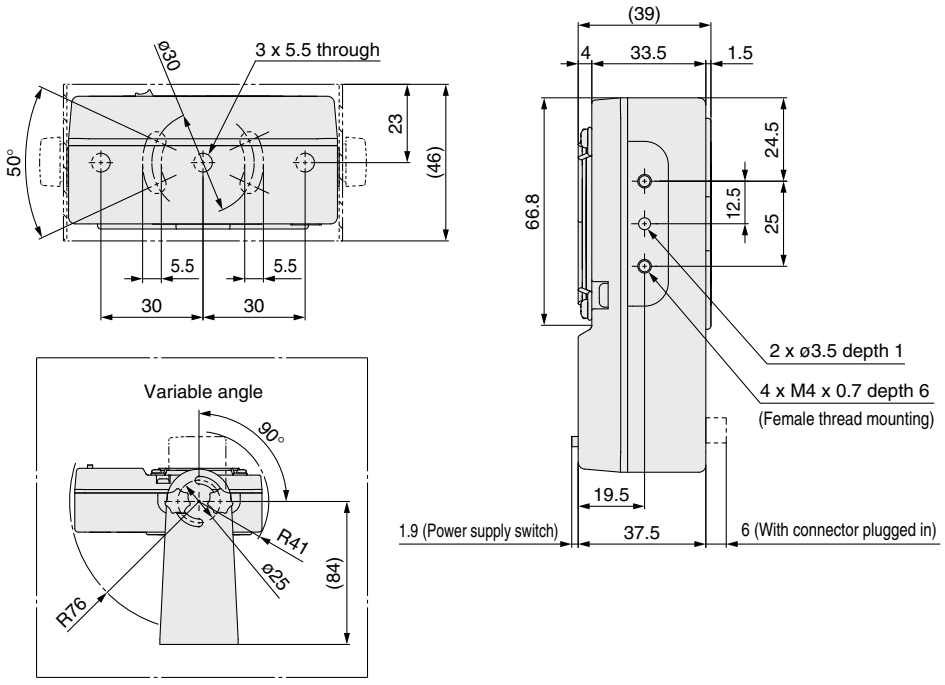
		Display	Status	Operation	Excess current on output circuit	Abnormal high voltage discharge	Maintenance warning
				Power ON / OFF / ON	Excess current / OFF / ON	Abnormal discharge / OFF / ON	Warning / OFF / ON
Input	Power supply switch	—	ON / OFF				
Output	Error (ON when it is normal)	—	ON / OFF				
LED indicators	Power supply (Green)	POWER	ON / OFF				
	Excess current on output circuit (Orange)		ON / OFF				
	Incorrect high voltage (Red)	ALARM	ON / OFF				
	Maintenance (Green)	NDL	ON / OFF				
	Ion		ON / OFF				
	Fan		ON / OFF				

Note) Ensure the power supply is turned off before clearing errors or cleaning emitters. If an alarm continues to be generated even after cleaning, the emitters may be worn out or damaged. If wear or damage to the emitters is detected, replace the emitters.

Dimensions



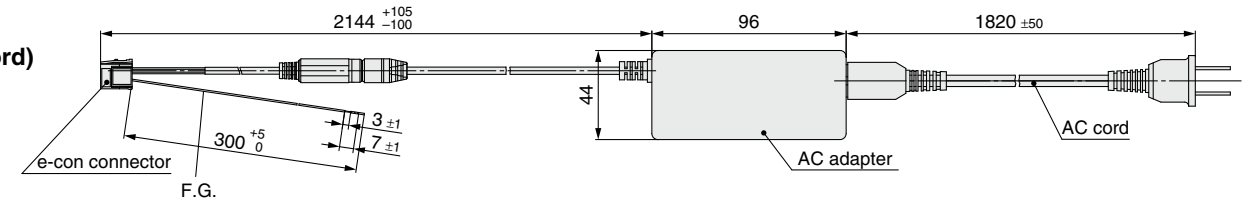
Without bracket



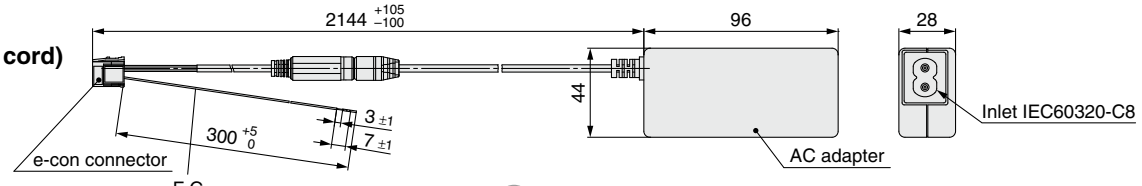
Wiring

Pin no.	Lead wire (color)	Description
1	Brown	24 VDC
2	Blue	GND
3	Green	F.G.
4	Purple	Error signal

IZF10-CG1
(with AC cord)



IZF10-CG2
(without AC cord)



Series IZF
Specific Product Precautions 1

Be sure to read this before handling. Refer to the back cover for Safety Instructions.

Selection

⚠Warning

1. This product is intended to be used with general factory automation (FA) equipment.

If considering using the product for other applications (especially those stipulated on Safety Instructions), please consult SMC beforehand.

2. Use this product within the specified voltage and temperature range.

Using outside of the specified voltage can cause a malfunction, damage, electrical shock, or fire.

3. This product is not explosion-protected.

Never use this product in locations where the explosion of dust is likely to occur or flammable or explosive gases are used. This can cause a fire.

⚠Caution

1. Clean specification is not available with this product.

Mounting

⚠Warning

1. Reserve an enough space for maintenance and wiring.

Install the product in consideration of the connector connection part and the emitter cartridge mounting part so that there is enough space for emitter maintenance, inspection and wiring. To avoid unreasonable stress applied to the connector mounting parts, bending of the cable should be more than the minimum bending radius. If the cable is bent in an acute angle or load is applied to the cable successively, it may cause a malfunction, broken wire or fire.

2. Mount this product on a plane surface.

Mounting on an uneven surface will apply excess force to the frame or case, which leads to damage or failure. Do not drop the product or subject it to a strong impact. This may cause an injury or accident.

3. Avoid using in a place where noise (electromagnetic wave and surge) is generated.

If the product is used in an environment where noise is generated, it may lead to deterioration or damage of the internal elements. Take measures to prevent noise at its source and avoid power and signal lines from coming into close contact.

4. Use a correct tightening torque.

If the screws are tightened in excessive of the specified torque range, it may damage the mounting screws, mounting brackets, etc. If the tightening torque is insufficient, the mounting screws and brackets may become loose.

5. Do not adhere tape or sticker onto the product body.

If the tape or sticker contains conductive adhesive or reflective paint, it is possible that due to the dielectric effect, charge could build up causing an electro-static discharge or electrical leakage.

6. Be sure to cut off the power supply before installing and adjusting the product.

Mounting

⚠Caution

1. Secure enough space on the rear side of the ionizer so that the air suction is performed with a fan.

This product ventilates with an fan motor. If there are obstacles such as wall on the rear side (air suction side) of the ionizer, the ventilation will be obstructed, decreasing the static neutralization performance. Install the ionizer so that its rear surface is at least 20 mm (for IZF21) or 30 mm (for IZF31) away from the obstacles.

2. Be sure to check the effect of static neutralization after installation.

The effect of the static neutralization varies depending on the surrounding installation and operating conditions. Check the effect of the static neutralization after installation.

3. When installing ionizers which operate in DC mode (one polarity, positive or negative) close together, they should be positioned at least 2 m away from each other.

When an ionizer is used close to the ionizer which operates in DC mode, separate them by at least 2 m. The offset voltage (ion balance) may not be adjusted by the built-in sensor due to the ions discharged from the ionizer which operates in DC mode.

4. Do not apply an excessive external force to the finger guard on the air suction side.

If an excessive external force is applied to the finger guard (including the filter holder) on the air suction side, it may be broken. Do not apply an external force of 50 N or more to the finger guard.

Wiring

⚠Warning

1. Before wiring, ensure that the power supply capacity is larger than the specification and that the voltage is within the specification.

2. To maintain product performance, the power supply shall be UL listed Class 2 certified by National Electric Code (NEC) or evaluated as a limited power source provided by UL60950.

3. To maintain the product performance, ground the product with an earth ground cable with a resistance of 100 Ω or less according to this catalog.

4. Be sure to turn off the power supply before wiring (including attachment/detachment of the connector).

5. When applying the power supply, pay special attention to the wiring and/or surrounding environment until the safety is confirmed.

6. Do not connect or remove any connectors including the power supply, while power is being supplied. Otherwise, the ionizer may malfunction.

7. If the power line and high-pressure line are routed together, this product may malfunction due to noise. Therefore, use a separate wiring route for this product.

8. Be sure to confirm that there are no wiring errors before starting this product. Faulty wiring will lead to product damage or malfunction.

Series IZF
Specific Product Precautions 2

Be sure to read this before handling. Refer to the back cover for Safety Instructions.

Operating Environment/ Storage Environment

⚠Warning

1. Keep within the specified ambient temperature range.

The specified ambient temperature range for ionizer is 0 to 50°C, and for AC adapter is 0 to 40°C. Avoid sudden temperature changes even within specified ambient temperature range, as it may cause condensation.

2. Do not use this product in an enclosed space.

This product utilizes a corona discharge phenomenon. Do not use the product in an enclosed space as ozone and nitrogen oxides exist in such places, even though in marginal quantities.

3. Environments to avoid

Never use or store under the following conditions. These may cause a failure, fire, etc.

a. Areas where ambient temperature exceeds the operating temperature range.
b. Areas where ambient humidity exceeds the operating humidity range.
c. Areas where abrupt temperature changes may cause condensation.
d. Areas where corrosive gas, flammable gas or other volatile flammable substances are stored.
e. Areas where the product may be exposed to conductive powder such as iron powder or dust, oil mist, salt, organic solvent, machining chips, particles or cutting oil (including water and any liquids), etc.
f. Paths of direct air flow, such as air conditioners.
g. Enclosed or poorly ventilated areas.
h. Locations that are exposed to direct sunlight or heat radiation.
i. Areas where strong electromagnetic noise is generated, such as strong electrical and magnetic fields or supply voltage spikes.
j. Areas where the product is exposed to static electricity discharge.
k. Locations where strong high frequency is generated.
l. Locations that are subject to potential lightning strikes.
m. In an area where the product may receive direct impact or vibration.
n. Areas where the product may be subjected to forces or weight that could cause physical deformation.

Maintenance

⚠Warning

1. Perform maintenance regularly and clean the emitters.

It is recommended to perform maintenance every week or when the maintenance (NDL) LED turns ON.

Check regularly if the product is operating with undetected failures or not. The maintenance must be performed by an operator who has sufficient knowledge and experience. If the product is used for an extended period of time with dust present on the emitters, the product's ability to neutralize static electricity will be reduced.

If the emitter becomes worn and the product's ability to neutralize static electricity is not restored after cleaning, replace the emitter cartridge.

2. Cleaning or replacing the emitters should never be performed while the power is supplied to the product.

Fan rotates due to inertial force even when power supply is stopped. Confirm that the fan does not move before performing cleaning or replacing the emitters.

Never perform cleaning or replacing the emitters when the product is energized. The fan rotation may cause injury.

If the emitter is touched while the product is energized, it may cause an electric shock or accident.

3. Do not disassemble or modify the product.

Disassembling or modifying the product may cause accidents such as electric shock, failure or fire. The product will not be guaranteed if it is disassembled and/or modified.

4. Do not operate the product with wet hands.

Never operate the product with wet hands. It may cause electric shock or other accidents.

⚠Danger High Voltage

This product contains a high-voltage generation circuit. When performing maintenance inspection, be sure to confirm that the power supply to the ionizer is turned off. Never disassemble or modify the ionizer, as this may not only impair the product's functionality but could cause an electric shock or electric leakage.

⚠Caution

1. Do not drop, hit or apply excessive shock (100 m/s^2 or more) to the product when handling it.

Even if the ionizer body is not damaged, the internal components may be damaged, leading to a malfunction.

⚠ Safety Instructions

These safety instructions are intended to prevent hazardous situations and/or equipment damage. These instructions indicate the level of potential hazard with the labels of **"Caution," "Warning"** or **"Danger."** They are all important notes for safety and must be followed in addition to International Standards (ISO/IEC)*1), and other safety regulations.

⚠ Caution: **Caution** indicates a hazard with a low level of risk which, if not avoided, could result in minor or moderate injury.

⚠ Warning: **Warning** indicates a hazard with a medium level of risk which, if not avoided, could result in death or serious injury.

⚠ Danger : **Danger** indicates a hazard with a high level of risk which, if not avoided, will result in death or serious injury.

*1) ISO 4414: Pneumatic fluid power – General rules relating to systems.
ISO 4413: Hydraulic fluid power – General rules relating to systems.
IEC 60204-1: Safety of machinery – Electrical equipment of machines.
(Part 1: General requirements)
ISO 10218-1: Manipulating industrial robots – Safety.
etc.

⚠ Warning

1. The compatibility of the product is the responsibility of the person who designs the equipment or decides its specifications.

Since the product specified here is used under various operating conditions, its compatibility with specific equipment must be decided by the person who designs the equipment or decides its specifications based on necessary analysis and test results. The expected performance and safety assurance of the equipment will be the responsibility of the person who has determined its compatibility with the product. This person should also continuously review all specifications of the product referring to its latest catalog information, with a view to giving due consideration to any possibility of equipment failure when configuring the equipment.

2. Only personnel with appropriate training should operate machinery and equipment.

The product specified here may become unsafe if handled incorrectly. The assembly, operation and maintenance of machines or equipment including our products must be performed by an operator who is appropriately trained and experienced.

3. Do not service or attempt to remove product and machinery/ equipment until safety is confirmed.

1. The inspection and maintenance of machinery/equipment should only be performed after measures to prevent falling or runaway of the driven objects have been confirmed.
2. When the product is to be removed, confirm that the safety measures as mentioned above are implemented and the power from any appropriate source is cut, and read and understand the specific product precautions of all relevant products carefully.
3. Before machinery/equipment is restarted, take measures to prevent unexpected operation and malfunction.

4. Contact SMC beforehand and take special consideration of safety measures if the product is to be used in any of the following conditions.

1. Conditions and environments outside of the given specifications, or use outdoors or in a place exposed to direct sunlight.
2. Installation on equipment in conjunction with atomic energy, railways, air navigation, space, shipping, vehicles, military, medical treatment, combustion and recreation, or equipment in contact with food and beverages, emergency stop circuits, clutch and brake circuits in press applications, safety equipment or other applications unsuitable for the standard specifications described in the product catalog.
3. An application which could have negative effects on people, property, or animals requiring special safety analysis.
4. Use in an interlock circuit, which requires the provision of double interlock for possible failure by using a mechanical protective function, and periodical checks to confirm proper operation.

⚠ Caution

1. The product is provided for use in manufacturing industries.

The product herein described is basically provided for peaceful use in manufacturing industries.
If considering using the product in other industries, consult SMC beforehand and exchange specifications or a contract if necessary.
If anything is unclear, contact your nearest sales branch.

Limited warranty and Disclaimer/ Compliance Requirements

The product used is subject to the following "Limited warranty and Disclaimer" and "Compliance Requirements".
Read and accept them before using the product.

Limited warranty and Disclaimer

1. The warranty period of the product is 1 year in service or 1.5 years after the product is delivered, whichever is first.*2)
   Also, the product may have specified durability, running distance or replacement parts. Please consult your nearest sales branch.
2. For any failure or damage reported within the warranty period which is clearly our responsibility, a replacement product or necessary parts will be provided.
   This limited warranty applies only to our product independently, and not to any other damage incurred due to the failure of the product.
3. Prior to using SMC products, please read and understand the warranty terms and disclaimers noted in the specified catalog for the particular products.

*2) **Vacuum pads are excluded from this 1 year warranty.**
A vacuum pad is a consumable part, so it is warranted for a year after it is delivered.
Also, even within the warranty period, the wear of a product due to the use of the vacuum pad or failure due to the deterioration of rubber material are not covered by the limited warranty.

Compliance Requirements

1. The use of SMC products with production equipment for the manufacture of weapons of mass destruction (WMD) or any other weapon is strictly prohibited.
2. The exports of SMC products or technology from one country to another are governed by the relevant security laws and regulations of the countries involved in the transaction. Prior to the shipment of a SMC product to another country, assure that all local rules governing that export are known and followed.

⚠ Caution

SMC products are not intended for use as instruments for legal metrology.

Measurement instruments that SMC manufactures or sells have not been qualified by type approval tests relevant to the metrology (measurement) laws of each country. Therefore, SMC products cannot be used for business or certification ordained by the metrology (measurement) laws of each country.