

High-frequency AC Method

Fan Type Ionizer

ER-F SERIES



ER-F SERIES

No compressed air necessary

CE



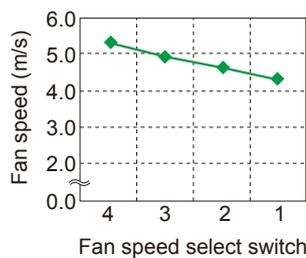
A compact shape for reducing workbench clutter

Compact size of 150 × 166 × 62 mm 5.906 × 6.535 × 2.441 in
Low-volume fan type also available for various applications

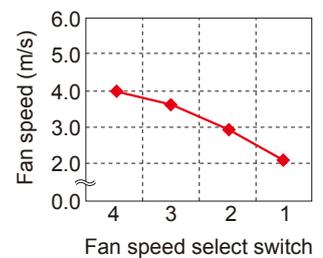
An ionizer with a 120 mm 4.724 in fan diameter that has a class leading compact size for reducing workbench clutter and increasing efficiency. Low-volume fan type with a suppressed fan speed of approx. half is available for charge removal in processes which involve handling of small parts or thin films.

* Graphs represent typical values at 300 mm 11.811 in from directly in front of air outlet, straight louver, with no filter installed.

Standard fan type ER-F12A



Low-volume fan type ER-F12SA



Two exchangeable louvers to suit your needs

Just simply replace the louver to change configuration between long distance and wide area ionization.

The two louvers come with the ionizer main body.

Straight louver



Removes charges quickly at long distance

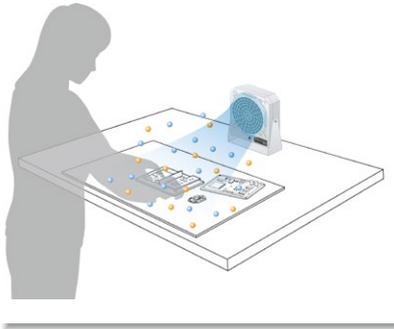
Angle louver



Removes charges completely in wide area

APPLICATIONS

Prevention of static charge in cell production



Equipped with discharge needle fouling detection function

Additionally equipped with discharge needle fouling detection function. When discharge becomes weak due to needle fouling, the DSC indicator will flash for notification.



Remove the louver for effortless maintenance

Because the discharge needle unit is attached to the louver, exchange or maintenance of the needles is made easy without touching the main unit. A safe design where once the louver is removed, the high-voltage circuit and the fan will halt.



ORDER GUIDE

Type	Appearance	Charge removal time ($\pm 1,000$ V \rightarrow ± 100 V)	Ion balance	Model No.
Standard fan type		1 sec. approx. (Note 1)	± 10 V or less (Note 2)	ER-F12A
Low-volume fan type		1.5 sec. approx. (Note 1)		ER-F12SA

Notes: 1) Typical value at 200 mm 7.874 in from directly in front of air outlet, fan speed MAX, straight louver, with no filter installed.

2) Typical value at 300 mm 11.811 in from directly in front of air outlet, fan speed MAX, straight louver, with no filter installed.

OPTIONS

Type	Model No.	Description
Discharge needle unit	ER-F12ANT	Unit with tungsten needles (1 pc.)
Air filter	ER-F12FX5	Replacement filter (5 pcs. per set)

Note: Please prepare an AC adapter separately as it is needed.

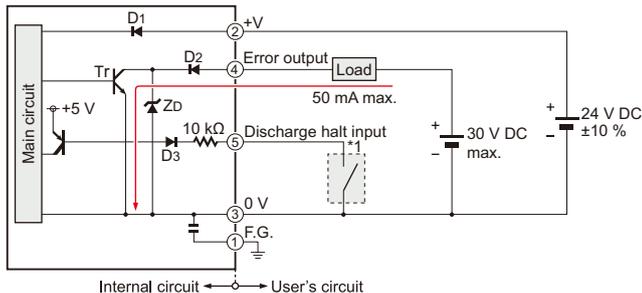
SPECIFICATIONS

Item	Type	Standard fan type	Low-volume fan type
	Model No.	ER-F12A	ER-F12SA
Applicable regulations		CE Marking (EMC Directive, RoHS Directive)	
Charge removal time		1 sec. approx. (Note 2)	1.5 sec. approx. (Note 2)
Ion balance		±10 V or less (Note 3)	
Power supply voltage		24 V DC ±10 %	
Power consumption		700 mA or less	400 mA or less
Discharge method		High-frequency AC method	
Discharge output voltage		± 2 kV approx.	
Max. fan speed		5.3 m/s (Note 3)	4.0 m/s (Note 3)
Max. fan volume		3.68 m³/min.	2.50 m³/min.
Error output		NPN open-collector transistor • Max. sink current: 50 mA • Applied voltage: 30 V DC or less (between output terminal and 0 V) • Residual voltage: 1 V or less (at input current of 50 mA)	
	Output operation	OFF when discharge error or fan error detected Normally ON	
	Short-circuit protection	Incorporated	
Discharge halt input		Discharge halt: Short-circuited to 0 V Discharge (operation start): Open	
Indicators		Discharge error (Red), Fan error (Red), Power (Green), Discharge (Green)	
Ozone generation amount		0.04 ppm or less (Note 2)	
Ambient temperature		0 to +50 °C +32 to +122 °F (No dew condensation allowed) , Storage: -10 to +65 °C +14 to +149 °F	
Ambient humidity		35 to 65 % RH (No dew condensation allowed) , Storage: 35 to 65 % RH	
Grounding method		C (capacitor) grounding	
Material		Enclosure: ABS, Louver: ABS, Discharge needle unit: PBT, Discharge needle: Tungsten, Bracket: SPHC	
Weight		Net weight: 790 g approx.	
Accessories		Straight louver: 1 pc. (Note 4), Angle louver: 1 pc., Caution label: 1 set, Rubber cushion: 1 pc.	

Notes: 1) Where measurement conditions have not been specified precisely, the conditions used were an ambient temperature of +20 °C +68 °F.
 2) Typical value at 200 mm 7.874 in from directly in front of air outlet, fan speed MAX., straight louver, with no filter installed.
 3) Typical value at 300 mm 11.811 in from directly in front of air outlet, fan speed MAX., straight louver, with no filter installed.
 4) The discharge needle unit is loaded on the straight louver before shipment.

I/O CIRCUIT AND WIRING DIAGRAMS

I/O circuit diagram



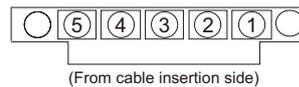
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Non-voltage contact or NPN open-collector transistor


 or
 
 Low (0 V): Discharge halt
 High (Open): Discharge (Operation starts)

Symbols ... D1 : Reverse supply polarity protection diode
 D2 : Output protection diode
 D3 : Input protection diode
 ZD : Surge absorption zener diode
 Tr : NPN output transistor

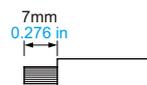
Connector terminal arrangement



Terminal No.	Color code
①	F.G.
②	+V
③	0 V
④	Error output
⑤	Discharge halt input

Recommended wiring cable

Compatible wire: 25 AWG to 12 AWG (nominal cross-sectional area: 0.16 to 3.3 mm²)
 Wire stripping length: 7 mm 0.276 in (see below)



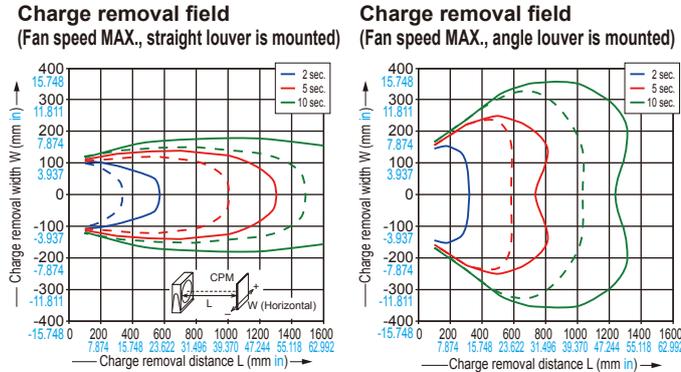
Note: Do not solder-plate the ends of wires being connected to connectors. Doing so may result in loosening of tightened screws, causing the wire to come loose.

CHARGE REMOVAL CHARACTERISTICS (TYPICAL)

Measured using a 150 × 150 mm 5.906 × 5.906 in CPM (charge plate monitor) (At center of CPM)

ER-F12A ER-F12SA

Solid lines in the graphs show **ER-F12A**. Dotted lines show **ER-F12SA**.



PRECAUTIONS FOR PROPER USE



- Never use this product in a device for personnel protection.
- In case of using sensing devices for personnel protection, use products which meet laws and standards, such as OSHA, ANSI or IEC etc., for personnel protection applicable in each region or country.
- Do not use this product in places where there may be a danger of flammable or combustible items being present.
- If this product is used in an airtight room, ozone emitted from this product may be detrimental. Therefore, in order for this product to be used in an airtight room, be sure to keep the room ventilated.
- Since the tip of the discharge needle is sharp, take sufficient care in handling the discharge needle.
- Clean the discharge needle regularly, otherwise optimum charge removal performance may not be obtained and fire or operating problems may occur.
- Be sure to ground the frame ground (F.G.) terminal.

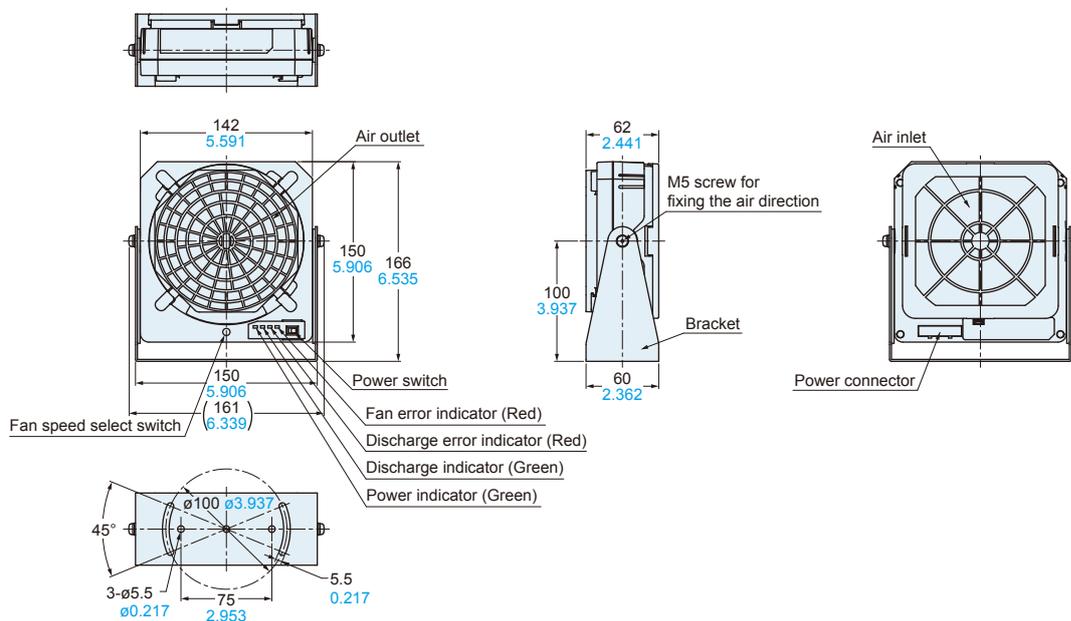
- This product has been developed / produced for industrial use only.
- This product is suitable for indoor use only.

DIMENSIONS (Unit: mm in)

The CAD data can be downloaded from our website.

ER-F12A ER-F12SA

Ionizer main unit



Disclaimer

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Panasonic
INDUSTRY

Panasonic Industry Co., Ltd.

Industrial Device Business Division
7-1-1, Morofuku, Daito-shi, Osaka 574-0044, Japan
industry.panasonic.com