Wide-area Ionizer Steady-state DC Method

ER-TF SERIES

Related Information
■ General terms and conditions..... F-3
■ Glossary of terms..... P.1591
■ Selection guide ..... P.1155~
■ General precautions P.1595

No compressed air necessary

CE

panasonic.net/id/pidsx/global

Slim in shape, Wide in charge removal area, An evolutionary form in expression

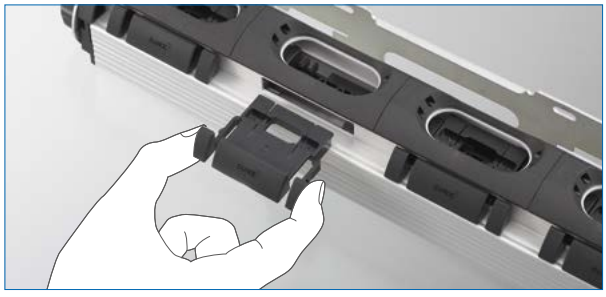
Safe design

A monitoring function stops discharge operation if any foreign material or object is detected in the discharge unit. This capability provides peace of mind when working with the unit since you can rest assured that the high-voltage circuit will stop if your finger approaches the unit.

(Illustration)

Easy maintenance

Discharge units can be removed with a single touch, making it easy to clean them or replace them as they naturally wear down. Units can also be cleaned with a commercially available ultrasonic cleaner.

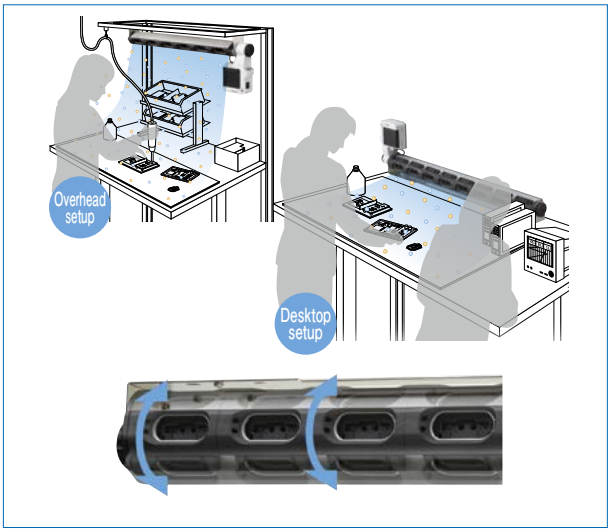


Available quiet fan cover (optional)

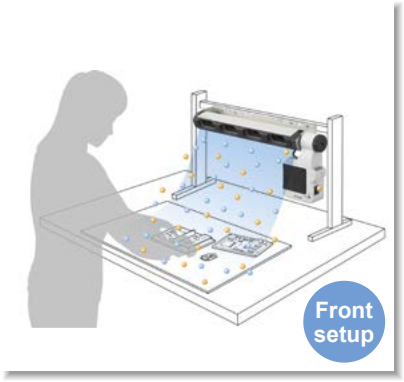
An available fan cover reduces fan suction noise without reducing air volume.

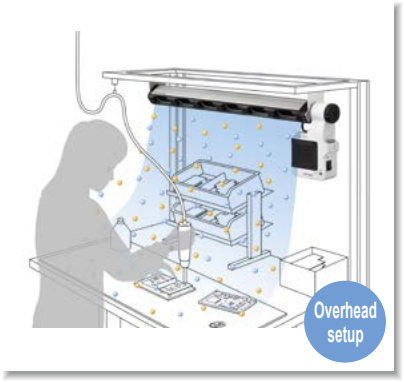
Flexible layout

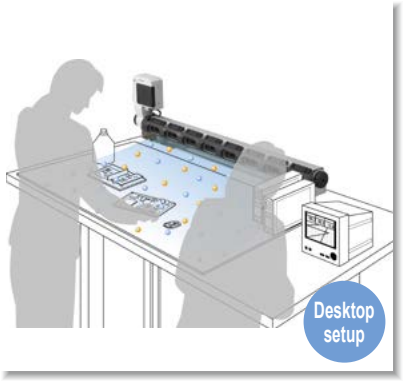
Thanks to its space-saving design, the **ER-TF** series delivers a sufficiently large charge removal area while allowing you to make effective use of your workspace. It can be mounted on a shelf or pipe or placed directly on the working surface. The unit adapts flexibly to the local working environment.



APPLICATIONS

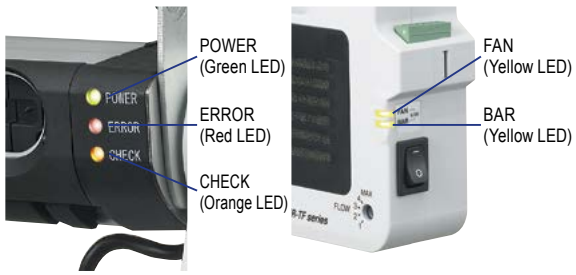






Indicators showing operation conditions

This section will now explain the indicator lights that indicate such abnormalities as maintenance time of the discharge needle unit and the decrease in the amount of ventilation due to filter clogging.



ERROR indicator:
Lights up when an intrusion of a foreign object into the discharger is detected by the entry detection function, or when an abnormal discharge, air intake constraint caused by clogged filter, or any other abnormality of the fan is detected.
CHECK indicator:
Lights up when it is time for maintenance of the discharge needle unit, or when a drop in the fan speed resulting from filter clogging is detected.
FAN indicator:
Lights up when a fan error or a fan check is detected.
BAR indicator:
Lights up when a discharger error or a discharger check is detected.

Airflow adjustable in 4 levels

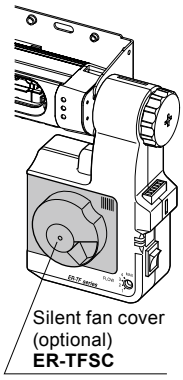
Fan speed can be adjusted in 4 levels.
By setting the fan speed to MAX, speedy static removal of wide area is possible.

Easy filter cleaning

The fan air intake filter can be easily taken out by sliding open the cover. This greatly reduces the man-hour in cleaning.

Silent fan cover (option) is available.

Without decreasing the airflow, it is possible to reduce noise during fan suction.
You can easily attach the silent fan cover to the front of the main unit fan with a single step.



ORDER GUIDE

Ionizer main unit

Type	Appearance	Charge removal time (±1,000 V → ±100 V)	Ion balance	Model No.
Wide-area fan type		1 sec. approx. (Note 1)	±10 V or less (Note 2)	**ER-TF04-EX**
				**ER-TF06-EX**
				**ER-TF08-EX**

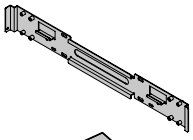
Notes: 1) Typical value at 200 mm 7.874 in from directly in front of air outlet at the unit center at maximum fan speed.
2) Typical value at 300 mm 11.811 in from directly in front of air outlet at the unit center at maximum fan speed.
3) Please prepare an AC cable separately as it is needed.
The following cables are available as optionals:
CN-ACCN-C2: AC cable (conforming to CCC), **CN-ACKR-C2**: AC cable (conforming to KTL)

Connector configuration
(IEC 60320 C7)

OPTIONS

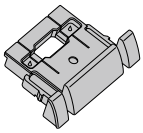
Designation	Model No.	Description
AC cable	**CN-ACCN-C2**	AC cable (conforming to CCC), Length: 2 m 6.562 ft
	CN-ACKR-C2	AC cable (conforming to KTL), Length: 2 m 6.562 ft
Mounting unit	**ER-TF06MS1**	Mounting unit for **ER-TF06-EX**. Allows easy attachment or detachment of the main unit.
Air filter	**ER-TFF×10**	Air filter for fan air intake part (10 pcs. per set)
Discharge needle unit	**ER-TFANT**	Unit with tungsten needles (1 pc.)
Silent fan cover	**ER-TFSC**	To be mounted on the front part of the fan unit as a cover to reduce the fan blowing sound.

Mounting unit
•**ER-TF06MS1**

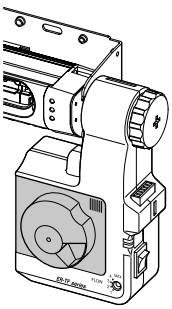


Air filter
•**ER-TFF×10**

Discharge needle unit
•**ER-TFANT**



Silent fan cover
•**ER-TFSC**



SPECIFICATIONS

Item \ Type	Model No.		Wide-area fan type		
			ER-TF04-EX	ER-TF06-EX	ER-TF08-EX
CE marking directive compliance			EMC Directive, RoHS Directive		
Charge removal time (±1,000 V → ±100 V)			1 sec. approx. (Note 2)		
Ion balance			±10 V or less (Note 3)		
Ozone generation			0.02 ppm or less (Note 3)		
Power supply voltage			Accessory AC adapter input: 100-240 V AC ±10 % 50/60 Hz (Note 4) (Output: 24 V DC)		
Power consumption			80 VA or less (at 100 V: 70 VA or less)		
Discharge method			Steady-state DC		
Discharge output voltage			±6,000 V approx.		
Error output			NPN open-collector transistor • Maximum sink current: 50 mA • Applied voltage: 30 V DC or less (between output and 0 V) • Residual voltage: 1 V or less (at 50 mA sink current)		
	Output operation		OFF if abnormal discharge, object inserted into discharge window or fan problem detected; normally ON		
	Short-circuit protection		Incorporated		
Indicators	Bar	POWER	Green LED (Lights up when the power is ON)		
		ERROR	Red LED (Lights up when discharge part error or fan error is detected)		
		CHECK	Orange LED (Lights up when discharge part check or fan check is detected)		
	Fan	Discharge part status	Yellow LED (Lights up when discharge part error or discharge part check is detected)		
		Fan status	Yellow LED (Lights up when fan error or fan check is detected)		
Ambient temperature			0 to +50 °C +32 to +122 °F (No dew condensation), AC adapter: 0 to +40 °C +32 to +104 °F		
Ambient humidity			35 to 65 % RH (No dew condensation allowed)		
Material			Bar unit enclosure: ABS, Fan unit enclosure: ABS, Discharge needles: Tungsten, Mounting bracket: Cold rolled carbon steel (SPCC)		
Weight			Net weight: 1.0 kg approx.	Net weight: 1.2 kg approx.	Net weight: 1.4 kg approx.
Accessories			AC adapter (Note 3), F.G. connection cable: 1 pc., Spare replacement filters: 5 pcs., Three-pronged outlet with ground pin: 1 pc., Blindfold seals: 2 sheets		

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 at the unit center at maximum fan speed.
3) Typical value at 300 mm 11.811 in from directly in front of air outlet at the unit center at maximum fan speed.
4) Please prepare an AC cable separately as it is needed.
The following cables are available as optionals:
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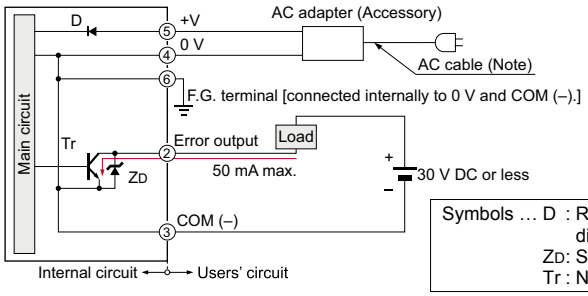
I/O CIRCUIT AND WIRING DIAGRAMS

I/O circuit diagram

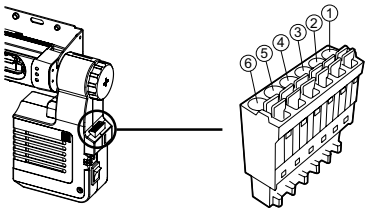


Symbols … D : Reverse supply polarity protection diode
ZD: Surge absorption zener diode
Tr : NPN output transistor

Note: Please prepare an AC cable separately as it is needed.
The following cables are available as optionals:
CN-ACCN-C2: AC cable (conforming to CCC)
CN-ACKR-C2: AC cable (conforming to KTL)

Terminal position

Terminal No.	Terminal name
①	N.C. (no connection)
②	Error output
③	COM (–)
④	0 V
⑤	+V
⑥	F.G.

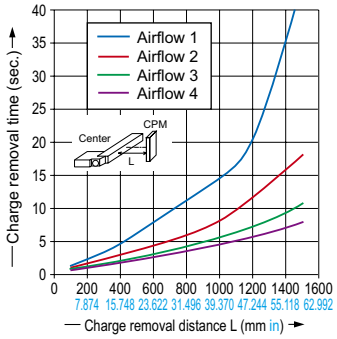


CHARGE REMOVAL CHARACTERISTICS (TYPICAL)

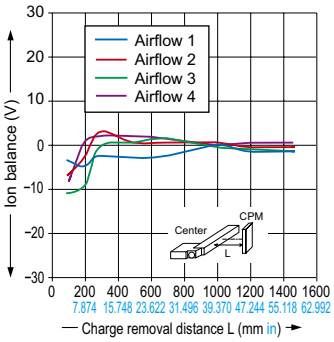
Measured using a 150 × 150 mm 5.906 × 5.906 in CPM (charge plate monitor). (At center of CPM)

ER-TF04-EX

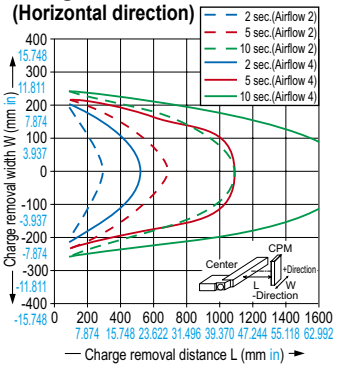
Charge removal time



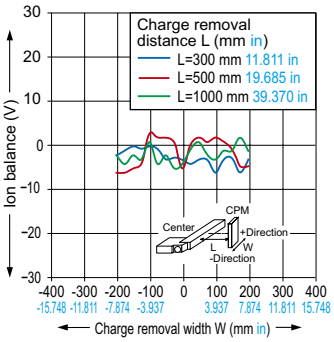
Correlation between charge removal distance and ion balance



Charge removal field (Horizontal direction)

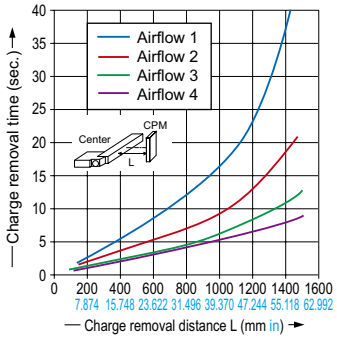


Ion balance (Horizontal direction) [Airflow 4]

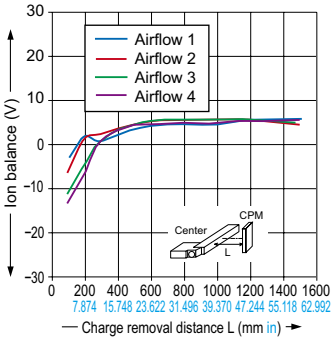


ER-TF06-EX

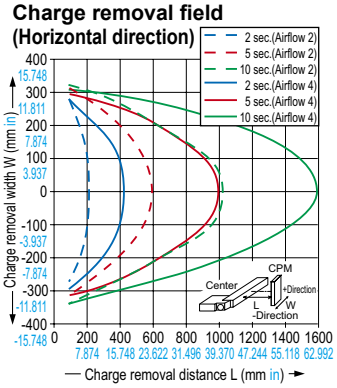
Charge removal time



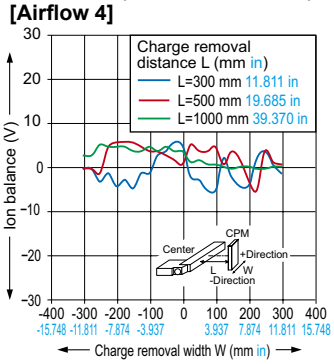
Correlation between charge removal distance and ion balance



Charge removal field (Horizontal direction)

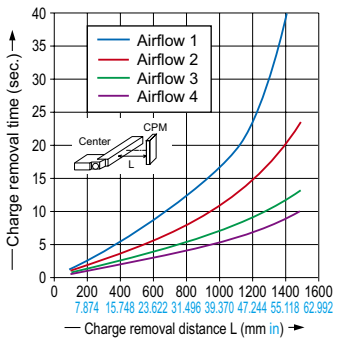


Ion balance (Horizontal direction) [Airflow 4]

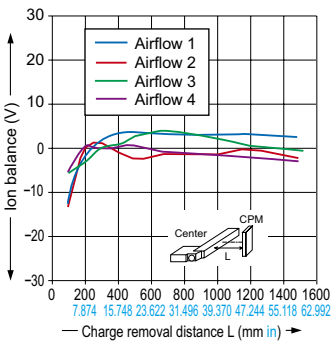


ER-TF08-EX

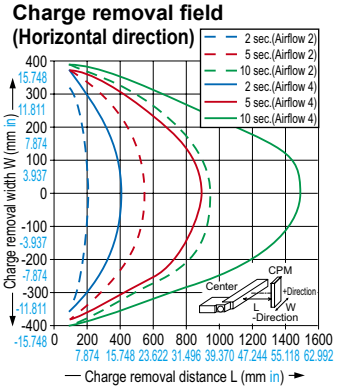
Charge removal time



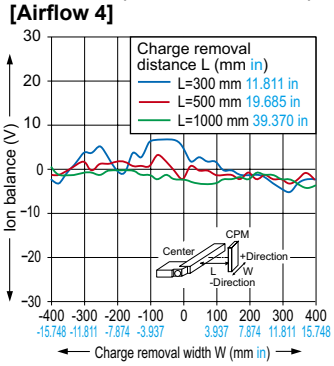
Correlation between charge removal distance and ion balance



Charge removal field (Horizontal direction)



Ion balance (Horizontal direction) [Airflow 4]



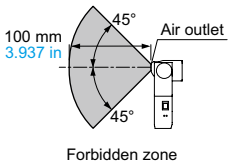
PRECAUTIONS FOR PROPER USE

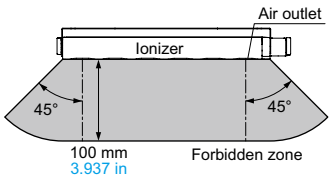
Refer to p.1595 for general precautions.

- This product is to remove static electricity for industrial use. Never use this product for medical equipment etc. relating to maintenance / supervision of human life or body, for prevention of accidents which damage a human life or properties, or for safety maintenance.
- Do not use this product near or around surroundings containing any dangerous materials, such as combustible material and flammable material.
- This product emits ozone. In order for this product to be used in an airtight room, be sure to keep the room ventilated.
- Do not place any objects that may obstruct the inflow of air within 10 mm 0.394 in of the front of the fan air intake part. Doing so may cause accident or product malfunction.
- Be sure to ground the main body of this product via ground terminal to ensure electrical shock prevention and reliable charge removal.
- Since the charge needle is applied with high voltage, never touch the discharge needle, or an electric shock may result.
- Since the tip of the discharge needle is sharp, take sufficient care in handling the discharge needle, or injuries may result.

Mounting

- Do not place any objects or any other charge removal equipment within 100 mm 3.937 in of the ionized air outlet front (refer to the illustration below), as they may affect operation and performance of the ionizer.





Maintenance

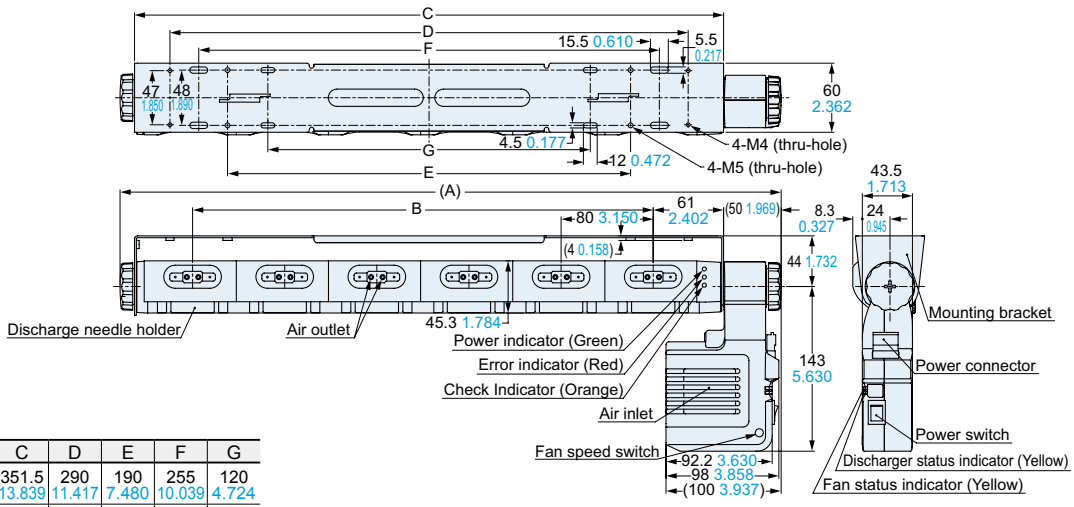
- Always be sure to turn off the power before carrying out any care and maintenance of the product.
- The tip of the discharge needle is sharp, so be careful not to touch it while cleaning.
- When the product is used for long periods of time, dust and other foreign particles may accumulate on the discharge needle, the area around it, and on the fan filter. Clean regularly (discharge needle: about once a week, air filter: about once every two months), otherwise their charge removal performance will drop and operating problems or accidents may occur.
- The discharge needle is a consumable part. If the charge removal performance is not restored after cleaning the discharge needle, the discharge needle unit should be replaced. All of the discharge needle units should be replaced at the same time.

DIMENSIONS (Unit: mm in)

The CAD data can be downloaded from our website.

ER-TF□-EX

Ionizer



Model No.	A	B	C	D	E	F	G
ER-TF04-EX	414 16.299	240 9.449	351.5 13.839	290 11.417	190 7.480	255 10.039	120 4.724
ER-TF06-EX	574 22.598	400 15.748	511.5 20.138	450 17.717	350 13.780	400 15.748	280 11.024
ER-TF08-EX	734 28.898	560 22.047	671.5 26.437	610 24.016	510 20.079	560 22.047	440 17.323