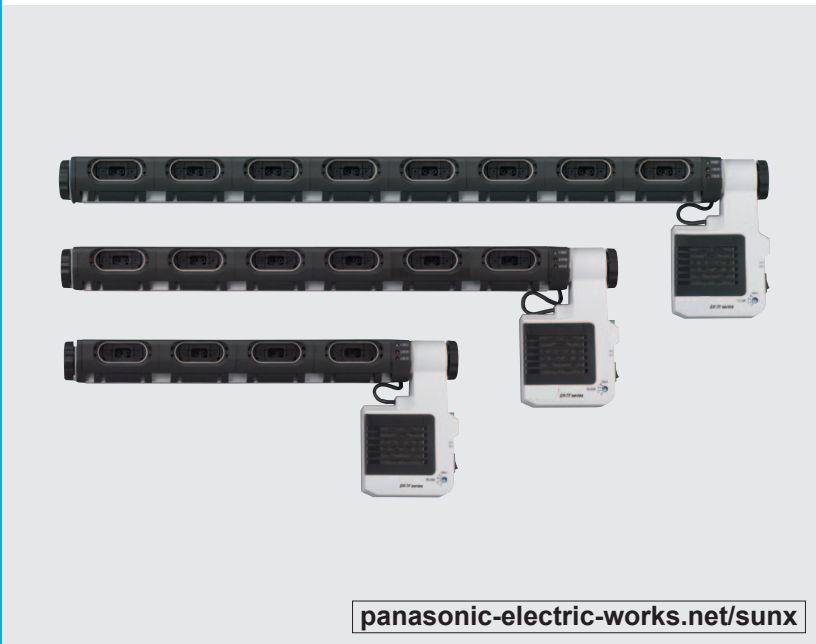


ER-TF SERIES

Related Information

- General terms and conditions..... F-17
- Selection guide P.1075~
- Glossary of terms..... P.1401
- General precautions P.1405



panasonic-electric-works.net/sunx

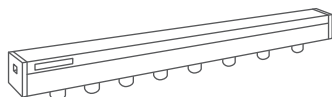
Slim in shape, Wide in charge removal area, An evolutionary form in expression

Problems with cell production lines

Ionizers up until now had not been able to fully meet the needs for on-site work.



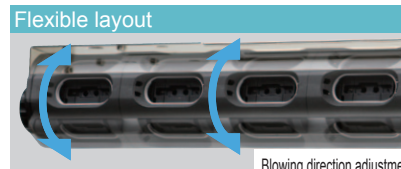
- One unit is not enough to cover the working area.
- Must be located near your hands for effective static removal.
- Two units take up too much space on the workbench.



- Compressed air is costly.
- Complicated piping makes layout change troublesome.
- Disturbance of airflow or contact with discharger decreases work efficiency.

Characteristics of ER-TF series

A style not seen before that pursues performance in cell production lines and resolves dissatisfaction with existing ionizers.



Flexible layout

Blowing direction adjustment mechanism

The air blowing direction can be easily adjusted even after installation

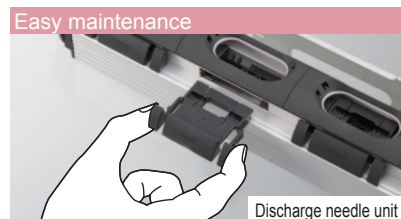


Safe design

(Image)

Entry detection function

Detection of entry to the discharger interrupts the high voltage circuit



Easy maintenance

Discharge needle unit

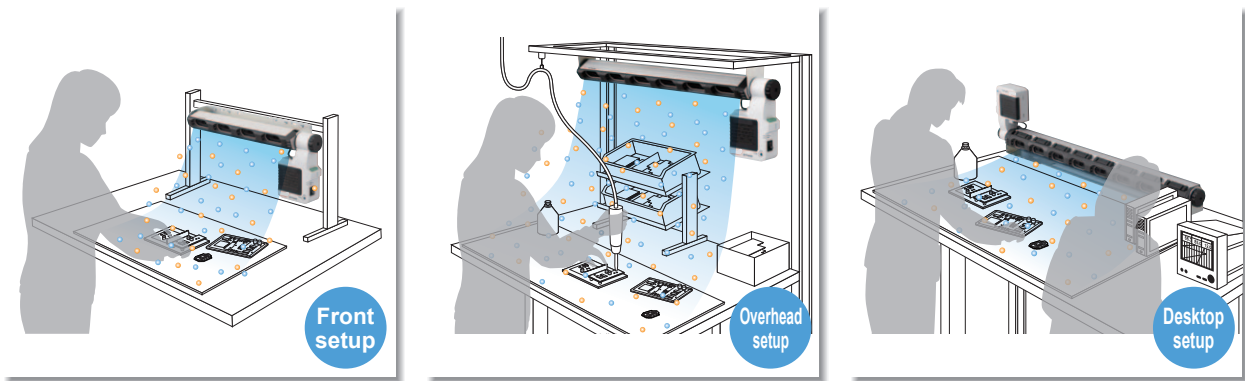
Discharge needle units can be detached or attached quickly

- FIBER SENSORS
- LASER SENSORS
- PHOTOELECTRIC SENSORS
- MICRO PHOTOELECTRIC SENSORS
- AREA SENSORS
- LIGHT CURTAINS
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- INDUCTIVE PROXIMITY SENSORS
- PARTICULAR USE SENSORS
- SENSOR OPTIONS
- SIMPLE WIRE-SAVING UNITS
- WIRE-SAVING SYSTEMS
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- FA COMPONENTS
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- UV CURING SYSTEMS

- Selection Guide
- Static Removers
- Cleaning Box
- Pluse Air-gun
- Electrostatic Sensor

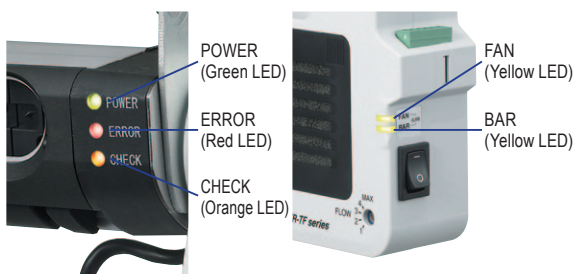
- ER-Q
- ER-F
- ER-TF**
- ER-VW
- ER-V

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.

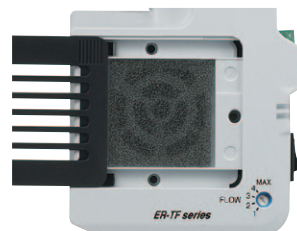
Airflow adjustable in 4 levels

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.



FIBER SENSORS

LASER SENSORS

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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 a distance of 200 mm **7.874 in** from the front surface of the air outlet at the unit center at maximum fan speed.
 2) Typical value at a distance of 300 mm **11.811 in** from the front surface of the 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)



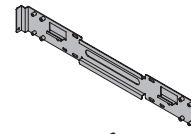
Connector configuration (IEC 60320 C7)

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



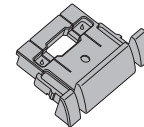
Air filter

•ER-TFF×10



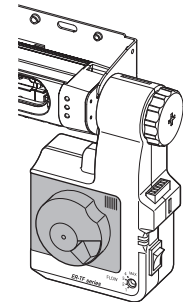
Discharge needle unit

•ER-TFANT



Silent fan cover

•ER-TFSC



SPECIFICATIONS

Type		Wide-area fan type		
Item	Model No.	ER-TF04-EX	ER-TF06-EX	ER-TF08-EX
Charge removal time ($\pm 1,000$ V \rightarrow ± 100 V)		1 sec. approx. (Note 1)		
Ion balance		± 10 V or less (Note 2)		
Ozone generation		0.02 ppm or less (Note 2)		
Power supply voltage		Accessory AC adapter input: 100 to 240 V AC ± 10 % 50/60 Hz (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		$\pm 6,000$ 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 power supplied)	
		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)		
Material		Bar unit enclosure: ABS, Fan unit enclosure: ABS, Discharge needles: Tungsten, Mounting bracket: 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) Typical value at a distance of 200 mm **7.874 in** from the front surface of the air outlet at the unit center at maximum fan speed.

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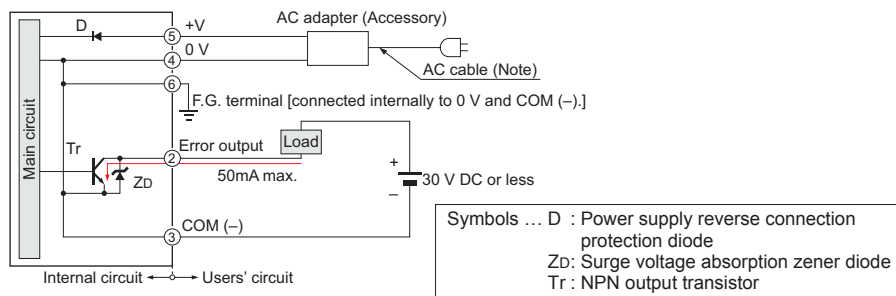
Electrostatic Sensor

ER-Q**ER-F****ER-TF****ER-VW****ER-V**

- FIBER SENSORS
- LASER SENSORS
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- ER-VW
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I/O CIRCUIT DIAGRAM

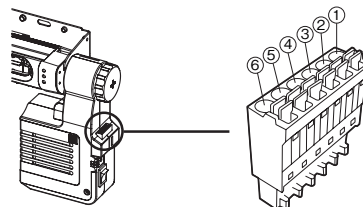
I/O circuit diagram



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

Pin position

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

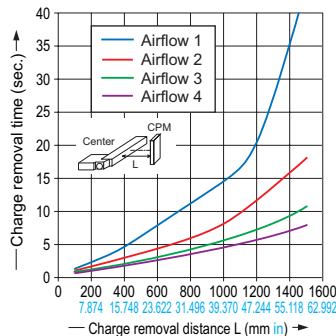


CHARGE REMOVAL CHARACTERISTICS (TYPICAL)

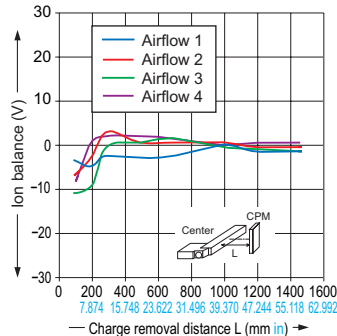
Measured using a 150 mm × 150 mm 5.906 in × 5.906 in CPM (charge plate monitor). (At center of CPM)

ER-TF04-EX

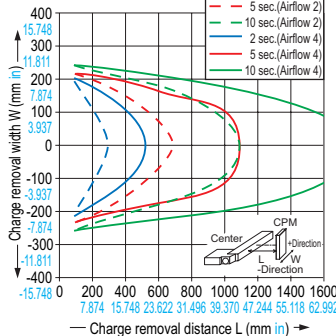
Charge removal time



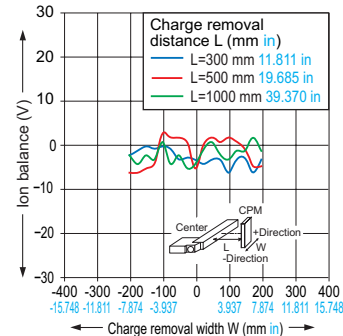
Correlation between charge removal distance and ion balance



Charge removal field (Horizontal direction)

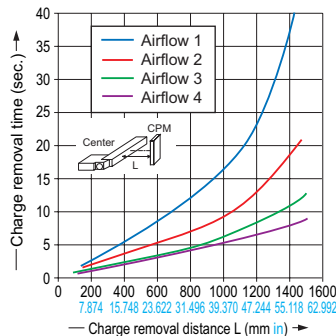


Ion balance (Horizontal direction) [Airflow 4]

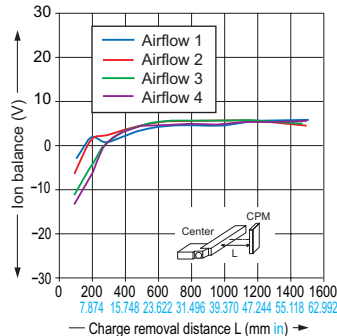


ER-TF06-EX

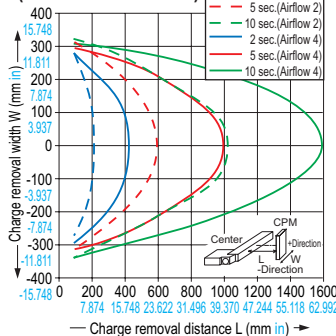
Charge removal time



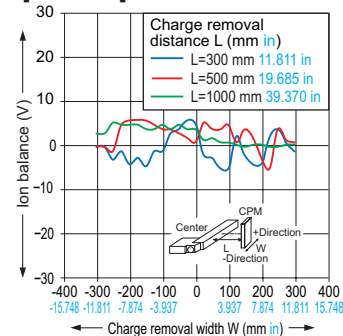
Correlation between charge removal distance and ion balance



Charge removal field (Horizontal direction)

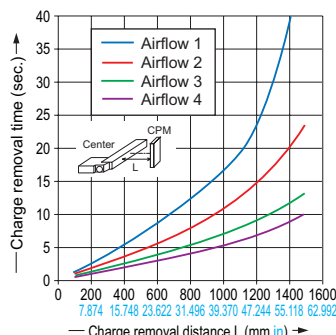


Ion balance (Horizontal direction) [Airflow 4]

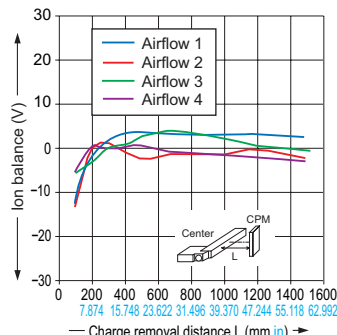


ER-TF08-EX

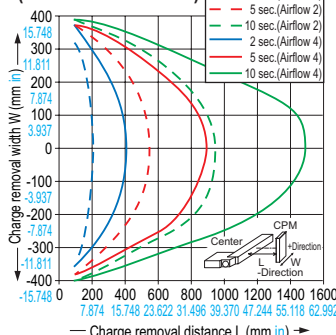
Charge removal time



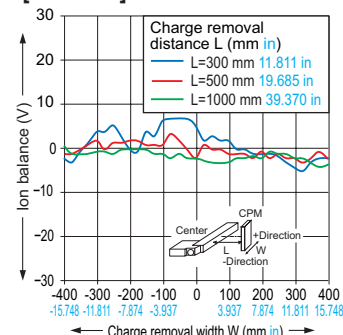
Correlation between charge removal distance and ion balance



Charge removal field (Horizontal direction)



Ion balance (Horizontal direction) [Airflow 4]



PRECAUTIONS FOR PROPER USE

Refer to General cautions.

FIBER
SENSORSLASER
SENSORSPHOTO-
ELECTRIC
SENSORSMICRO
PHOTO-
ELECTRIC
SENSORSAREA
SENSORSLIGHT
CURTAINSPRESSURE /
FLOW
SENSORSINDUCTIVE
PROXIMITY
SENSORSPARTICULAR
USE
SENSORSSENSOR
OPTIONSSIMPLE
WIRE-SAVING
UNITSWIRE-SAVING
SYSTEMSMEASURE-
MENT
SENSORSSTATIC
CONTROL
DEVICES

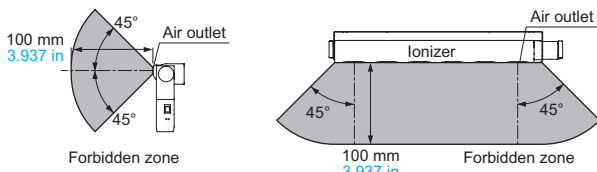
ENDOSCOPE

LASER
MARKERSPLC /
TERMINALSHUMAN
MACHINE
INTERFACESENERGY
CONSUMPTION
VISUALIZATION
COMPONENTSFA
COMPONENTSMACHINE
VISION
SYSTEMSUV
CURING
SYSTEMSSelection
GuideStatic
RemoversCleaning
BoxPluse
Air-gunElectrostatic
Sensor**ER-Q****ER-F****ER-TF****ER-VW****ER-V**

- 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 100 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

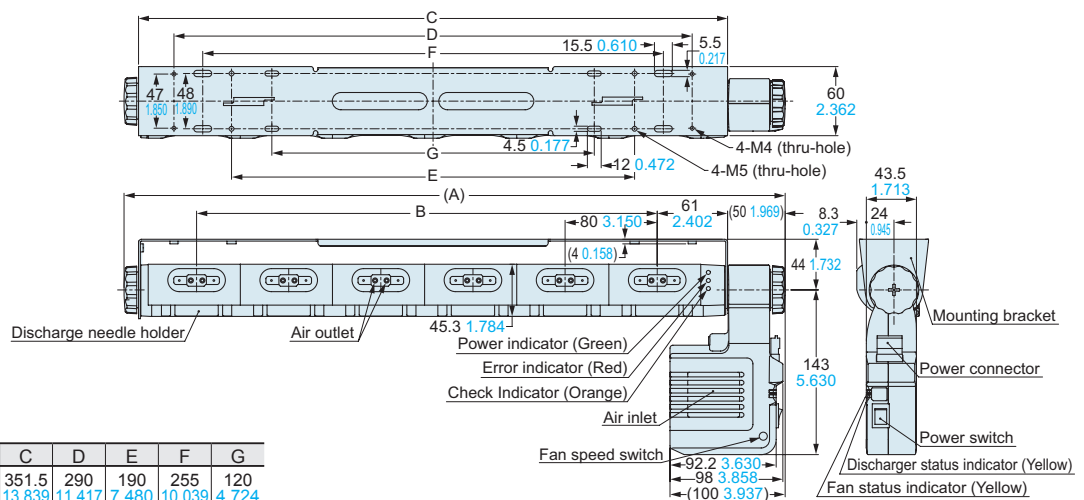
- Do not place any objects or any other charge removal equipment within 100 mm 3.937 in of the ionized air outlet front (refer to the illustration below), as they may affect operation and performance of the ionizer.

**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 in the dimensions 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