

Air Assisted Ion Bar System Installation, Operation and Maintenance

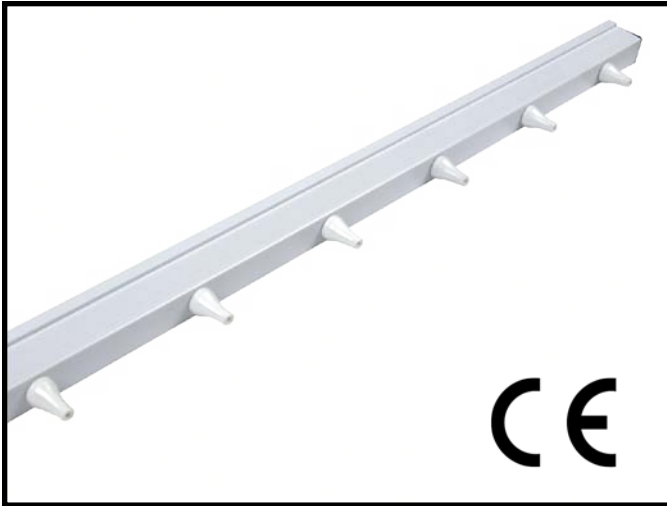


Figure 1. EMIT Air Assisted Ion Bar

Description

The EMIT Air Assisted Ion Bar System has been designed to effectively eliminate localized static charges that exist in the work area.

Ionizers are useful in preventing electrostatic charge generation, ElectroStatic Discharge, ElectroStatic Attraction, as well as preventing equipment latch-up. Per ANSI/ESD S20.20 section 6.2.3.1. Protected Areas Requirement states: "Ionization or other charge mitigating techniques shall be used at the workstation to neutralize electrostatic fields on all process essential insulators if the electrostatic field is considered a threat." Air ionization can neutralize the static charge on insulated and isolated objects by producing separate charges in the molecules of the gases of the surrounding air. When an electrostatic charge is present on objects in the work environment, it will be neutralized by attracting opposite polarity charges from the ionized air. Note that ionization systems should not be used as a primary means of charge control on conductors or people. (Reference: EN 61340-5-2 clause 5.2.9).

The Air Assisted Ion Bar System is a pulsed ionizer generating both polarities of ions at a single emitter unit. It operates on alternating current (AC).

The EMIT Air Assisted Ion Bar System meets the ANSI/ESD S20.20 required limit of less than ± 50 volts offset voltage (balance) tested in accordance with ANSI/ESD STM3.1. Per S20.20 Discharge Time required limits are "user defined".

Unpacking and Inspection

EMIT Controller and Bar Assemblies were carefully packed at the factory in a container designed to protect them from accidental damage. Nevertheless, EMIT recommends careful examination of the carton and its contents for any damage. If damage is evident, do not destroy the carton or packing material. Immediately notify the carrier of a possible damage claim. Shipping claims must be made by the consignee to the delivering carrier.

The Air Assisted Ion Bars are available in several sizes. There are six Controller options and several accessory items. See the following table for the list of available item numbers.

For more information on the Ion Bar sizes and dimensions, see page 2.

Item #	Description
50920	Air Assisted Ion Bar Assembly, 12", 4 Emitters
50921	Air Assisted Ion Bar Assembly, 24", 8 Emitters
50922	Air Assisted Ion Bar Assembly, 36", 12 Emitters
50923	Air Assisted Ion Bar Assembly, 48", 16 Emitters
50924	Air Assisted Ion Bar Assembly, 60", 20 Emitters
50925	Air Assisted Ion Bar Assembly, 72", 24 Emitters
50926	Air Assisted Ion Bar Assembly, 96", 32 Emitters
50855	Controller with Digital Adjustment, 120V
50856	Controller with Digital Adjustment, 220V
50940	Controller with Recessed Potentiometer Adjustment, 120V
50941	Controller with Recessed Potentiometer Adjustment, 220V
50945	Controller with External Potentiometer Adjustment, 120V
50946	Controller with External Potentiometer Adjustment, 220V
50950	Ion Bar 2-to-1 Connector Set (2 per pack)
50951	Emitter for Air Assisted Ion Bar
50953	Air Assisted Filter Regulator with Hose

Installation

- I. Install the Controller console on or near the target area. It must be close enough to connect to the Ion Bar.
- II. Locate and attach the Ion bar in a position so that the air ions are directed toward the target area.
- III. Connect clean and dry compressed air or gas to the Ion Bar's air fitting.
- IV. Connect the Ion Bar to the back of the Controller console.

V. Plug the Controller console unit into an appropriate electrical outlet.

NOTES:

Supply air/gas to the Ion Bar by using a 1/4" flexible plastic tube and inserting it into the red collar air fitting located at one end of the Ion Bar. Be sure that the air/gas tube is securely connected. To remove the tube, depress the red collar, push in the tube, then remove it.

One EMIT Controller console will power up to 40 emitters. It is possible to daisy-chain bars together as long as the total number of emitters does not exceed 40. For example, item number 50921 has 8 emitters (40 ÷ 8 = 5), so up to 5 item number 50921 Bar Assemblies can be daisy-chained together using 1 Controller console. Daisy-chain bars are special order only.

The [50950](#) 2-to-1 Connector Set may be used to allow the power console to provide power to two Ion Bars.

Operation

NOTE: The following instructions apply to the 50940, 50941, 50945 and 50946 Controllers only. Please see technical bulletin [TB-6570](#) for operation instructions on the 50855 and 50856 Digital Controllers.

There are two adjustments that can be made on the controller: BALANCE (offset voltage) and RATE.

The BALANCE of positive and negative ion output can be adjusted to increase polarity bias by turning the BALANCE CONTROL, slowly turning clockwise to increase positive and decrease negative ON time pulses, or counter-clockwise to increase negative and decrease positive ON time pulses. The RATE or pulse frequency can be adjusted down to one pulse per second or up to 20 pulses per second by slowly turning the RATE CONTROL clockwise to increase and counter-clockwise to decrease the frequency.

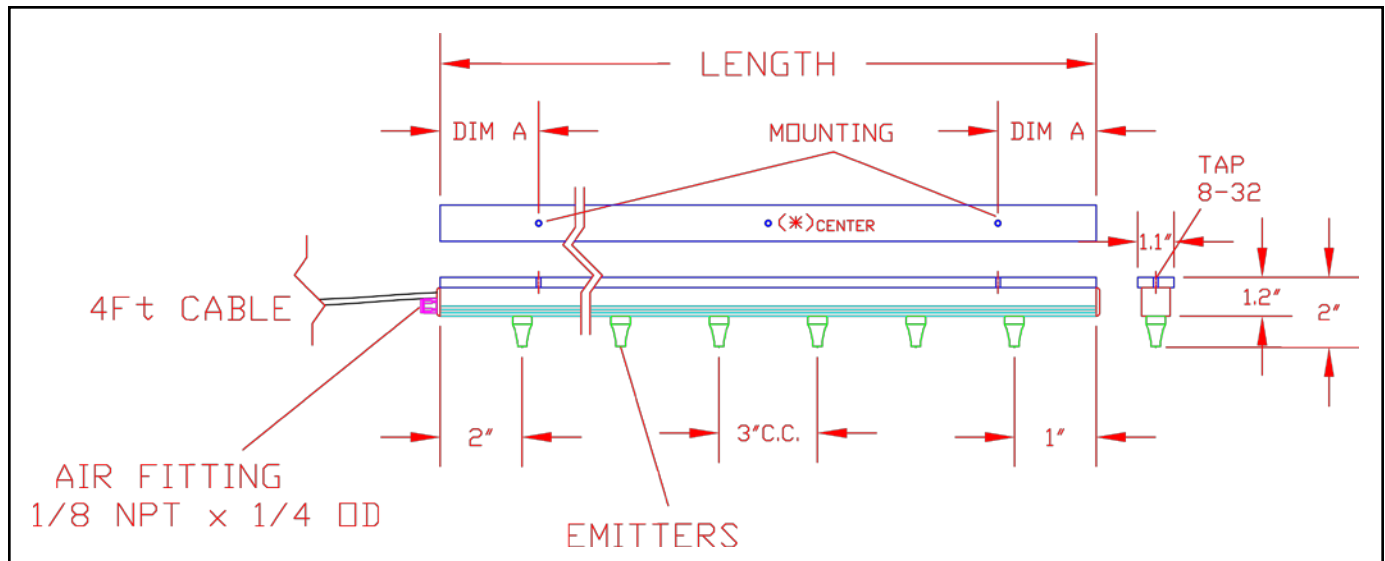


Figure 2. EMIT Air Assisted Ion Bar dimensions

Item #	Length	Emitters	Mounting	Dim A
50920	12"	4	2	1"
50921	24"	8	2	1"
50922	36"	12	2	3"
50923	48"	16	2	3"
50924	60"	20	2	3"
50925	72"	24	3*	4"
50926	96"	32	3*	4"

NOTE: Contact manufacturer for custom dimensions

REMEMBER

It is important to verify calibration after any adjustments and before using the Ion Bar System around sensitive electronics. Repeat the Balance Verification steps after all adjustments.

IMPORTANT

The Ion Bar System has been designed to minimize effects of localized static charges. If your processing involves generation of considerable static charges, you may need more aggressive equipment. EMIT offers a complete line of ionizers: bench top, overhead and hand ion guns to meet all ionizing requirements.

ION BAR SIZES AND DIMENSIONS

Refer to the table and figure on page 2 to learn more about the dimensions of the Air Assisted Ion Bars.

DISCHARGE TIMES

Recommended air pressure:
2-10 PSI nominal
15 PSI maximum

Measurements are taken with a Charged Plate Monitor placed below two consecutive emitters.

Pulsing rate is adjustable from 1 to 20 Hz that will need to be customized depending on application requirement.

Discharge Times (±1,000V to ±100V)	Distance (inches)	Average Time (seconds)
Controller set to 2 pulses / sec (Hz)	18	< 10
Controller set to 2 pulses / sec (Hz)	12	< 4
Controller set to 1 pulse / sec (Hz)	18	< 4
Controller set to 1 pulse / sec (Hz)	12	< 2

NOTE: This data applies to all EMIT Air Assisted Ion Bars. Values will vary with the environment and particular applications.

Ion Bar Controllers



Figure 3. EMIT 50940 Controller with Recessed Potentiometer Adjustment



Figure 4. EMIT 50945 Controller with External Potentiometer Adjustment



Figure 5. EMIT 50855 Controller with Digital Adjustment

Controller Specifications

ITEMS 50940, 50941

Weight: 1.9 lbs
 Cable: 4' Length
 Operating Voltage: 120VAC 50/60 Hz (50940)
 220 VAC 50/60 Hz (50941)
 Dimensions: 5.7" L x 5.1" W x 1.7" H

ITEMS 50945, 50946

Weight: 1.9 lbs
 Cable: 4' Length
 Operating Voltage: 120VAC 50/60 Hz (50945)
 220 VAC 50/60 Hz (50946)
 Dimensions: 5.7" L x 5.1" W x 1.7" H

ITEMS 50855, 50856

Weight: 1.6 lbs
 Operating Voltage: 120VAC 50/60 Hz (50855)
 24VDC Power Adapter
 220 VAC 50/60 Hz (50856)
 24VDC Power Adapter
 Dimensions: 4.9" L x 5.7" W x 1.65" H

CONTROLLER COMPARISON CHART

	50940, 50941, 50945, 50946	50855, 50856
Remote Control	No	Yes
Input Power	120 / 220VAC	24VDC
Ionization	Pulse DC	Pulse DC
Balance	DUTY CYCLE Potentiometer Adjustment	DUTY CYCLE Digital Adjustment and Display
Period	Potentiometer Adjustment from .05 sec to 1 sec.	Digital Adjustment Increments from .01 sec to 10 sec.

Maintenance

"All ionization devices will require periodic maintenance for proper operation. Maintenance intervals for ionizers vary widely depending on the type of ionization equipment and use environment. Critical clean room uses will generally require more frequent attention. It is important to set-up a routine schedule for ionizer service. Routine service is typically required to meet quality audit requirements." (ESD Handbook ESD TR20.20 section 5.3.6.7 Maintenance / Cleaning)

Compliance Verification per ANSI/ESD S20.20 is to be per ESD TR53 using a Charged Plate Monitor or a SP3.3 Ionization Test Kit.

Specifications and procedures subject to change without notice.

Limited Warranty

EMIT expressly warrants that for a period of five (5) years from the date of purchase EMIT Ion Bars be free of defects in material (parts) and workmanship (labor). Within the warranty period, a credit for purchase of replacement EMIT Ion Bars, or, at EMIT's option, the Ion Bar will be repaired or replaced free of charge. If product credit is issued, the amount will be calculated by multiplying the unused portion of the expected one year life times the original unit purchase price. Call our Customer Service Department at 909-664-9980 (Chino, CA) for a Return Material Authorization (RMA) and proper shipping instructions and address. Please include a copy of your original packing slip, invoice, or other proof of date of purchase. Any unit under warranty should be shipped prepaid to the EMIT factory. Warranty replacements will take approximately two weeks.

If your unit is out of warranty, call our Customer Service Department at 909-664-9980 (Chino, CA) for a Return Material Authorization (RMA) and proper shipping instructions and address. EMIT will quote repair charges necessary to bring your unit up to factory standards.

Warranty Exclusions

THE FOREGOING EXPRESS WARRANTY IS MADE IN LIEU OF ALL OTHER PRODUCT WARRANTIES, EXPRESSED AND IMPLIED, INCLUDING MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE WHICH ARE SPECIFICALLY DISCLAIMED. The express warranty will not apply to defects or damage due to accidents, neglect, misuse, alterations, operator error, or failure to properly maintain, clean or repair products.

Limit of Liability

Electronic ionizers use high voltage corona discharge and should not be used in or near flammable or explosive environments. In no event will EMIT or any seller be responsible or liable for any injury, loss or damage, direct or consequential, arising out of the use of or the inability to use the product. Before using, users shall determine the suitability of the product for their intended use, and users assume all risk and liability whatsoever in connection therewith.