

Ionstorm 3850 and 3700

Ionstorm provides long range static neutralisation without air assistance.

We launched Ionstorm in 2003 and it has become our second most important product - the 1250 Bar is the most important.

In 2006 we gave Ionstorm a major boost in power, increasing the operating voltage from 12kV to 15kV.

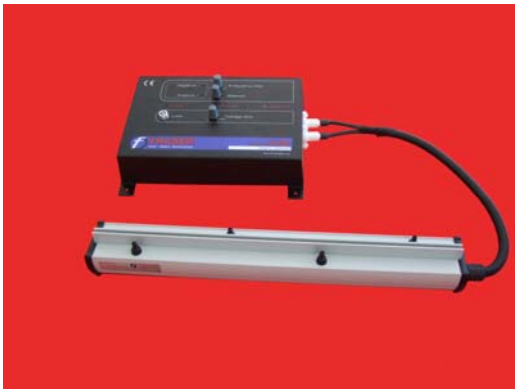
In 2007 we launched the 3850 HP (High Power) Bar - with emitters at a pitch of 75mm instead of 125mm to cope with closer distances.

Ionstorm used pulsed DC technology (PDC). This has become a core technology for us and will be developed in the future.

It is important to learn how Ionstorm works before discussing applications

System: How it works

The static elimination system consists of one or more static eliminator bar and a power unit.



3700 Ionstorm Controller and 3850 Bar



Ionstorm 3850 Bar

Ionstorm emits fields of positive and negative ions from dedicated emitters. One side of the Bar is positive, the other side negative.

The fields with the same polarity repel each other away from the Bar - as in magnetics

As the ions travel away from the Bar they are attracted to the static charge on the object. If the object has a positive charge, for example, negative ions are sucked in to neutralise it.

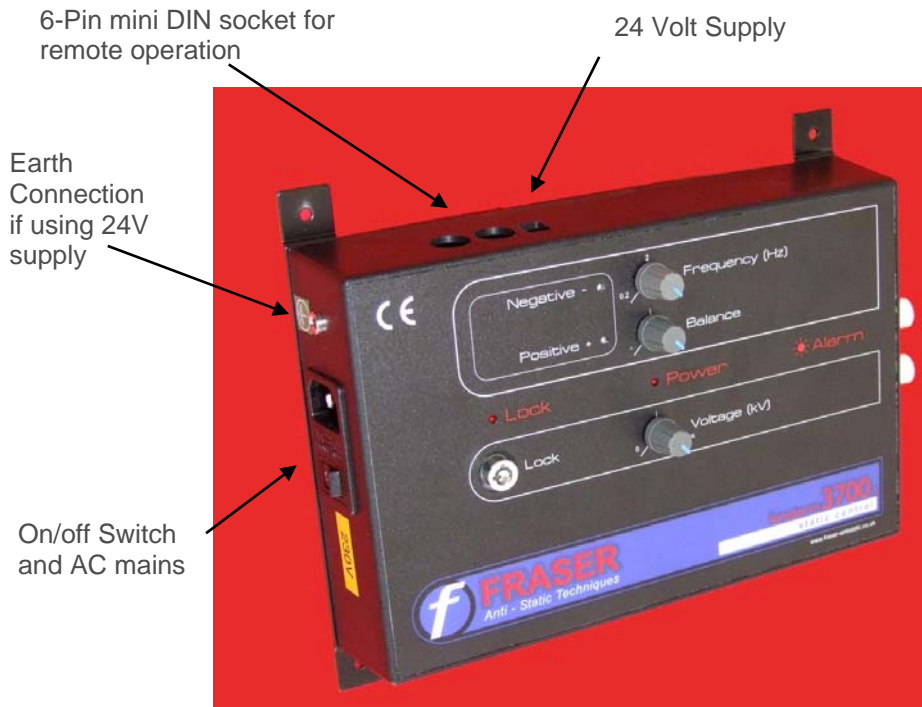
The higher the static charge, the more ions are attracted. This is a powerful process and is effective at distances of up to 2m without any air assistance.

In practice the best operating distances are between 250mm and 750mm.

Notes

3700 Ionstorm Controller

The Ionstorm Controller is the heart of the system. It supplies the power and control for the ionised output. It can be set for a simple balanced output and this will neutralise most applications. Alternatively, it can be fine-tuned for the fastest possible neutralisation.



There are 3 control knobs regulating the Frequency, Balance and Voltage of the output:

Frequency Control

The frequency of the emission dictates the range of the ionisation. The slower the frequency, the longer the static neutralisation range. The frequency can be varied from 0.2Hz to 20Hz. The adjustment is logarithmic. As a general guide use

- 5Hz for distances up to 200mm;
- 1Hz for distances up to 500mm;
- 0.5Hz for up to 1m.

The actual frequency is shown by the speed of flashing of the Positive (+) and Negative (-) LEDs.

On a typical application, such as a winder, where the distance changes with the size of the reel set the frequency for a mid-distance.

Balance Control

The polarity of the ionisation can be biased 80:20 in each polarity. If the static charge is always negative, for example, it makes sense to bias the output to produce mainly positive ionisation. This gives a faster neutralisation.

If the polarity of the charge is unknown, or if it changes, the polarity should be set on a balanced output so that both positive and negative charges are neutralised. This is the most widely used setting and can cope with most problems.

Notes

Voltage Control

The voltage can be adjusted from 0 – 15kV. It is a linear graduation on the control knob. Full power is suitable for most applications. For sensitive electronic applications, for example, over electronic assembly benches, this could be reduced to achieve the desired performance. The Positive (+) and Negative (-) LEDs illuminate more brightly as the voltage is increased. When the voltage is close to zero the LEDs will turn off. The voltage control is linear.

Key Switch:

You can lock the settings so that they cannot be changed by unauthorised operators. The key switch is on the face of the Ionstorm Controller. Operating the Lock Switch freezes the control settings and illuminates the LOCK LED.

When the key switch is turned “off” the control knobs will become reactivated and the ionised output will conform to the control settings. Two keys are supplied with the unit. They are common key pattern keys which are readily available from Fraser or electrical suppliers, if lost.

Electrical Supply

The electrical supply is shown on the label. It is 230V 50/60 Hz unless otherwise ordered.

Mains AC Supply: via IEC connector. The starting load is 35VA, the running load is 7VA.
A 315mA A/S 20 x 5mm fuse is fitted in the switch for 230V, or 630mA for 115V.
The mains supply must have an earth / ground.

24V DC Supply: The 3700 Controller can also be powered by a 24V DC supply. The connection is via a 2.1mm x 5mm jack socket on the rear side wall. Centre pin positive, outer shield ground.
The external DC supply is not switched within the unit.

IMPORTANT: *When using the 24V DC supply the 3700 Controller must be earthed / grounded via the 4mm socket on the left side wall next to the IEC mains socket. If this is not connected to earth, the unit could become live.*

Alarm LED

The POWER LED flashes to indicate warning and alarm conditions.

Rapid flashing indicates a fault condition where the unit is still operating. This may show that the HT has failed to reach its set value within the predetermined time. This condition does not lead to cut-out. It can be caused by moderately excessive load current (i.e. the 3850 Bar needs cleaning) or by inadequate supply voltage (incorrect external supply voltage).

Slow flashing indicates that the unit has exceeded its allowable time (10 seconds) in an overload condition and has ceased to generate HT. It has Cut-Off. This will happen if there is excessive load or if there is an internal fault. The external alarm is arranged to operate on Cut-Off only. To reset the alarm, switch the unit OFF and then ON again.

Notes

External Interface

External Interface is via a 6-pin Mini-DIN Socket.

Remote ON-OFF

Remote OFF: Pin 3 pulled LOW (connected to Pin 5).

IMPORTANT: Voltage applied to REMOTE must not exceed +12V and must not be negative.

Remote ALARM

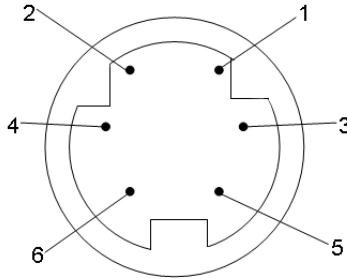
The external alarm condition is indicated via N/C and N/O relay contacts.

NO FAULT: Pin 6 connected to Pin 4.

FAULT: Pin 2 connected to Pin 4.

The external load should not exceed 1A at 24V.

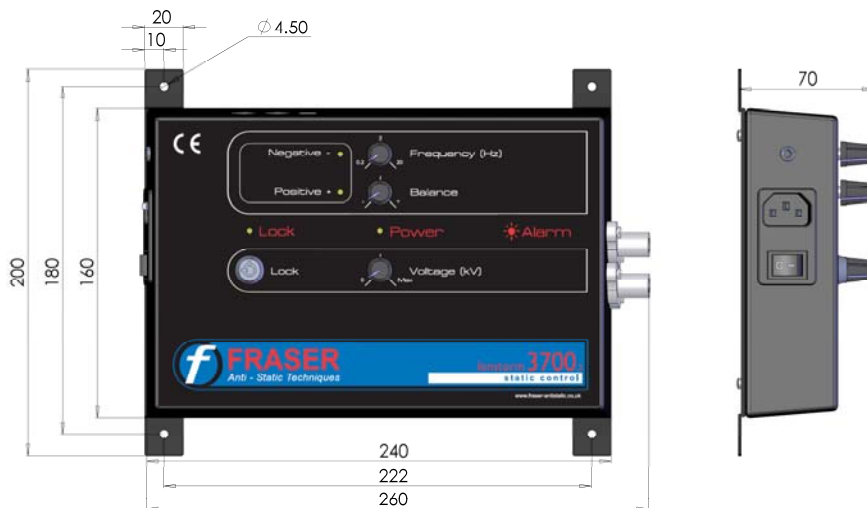
PIN	FUNCTION
1	Not used
2	Relay N/O
3	Remote ON/OFF
4	Relay Common
5	0 Volts
6	Relay N/C



6 Pole Mini-DIN Connector. View into socket on controller.

Construction and Dimensions:

- Robust ABS case 240 x 160 x 50mm high.
- Can be mounted vertically or horizontally.
- 4 rubber feet for desktop use. Brackets are included for wall mounting.



Ionstorm 3700 Controller Mounting Brackets

This is supplied free of charge with the Controller. Kit Includes:
2 x Mounting Plates. 4 x Self Tapping Screws 4 x M4 Nuts and Bolts.

For installation, remove the four corner screws on the reverse of the controller under the rubber feet. Place the Mounting Brackets along the short side of the controller, and screw in using the longer self tapping screws supplied.

IMPORTANT: DO NOT OPEN THE CONTROLLER UNIT.

Mount the controller using the M4 Screws provided, ensuring the controller is away from moisture, oils or similar substances.

Notes

Ionstorm 3850 Bar



Notes

Body

- Rigid, easy to clean PVC body with a unique double wall which separates the dedicated negative and positive emitters. This gives better reliability and performance.
- Maximum single length is 5m, but 2 lengths can be joined together to make a 10m Bar:



Two flexible cables join the bars



The Bars fold for easy packaging



The cables push into the Bars so there is no gap

Standard lengths

Because the emitters are at a certain pitch the Bar lengths are standard e.g 250mm, 500mm, 750mm - see pricelist and next page. We can make, for example, an 800mm Bar but it would have the same number of emitters as a 750mm Bar and would cost the price of a 1m Bar.

Multi-Bar

If more than one Bar is to be served on each 3700 Controller there are two options:

1) Connector Box:



There are 2:1, 3:1 and 4:1 Connector Boxes. See page 8 for further details.

2) Cables in Series:

Bars can be joined together with fixed lengths of cable. It is important to specify the correct cable lengths joining the Bars as they cannot be increased after production.



It is important that the correct lengths of cable is specified - please send a sketch with order.

We do not recommend cable to go from one machine to another if it crosses walk ways, or is placed where it could be damaged.

3850 Bar and 3850HP Bar

The original 3850 Bar had 125mm between positive and negative emitters (250mm between each emitter of the same polarity).

In 2007 we introduced the 3850HP Bar which has closer emitters - 75mm between positive and negative emitters (150mm between each emitter of the same polarity).

The 3850HP Bar is more effective at distances up to 750mm and it can be used closer to the material 150-200mm minimum, compared to the 250mm minimum of the standard 3850 Bar.

The Standard size and prices of the 3850 are different - please see price list.

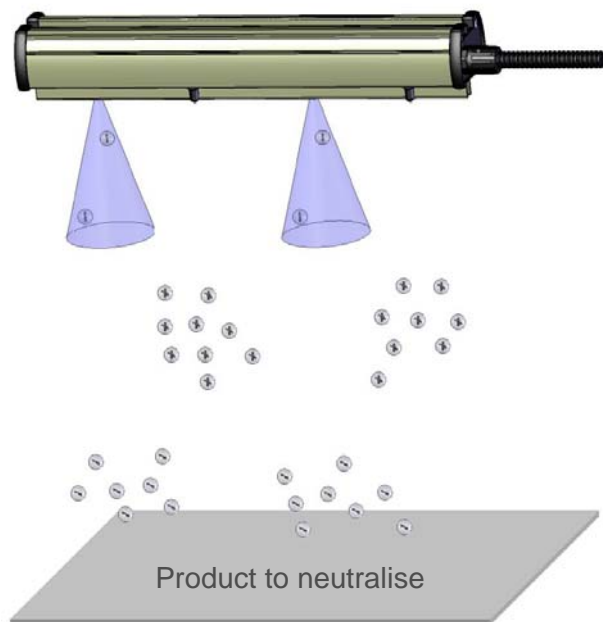


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Installation

Ions are projected outwards towards the product.

It is important that there are no parts of the machine in front of the Bar or beside the Bar (marked in red in the picture below) as this will attract the ionised air and reduce the amount of ionisation available to neutralise the problem.



Ionstorm 3850 Connector Boxes

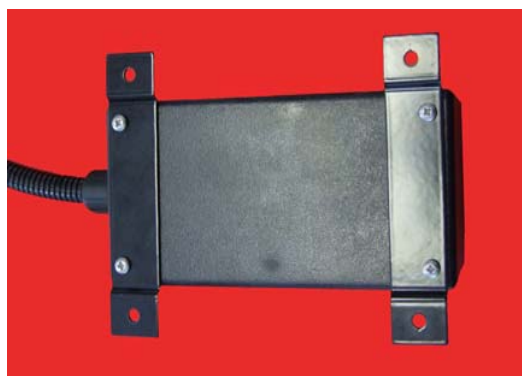
Connecting more than one 3850 Bar to the 3700 Controller.

A Connector Box is the most common method of serving more than one Bar. It is more versatile than having Bars in series. The connector consists of a plastic box with 2, 3 or 4 pairs of HT sockets and one HT Cable 500mm long heading to the 3700 Controller. Longer lengths of cable can be supplied if required.

The sockets are colour coded: one side red, the other side blue (see picture below).

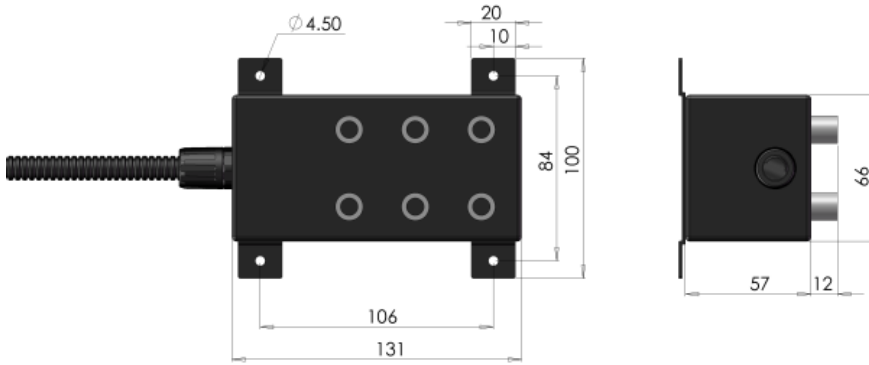
On each 3850 Bar there are two bayonet connectors at the end of the HT cable: one has a red sleeve and the other one a blue sleeve.

IMPORTANT: It is important that the red coded connector is put into the red side of the connector box and the blue coded connector into the blue side.



Notes

Dimensions



Notes

Connector Box Mounting Brackets

This is supplied with Connector Boxes. Kit Includes:
2 x Mounting Plates. 4 x M4 Nuts and Bolts., 4 x Self Tapping Screws.

For installation of the mounting brackets, remove the four corner screws on the reverse of the connector box. Place the Mounting Plates along the short side of the connector box, and screw in using the longer self tapping screws supplied.

IMPORTANT: DO NOT OPEN THE CONNECTOR BOX.

Mount the connector box using the M4 Screws provided, ensuring it is away from moisture, oils or similar substances.

Maintenance and Cleaning

Turn off power to Bar before cleaning. Do not turn on power until Bar is dry. Cleaning is very important. A dirty Bar will have greatly reduced performance.

The 3850 Bar and the emitters should be cleaned regularly and thoroughly to remove dirt, dust and other contaminants. If the dirt is very stubborn, use IPA or other solvent compatible with the PVC and ABS emitters.

It is a good idea to have a spare set of emitters to enable the dirty ones to be cleaned off-machine. The tungsten filament in the emitters will erode over time - when it is 2mm below the top of the black plastic moulding they should be replaced, typically every two years.

IMPORTANT: There are no user serviceable parts in the Controller and it should not be opened as there is a danger of electric shock.

Health and Safety

The 3700 Controller and connections contain electricity at high voltage and should be treated with care - please see laminated sheet which should be positioned close to Controller for the guidance of all operators.

The emitters on the 3850 Bar are resistively coupled with 100M Ω resistance in series with the high voltage source, which makes the emitters shockless when touched individually.

IMPORTANT: Do not touch more than one emitter at a time.

We know of no other health hazards attributable to this equipment.

The ozone emission from the high voltage discharge is less than 0.1ppm and within International Standards.

EC Declaration

We confirm that this equipment has been tested and conforms to the following EC Directives:

89/336/EEC (Electromagnetic Compatibility)

72/23/EEC (Low Voltage Directive)

and is entitled to display the CE Mark.

Applications

The range of lonstorm applications is best shown by photos.



Film Winder



Film Winder



Converting Machine



Special Sheet Cutter



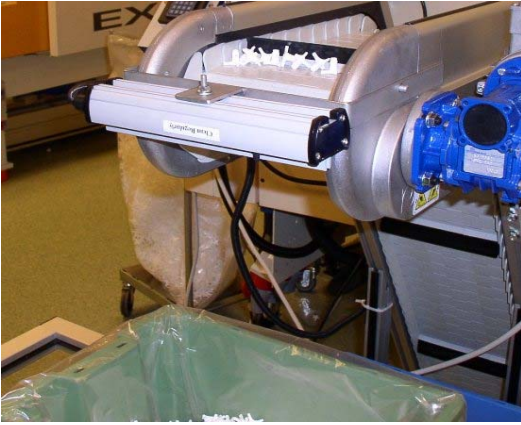
Insulation Material/Non Wovens



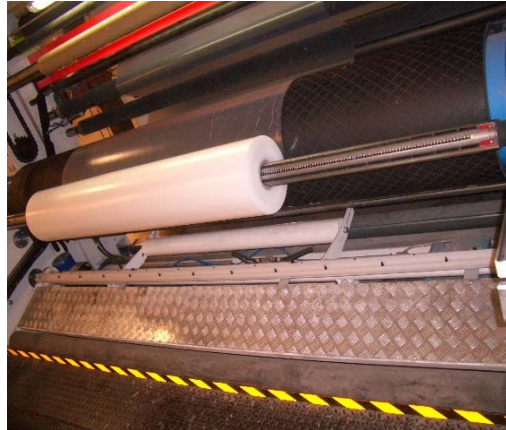
Flexo Printer Winder

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Neutralising Mouldings/Medical Cleanroom



Battenfeld Winder



Digital Printer



A typical winder - the bar will get dirty and must be cleaned in this type of application.



Neutralising plastic bottles in a cleanroom



Plastic bottles from a different angle. Two Bars would not normally be specified.



Polystyrene Extruder



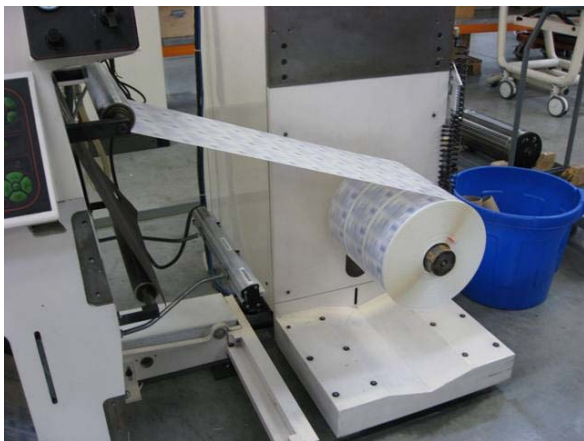
Hopper with plastic shampoo bottles



Film extruder winder



Textile Beaming Machine / Slasher



Label press rewinder

Neutralising plastic bottles after de-palletising

Distributor Manual/Ionstorm



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