



MODEL EX1250 BAR

EX-1250 Static Eliminator Bar YYYY/NNNN

⊕ Ex II 2G IIB T6 ⊕ Ex II 2 D IIIC T85°C (-20°C ≤ Ta ≤ +50°C)

Baseefa 07ATEX0157X

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Fraser static control equipment has been designed to give you many years of productive service. However, the science of static control has unique rules which must be followed to allow the equipment to give a good return on your investment. Please read the following operating and maintenance instructions carefully.



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1. The Equipment

Model EX1250 is a high performance static eliminator Bar. It is used in thousands of applications by many of the leading industrial companies worldwide.

The EX1250 Bar has been certified for use in certain hazardous areas. Please read the following instructions carefully.



The EX1250 is part of a system consisting of one or more Bars and an EXHP Power Unit.

The Power Unit converts the primary voltage to 6 kV which is transmitted to the Bar by the HV cable. The emitter pins in the Bar use the high voltage to produce a cloud of ionised air. Ionised air supplies ions of the opposite polarity to neutralise the static charge.

2. Checking the Equipment Delivered

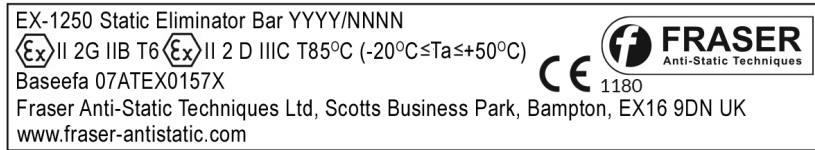
The equipment leaves our factory in suitable protective packaging. Please check that it is undamaged when it arrives. If there is visible damage contact the factory or one of our distributors immediately, before carrying out any installation.

Check that the parts which have been delivered are the same as you ordered.

Loose parts: Unless otherwise specified the Bar should have M4 x 20 mm hexagon head screws and 200 mm fixing strips for mounting. These are in a plastic bag attached to the Bar.

3. Safety and ATEX Certification

The ATEX certification of the EX1250 Bar is valid for gas and dust applications.
The certified label is:



The gas certification is:

II 2 G IIB T6

Which means:

- II** Surface Group.
- 2** Equipment category: high protection. Suitable for zones 1 and 2.
- G** Equipment used in potentially explosive atmospheres caused by presence of explosive gas, vapour or mist
- IIB** Gas Group. This includes **IIA**: Propane group gases
IIB: Ethylene group gases
- T6** Temperature class. Maximum surface temperature 85 °C.

The dust certification is:

II 2 D IIIC T85°C

Which means:

- II** Surface Group.
- 2** Equipment category: high protection. Suitable for zones 21 and 22.
- G** Equipment used in potentially explosive atmospheres caused by presence of airborne particles (dust).
- IIIC** Dust Group. This includes **IIIA**: Combustible flyings.
IIIB: Non-conductive dust.
IIIC: Conductive dust.
- T85°** Temperature class. Maximum surface temperature 85 °C.

The ambient operation range for both gas and dust certifications is: **-20 °C ≤ Ta ≤ 50 °C**.

4. Technical Specification

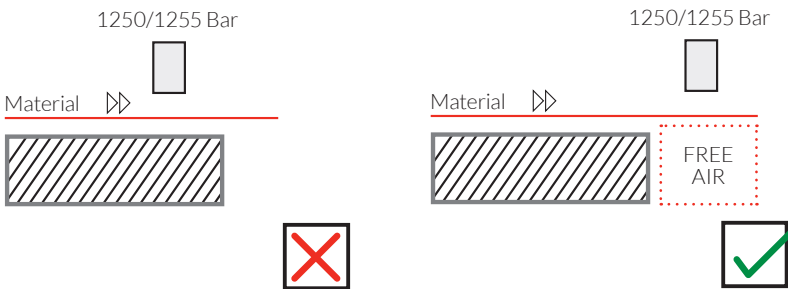
Power Unit	Use with Fraser EXHP or HP-ION Power Units only.
Body of Bar	Anodised aluminium, FR-ABS, epoxy resin.
Cable	Special screened HT Cable with PVC outer sheath and protective nylon conduit. 3 m of cable supplied unless otherwise specified on order.
Resistors	150 MOhm resistance between emitter and the HV. This makes the emitters shockless to touch. Note: if the emitters are connected in parallel the resistance is reduced and shocklessness cannot be guaranteed.
Ambient Conditions	Maximum temperature 50 °C. Maximum humidity 70% rH, non-condensing.
Maximum Load	The maximum Bar and Cable length is 30 m of combined bar and cable:
Weight of Bar	1.1 kg per m.
Cleaning	Please use the Fraser Ioniser Cleaning Kit. Alternatively, the Bar may be washed in water or solvents compatible with the Bar materials (see above). It is important that the Bar is turned off for cleaning and that power is not turned on until the Bar is dry.



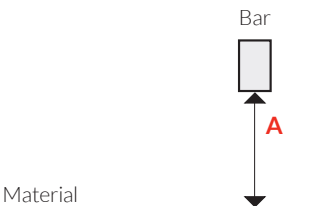
5. Assembly and Installation

Positioning the Bar

- i. The best location is usually at, or immediately before, the area where static is causing the problem - remember that static can be regenerated if the material passes over rollers or through a process after neutralising. A static meter is useful to determine the best position. Fraser manufactures the EX715 Static Meter which is ATEX certified.
- ii. Use the M4 x 20 mm hexagon head screws to install the Bars.
- iii. **Important.** The material to be neutralised generally should be in free air, not touching another surface as it passes the Bar. It is not possible to neutralise static electricity where the material is touching another surface or roller. Position the bar 50 mm from rollers or the machine frame.



- iv. The emitter pins should face the material to be neutralised and be about 25 mm from it for best operation. At a distance of 100 mm the performance is 25% of the performance at 20 mm.
- v. The bars must be dry and oil-free.



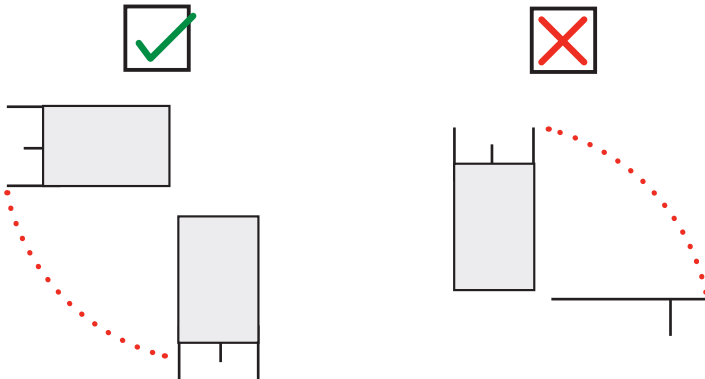
Distance A	% Performance
20 mm	100%
50 mm	45%
100 mm	10%
150 mm	<5%

5. Assembly and Installation

- vi. It is important that the emitter pins are not touching, or within 10 mm of other metal objects, to avoid spark erosion that will damage both the Bar and the metal object.
- vii. If more than one Bar is used, they should not be positioned directly opposite each other, but should be offset by at least 50 mm.

Special Installation Information for DUST application: IMPORTANT

The ATEX certification specifies that the emitters should be either horizontal or pointing downwards to prevent the collection of dust around the emitters.

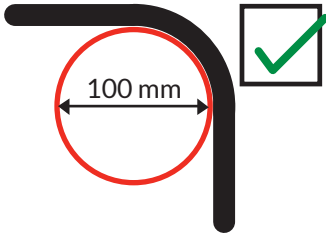


The ATEX certification is invalid if this is not followed.

The special installation requirement does not apply to the ATEX gas certification.

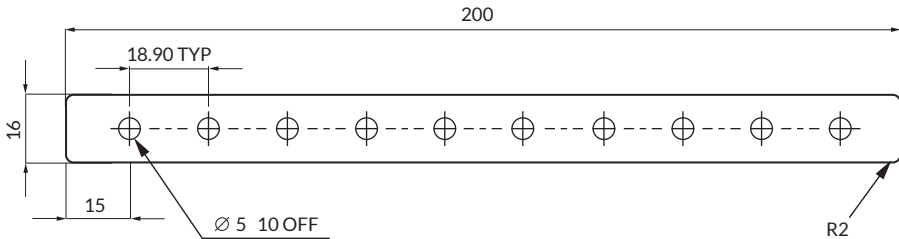
5. Assembly and Installation

Cable Hi-flex cable is made to a high specification, but all HT cables must be treated carefully. Sharp bends will damage the insulation and lead to breakdown. This minimum bend diameter is 100 mm.



Min. bend diameter 100 mm

Stainless steel fixing strips are supplied with the Bar with M4 x 20 mm fixings.



Use all the fixings supplied to support the Bar: 2 fixings for Bars up to 1 m + extra fixing for each additional 1 m, or part of 1 m. This is especially important for long Bars.

5. Assembly and Installation

Positioning Summary:

- Emitters facing material.
- Emitters horizontal or looking downwards for dust installation.
- Bar >50 mm from rollers or machine parts.
- Material in free air.
- Distance from material: 25 mm to 200 mm. Closer is better.
- If there are two bars, offset them >50 mm.
- Cable not bent more than 100 mm diameter.
- Dry and Oil-free.
- Keep clean.

5. Assembly and Installation

Connecting to Power Unit

IMPORTANT - The EXHP Power Unit must be positioned outside of the EX zoned area.

Turn Power Unit off before any installation or maintenance work.

Do not touch the white insulators - high voltage will track through any contamination on this insulator and could cause a breakdown.



EXHP Power Units:



HP Connector - **IMPORTANT**

Keep white insulator clean.

Dirt or finger grease on the white insulator can cause tracking of the high voltage and failure of the Power Unit.



Completely screw into one of ports.

- Turn the hexagon head finger tight.
- The spring contacts the internal HV source.
- The threaded stainless steel body connects to the earth through the port.
- Connect the earth terminal to an independent earth for additional protection.
- Unused ports should remain closed with the red threaded caps to prevent ingress of dirt

5. Assembly and Installation

Remote Function Monitor for Power Unit (Optional)

On every power unit the operational status is generally shown by the ON/OFF green switch.

However this does not show that the high voltage is present.

The optional Remote Function Monitor (RFM) measures the high voltage output and indicates if there is a fault which results in no ionisation. The fault could be:

- A) in the mains supply
- B) a short in the bar or cable
- C) a fault in the power unit
- D) bars require cleaning

If there is a fault in the EX1250 Bar the Power Unit will shut down for safety reasons - it is current limited to 5 mA.

The electronic circuitry for the RFM is on a PCB mounted inside the power unit. It does not need any additional power source.

The connector on the power unit shown in the photo below will give a potential free signal which can go to a remote location such as an alarm or PLC on the machine.



Remote Function
Monitor Connector

The Remote Function Indicator is powered internally. The relay does not require an additional source of power, such as a 12 V or 24 V supply, which is required by competitive equipment.

The Remote Function Indicator must be specified at time of order. It cannot be retrofitted.

6. Operation and Health & Safety

When the installation has been made as the instructions in this booklet, the system is ready to turn on.

The ionised air corona produced by the emission of high voltage from the emitter pins will neutralise static charge that passes through it. This is a powerful and safe process. The emission produces a soft buzzing sound which is not usually audible in a factory.

Ozone

The emission also produces a small amount of ozone which may be detectable by a sensitive nose. This ozone level is considerably below the international safety limit of 0.1 ppm. If the smell is undesirable then increase the level of ventilation.

Dust and Contamination

The electric field produced by the emission may attract dust from the atmosphere. It can also cause a blackening of the plastic extrusion due to carbonisation. Both the dust attraction and carbonisation are normal - see Maintenance for cleaning of Bar.

Interlock With Process

Although the equipment is designed for continuous operation, we recommend that its operation is linked with the running of the machine or process, so that the system is not running when it is not needed. This will reduce dust attraction and so reduce maintenance.

Shockless

The emitter pins are resistively coupled to the high voltage. The resistance is 500 MOhm which results in a pin energy level of $50 \mu\text{A}$ which is shockless. Please note that if more than one emitter is touched at the same time then the resistors may be connected in parallel and so less shockless.



Sharp Emitters

Please note that the emitter pins are designed to be sharp! They could cut fingers if handled without care.



7. Maintenance

Cleaning

Important: Turn off power before cleaning.



Accumulation of dust and other contaminants is normal, but this will reduce the performance of the Bar. It is important to clean the Bar to keep it working efficiently. This is particularly important for the ATEX Dust Certification application.

Light dust can be removed with a nylon brush - such as a toothbrush or nailbrush.

We recommend the Fraser Ioniser Cleaning Kit.



Ingrained dirt and carbonisation can be removed with IPA (isopropanol alcohol) or a similar solvent which is compatible with ABS, epoxy resin and aluminium. Soapy water can also be used.

Important: Do not turn on power until the Bar is dry.



Take care - the emitter pins are sharp!



8. Trouble Shooting

Poor Static Elimination

Check positioning of the Bar. It will not be satisfactory if there is not 'free' air on opposite side of material.

Clean the Bar. Dirt around the emitters could severely affect performance.

Is the Bar Working?

Check with an electrician's 'volt stick' (it will illuminate from 200 mm), or a 720 Static Bar Checker.



If it is a multi-bar system disconnect one Bar at a time from Power Unit and see if the system re-starts. The reason for this is that there could be a short in one of the Bars which pulls down the Power Unit by drawing more than 5 mA of current. If this load is removed the rest of the system will restart.

If the Bar is not working it should be returned to the factory for further inspection or replacement if under warranty. There are no user-repairable parts in the Bar or cable.

9. Warranty

The warranty is for a period of 12 months from date of delivery note. It covers defective workmanship and parts provided:

- The equipment has been used within the operating conditions specified in this document.
- There has been no physical damage to the product.
- The product has not been altered or tampered with.
- It is sent back to the factory by the customer. The customer is responsible for these carriage costs, Fraser is responsible for returning the product repaired or replaced under warranty.

10. Certification and CE Declaration of Conformity

We declare that this equipment conforms to the following EU Directives:

Low Voltage Directive: 2014/35/EU.

EMC Directive: 2014/30/EU

ATEX Directive: see page 5.

And is entitled to display the CE Mark.

For further instructions and information, please contact the manufacturer.

11. Spare Parts

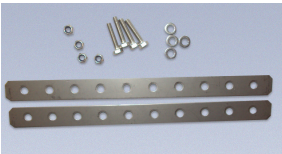


EXHP connector set

For assembly by the customer.



EXHP/HP ION Power Units



Mounting Bracket Kit

Consisting of two fixing strips, nuts and bolts.

Part 12508

- Fuse:** 20 x 5mm. Value: 400 mA for 230 V
800 mA for 115 V
Rating: 1500 A
- Fuse Holder:** Bulgin FX 0462
- Switch:** Arcoelectric C 1353 ALGNE.

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For more information about static and to view the full range
of our products, please visit www.fraser-antistatic.com



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