FRASER
Anti-Static Techniques

OPERATING INSTRUCTIONS

4825 24 V DC IONISED AIRGUN

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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.

1. Introduction

The Fraser 4825 DC Ionised AirGun ('the Ioniser') is part of a high-performance range of static eliminators from Fraser Anti-Static Techniques. These products are used by leading manufacturers throughout the world to increase safety and productivity. Before you install the Ioniser, please follow the installation instructions carefully for maximum benefit.

1.1. Features and Benefits

- The Fraser 4825 DC Ionised AirGun is designed to neutralise and clean electrostatically charged surfaces and small products.
- The use of Pulsed-DC high voltage provides excellent charge decay performance even at longer distances, and ion balance suitable for most industrial applications.
- Powered by 24 V DC, it features integrated high voltage supplies meaning that no high voltage cabling is required.
- The status of the Ioniser, including need for cleaning, is indicated by a single LED.
- Whilst normally powered by a Fraser AC/DC E3024-PSU and extension cable, it is possible to use a suitable cable to both power the unit and access remote signalling.
- The Ioniser is intended for use in indoor factory environments only. It is not suitable for outdoor use.

1.2. Explanation of Symbols

Warning!

This symbol appearing in the operating instructions refers to operations which, if carried out improperly, may result in serious personal injuries.

Caution!

This symbol appearing in the operating instructions refers to operations which, if carried out improperly, may result in damage to property.

2. Checking On Delivered Equipment

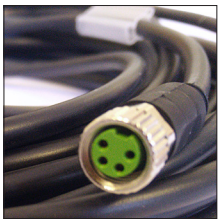
Before starting the installation please check that the airgun has not been damaged in transit. If the packaging material is damaged, please report this immediately to the vendor.

Check that the additional items are present with the airgun:

AC-DC Power Supply Unit

If ordered, a 24 V DC output, 100 - 250 V AC input PSU (Part No. E3024-PSU) will be supplied. The 0 V output is earthed and a secondary safety earth connection is provided.

IMPORTANT: DO NOT USE standard 'computer style' PSUs without earthed outputs to avoid risk of operator shocks and damage to the PSU or Ioniser. An extension cable is often required.



Power Supply Cable

If ordered, a 24 V power supply cable with an M8 x 4-pin connector will be supplied.

See Section 13 for details of cables and other accessories.

3. Safety

The airgun has been designed in accordance with the safety requirements of the EU Low Voltage Directive.

Warnings:

- The product should be cleaned regularly. The product should not be cleaned while powered.
- The emitter pins are a Class 1 electrical energy source. Direct contact with the emitter while the product is powered will not result in electrically-caused injury, but may cause a detectable sensation due to the small current that will flow.
- The emitter pins are necessarily sharp. The emitter pins are a Class 2 mechanical energy source. Contact with the emitters during cleaning may be painful, but will not cause an injury requiring emergency medical attention.
- Installation, use and maintenance must only be carried out by suitably qualified personnel.
- The negative pole of the 24 V DC supply provided to the product must be permanently earthed.
- Adequate installation earth / ground is required to ensure safe and proper operation.
- Do not connect or disconnect the M8 cable from the Ioniser while it is powered.
- A small amount of ozone will be produced as part of the ionisation process. When installed correctly the level of concentration of ozone is less than 0.1 ppm and is within internationally accepted limits.
- Faulty air hoses and connectors can cause serious injury. Only install compressed air hoses when depressurised.
- Noise levels must be checked in final installation and operating air pressure.

4. Electrical Connections

The 4825 Ionised Air Gun is normally powered from the AC-DC E3024 PSU.

Carefully screw the M8 connector on the power unit to the connector on the 4825 Gun Ioniser. You may need to use an M8-M8 extension cable.

Connect the secondary earth from the power unit to any suitable ground.

Only then, connect the power supply to the mains. When switched on, the LED on the ioniser unit will show green.

If the 4825 will be powered from a PLC or a separate 24V DC power supply instead, please request the more detailed 3024-UC Ioniser instructions from Fraser for full wiring details.

5. Air Connections and Supply

- The fitting on the Gun handle is 1/4 BSP.
- Connect an 8mm airline to the air inlet mounted on the rear of the nozzle of the Ioniser. Only use oil-free, dry and filtered compressed air.
- Compressed air hoses should be kept as short as possible. Kinks and bends less than 3x hose diameter should be avoided. Unnecessary quick-lock couplings in the air hose should be avoided to minimise pressure loss.
- A pressure regulator is recommended to set the best pressure for the job to be done. The maximum pressure that the Gun can accept is 10 Bar (145 psi). Typical working pressures are 3 - 5 Bar (44 - 71 psi). The air consumption at 5 Bar is 560 litres/min (20cfm).
- Exceeding the maximum pressure of 10 Bar will damage the nozzle.

6. Monitoring: LED and Remote

The LED on the Ioniser indicates its status as follows:

LED Indication	Ioniser Status	Ionisation
Green	OK	Active
Green/Red flashing	Cleaning/attention required	Active
Red	Overload, over temperature, hardware fault, supply voltage out of range	Inactive
Red Flashing	'STANDBY' mode	Inactive
Not illuminated	Ioniser not powered	Inactive

The Ioniser can be connected to a PLC or a separate 24V DC Power supply with an optional cable from Fraser, which will additionally allow access to the remote status signals. If this is desired then please request the more detailed 3024-UC Ioniser instructions from Fraser for full wiring details.

7. Commissioning and Operation

Before turning the Ioniser on for the first time, check:

- If using the external AC-DC power adapter, ensure that the supplementary grounding wire is connected to the installation protective earth.
- Noise levels have been checked in final installation and at operating air pressure.
- The electrical installation of the Ioniser has been completed in accordance with the wiring instructions in this document. In particular, ensure that the 0 V supply return is connected to earth.
- Any operators who will work in close proximity to the Ioniser are aware of its presence and familiar with its operation.

8. Maintenance

WARNING: Always disconnect power before working on the Ioniser.
Only disconnect and connect compressed air hoses when depressurised.

Cleaning is the only maintenance required. Dirt around the emitters will reduce ionisation effectiveness and result in unsatisfactory static neutralisation performance.

The frequency of cleaning will depend on the process and the environment in which the Ioniser is installed. The Ioniser should be cleaned when an 'ATTENTION' state is indicated by the LED, or after approximately 1 month of continuous operation, whichever occurs first.

To ensure best performance, the Ioniser should be visually inspected on a regular basis and cleaned whenever convenient.

A cleaning kit is available from Fraser, Part No. 81220. This is the ideal solution for regular Ioniser cleaning. Alternatively a toothbrush or soft nailbrush can be used.

Do not use a wire brush as this may cause damage to the Ioniser.

Alternative cleaning materials are warm soapy water, or isopropyl alcohol (IPA).

The Ioniser must be dry before the power is switched back on.

9. Troubleshooting

In the event of problems with the product, please use the following checks:

Symptom	Cause(s)	Solution(s)
No LED (not illuminated)	Product not powered.	• Check power supply and connections. • Check external fuse. • Check supply cable for damage.
Constant Red LED	Power supply voltage outside of specified range.	• Check and adjust power supply voltage. • Ensure appropriate power supply cable used. • Ensure power supply not overloaded.
	Internal fault.	• Contact supplier.
Flashing Red LED	Product in 'STANDBY' mode.	• Connect pin 2 of the M8 connector (usually white wire) to 0 V, or leave disconnected. Refer to installation instructions.
Flashing Red/ Green LED	Emitters need cleaning.	• Power off product, clean emitters.
Poor Ionisation/ Neutralisation Performance	Emitters need cleaning.	• Power off product, clean emitters.
	Emitters worn.	• Check emitters for excessive wear.
	Ioniser installed too far from material to be neutralised.	• Review installation, move Ioniser closer to material if possible. Refer to installation instructions.
	Emitters too close to earthed metal surfaces.	• Review installation, move Ioniser further away from earthed metal surfaces if possible. Refer to installation instructions.

10. Technical Specification and Dimensions

Power Supply

Input Voltage:	24 V DC nominal, 21 - 28 V operating range
	0 V earthed
Input Current:	0.25 A max
Maximum Input Power:	7 W
Input Connector:	M8, 4-pole, male

Output

Ionisation Method:	Pulsed DC
Output Voltage:	+/- 7 kV nominal
Output Frequency:	10 Hz as standard
	Other frequency on request from 1 - 50 Hz
Emitter Material:	Tungsten
Emitter Touch Current:	<100 µA (E

Monitoring

LED Status Indication:	Flashing Green: OK, Ioniser operating normally
	Flashing Red / Green: Ioniser requires cleaning
	Constant Red: Supply voltage out of range or internal fault
	Flashing Red: Ioniser in 'STANDBY' mode

Remote Monitor Output

Signalling Output:	'ATTENTION' output signal on pin 4 (black wire)
Output Signalling Levels:	24 V output, 3 kΩ output impedance
Output Current:	Sourcing (+24 V): 8 mA
	Sinking (0 V): 20 mA
	Limited to 50 mA max (output low) by internal protection
PLC Compatibility:	Compatible with IEC 61131-2 Type 3 PLC inputs
Remote Monitor States:	+24 V: Ioniser OK
	0 V: Ioniser requires cleaning, Ioniser fault, Ioniser in 'STANDBY' mode

Remote Input

Signalling Input:	'STANDBY' input signal on pin 2 (white wire)
Input Signalling Levels:	0 V / 24 V nominal signal level (28 V max)
	<1 V or disconnected: Ioniser operates normally
	>21 V: Ioniser in 'STANDBY' mode
Input Signalling Delay:	<1 s
Input Impedance:	5 kΩ nominal input impedance

11. Accessories

A range of accessories to assist with installation and maintenance of the Ioniser is available from Fraser Anti-Static Techniques. Please contact your local distributor to enquire regarding pricing and delivery of these items.

Item Picture	Description	Part No.
	**10 m** cable M8 female, Bare ends. **Straight socket.**	80932

13. Accessories

Item Picture	Description	Part No.
	Universal AC-DC power supply: 100 - 250 V AC, 24 V DC output Fitted with 1.5 m of cable.	E3024-PSU
	M8 male to M8 female 4-pin extension cable for AC-DC power supply unit. (Available in 2 m lengths)	80937
	M8 male to M8 female 4-pin extension cable for AC-DC power supply unit. (Available in 5 m lengths)	81127
	M8 male to M8 female 4-pin extension cable for AC-DC power supply unit. (Available in 10 m lengths)	81353
	Fraser Ioniser Cleaning kit containing: • 1000 ml of Cleaning Fluid. • Soft bristle hand brush. • Instructions for use.	81220

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

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