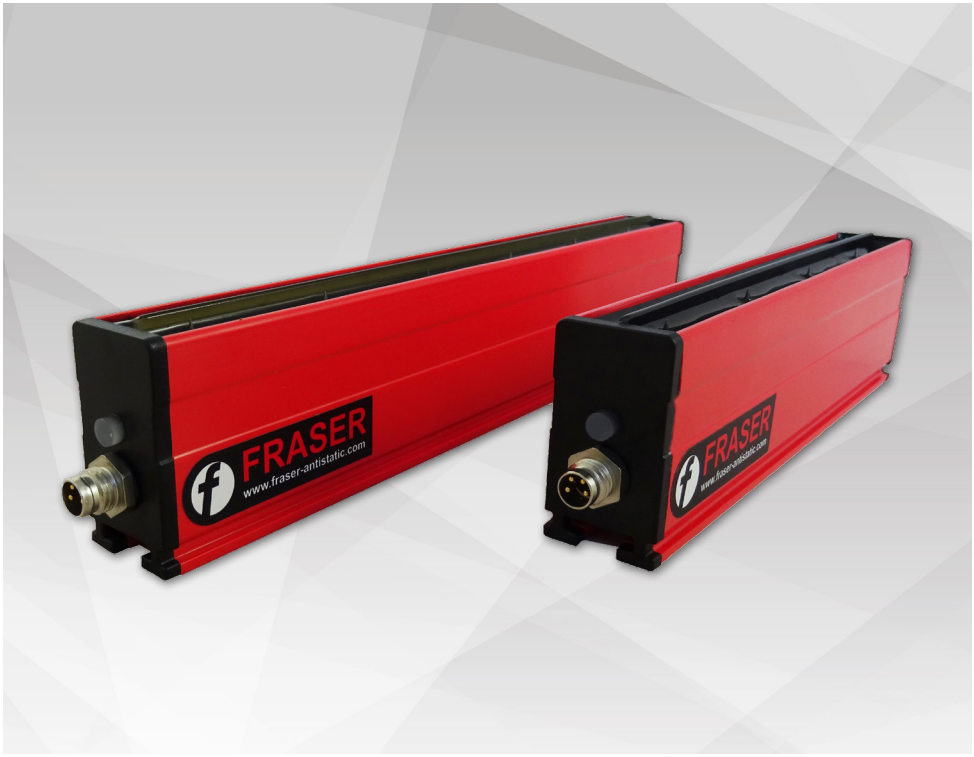
FRASER
Anti-Static Techniques

OPERATING INSTRUCTIONS



3024 COMPACT
WITH INTEGRATED REMOTE MONITOR

UL CE

LLOYD'S REGISTER QUALITY ASSURANCE ISO9001 UKAS QUALITY MANAGEMENT 001

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. Introduction

This manual applies to the 3024 Compact Static Eliminator Bar.

It is essential that you read and understand the complete manual before installing and using this equipment. This is important for safety and for warranty cover.

1.1. Explanation of Symbols

Warning!

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

Caution!

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

2. Safety

Warning!

- The Anti-Static Bar is only designed for neutralising surfaces with an electrostatic charge.
- Electrical installation must only be carried out by a qualified electrical engineer.
- Adequate installation earth/ground is required to ensure safe and proper operation.
- The 0 V output of the 24 V DC electrical supply **must** be earthed.
- Disconnect the power supply before cleaning or handling the Bar.
- The emitters are sharp and can cause physical injury.
- There are no user serviceable parts inside the Bar.
- When installed correctly the ozone generated by this product is within internationally accepted limits.
- Ensure the Bar and connecting cable are free from damage prior to installation and check periodically once in use.

Any changes to the equipment without written consent of the manufacturer will nullify the warranty and CE certification.

3. Use

The 3024 Compact is a Static Eliminator Bar, designed to meet the static neutralisation requirements of high performance machinery at close range.

The smallest available 24 V DC Bar on the market (as at March 2019), it has an integrated HV supply and features remote monitoring to check bar function remotely.

Short, powerful and compact, it is designed for internal factory use and is ideal where space constraints exist.

3024 Compact

Designed to cope with speeds up to 1000 m/min.

Ideal for fast moving materials.

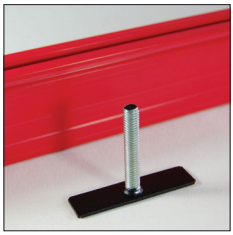
Operating distance for best performance 20 - 50 mm.

Maximum distance 20 - 150 mm.

4. Checking on Delivered Equipment

The equipment leaves our factory in suitably 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.

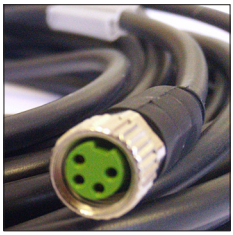
Check that the delivered parts are the same as you have ordered.



'T' Fixings

2 'T' fixings are supplied.

It is important to use all the 'T' fixings supplied.



Power Supply Cable

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

See Section 12 for details of cables and other accessories.

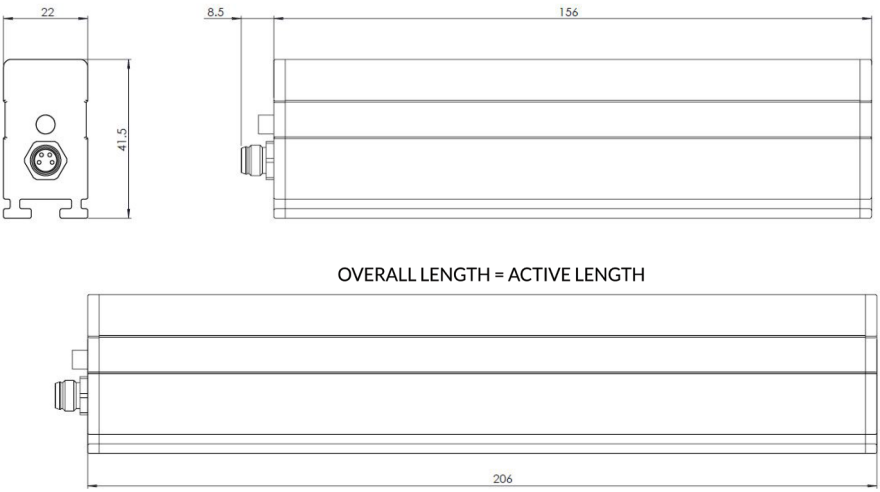
IMPORTANT

DO NOT USE standard 'computer style' PSUs. These do not have secondary earths and risk operator shocks and damage to the 3024 Compact Bar. Only use the Fraser external Power Supply Unit (Part No: E3024-PSU).

5. General Specification and Dimensions

Power Supply:	Voltage: 24 V DC (21 - 28 V). Current: 0.5 A DC max when used without the Remote Monitor. Up to 1 A DC max when using the Remote Monitor.
High Voltage:	Up to 7.5 kV integrated into Bar.
Supply cable:	Low voltage, industry standard M8 connector 4-pin.
Emitters:	Long life high grade Tungsten.
Status indication:	LED. Green = OK. Red = fault or very dirty Bar. Remote Monitor - see page 13 - 14.
Environmental:	IP66. Fully sealed. Internal use. 0 - 55 °C Max. Dry: max 70 % RH, non-condensing.
Length:	150 mm (156 + 8.5 mm for connector). 200 mm (206 + 8.5 mm for connector). Effective length = 100 % of actual length.
Height and Width:	Height = 41.5 mm. Width = 22 mm.
Weight:	150 mm = 220 g. 200 mm = 280 g.
Mounting:	Low profile mounting blocks within the Bar.
Approvals:	CE and UL.

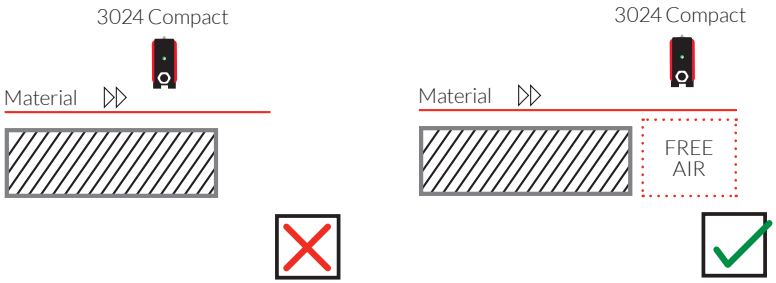
5. General Specification and Dimensions



6. Positioning

i. The best location is 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, such as the Fraser 715, is useful to determine the best position.

ii. **Important.** Except on a winding reel of material, the material to be neutralised must 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.



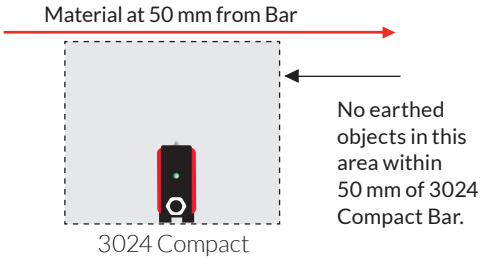
iii. The emitter pins should face the material to be neutralised and be within the following operating distance:

Ideal operating distance 20 - 50 mm.
Max operating distance 20 - 150 mm.

Do not position the 3024 Compact closer than 20 mm to the material.

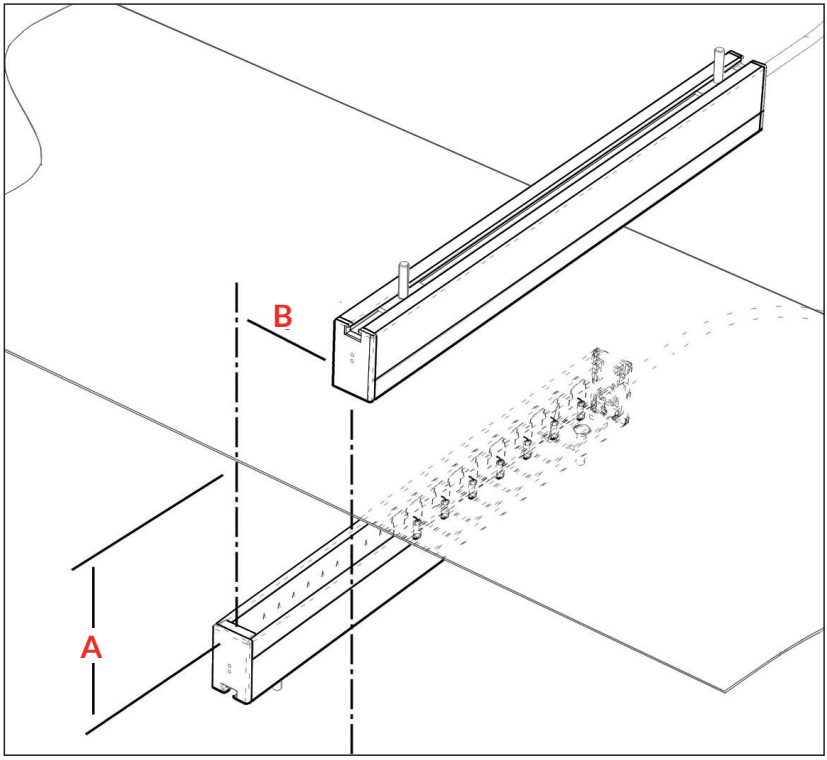
iv. The Bar must be dry and oil-free.

v. It is important that the emitter pins are not touching, or close to metal objects, to avoid spark erosion that will damage both the Bar and the metal object. With a plastic DC Bar like the 3024 Compact the nearest earth should be more than the distance of the product. If there is an earthed body closer to the Bar than the material to be neutralised, then the earthed body will attract the ions from the Bar. For example if the Bar is 50 mm from the material to be neutralised there should be no metal or earthed parts closer than this.



vi. If more than one Bar is used, they must not be positioned directly opposite each other, but must be offset by at least 50 mm.

6. Positioning



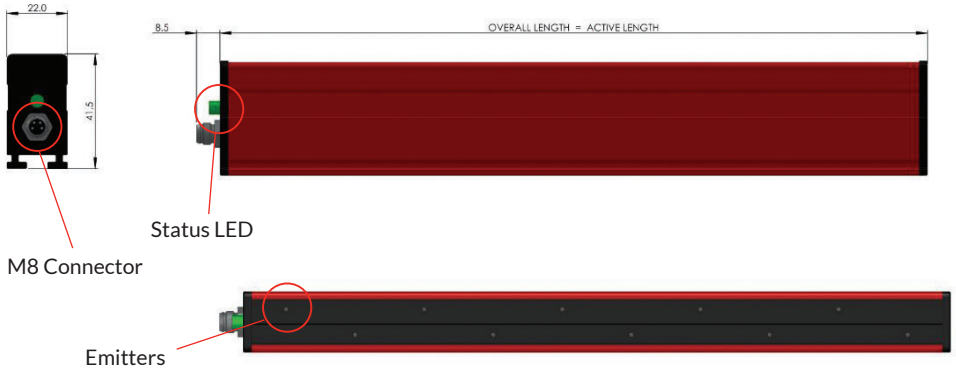
- Emitters facing material.
- Bar > 50 mm from rollers or machine parts.
- Material in free air.
- Distance '**A**': depends on Bar type. Closer is better.
- Distance '**B**': if there are two Bars, offset them > 50 mm.

3024 Compact

- Distance from material: 20 - 150 mm. Best distance 20 - 50 mm.
  Do not position the 3024 Compact closer than 20 mm to the material.
- The material to be neutralised must be in free air.

7. Operation and Control

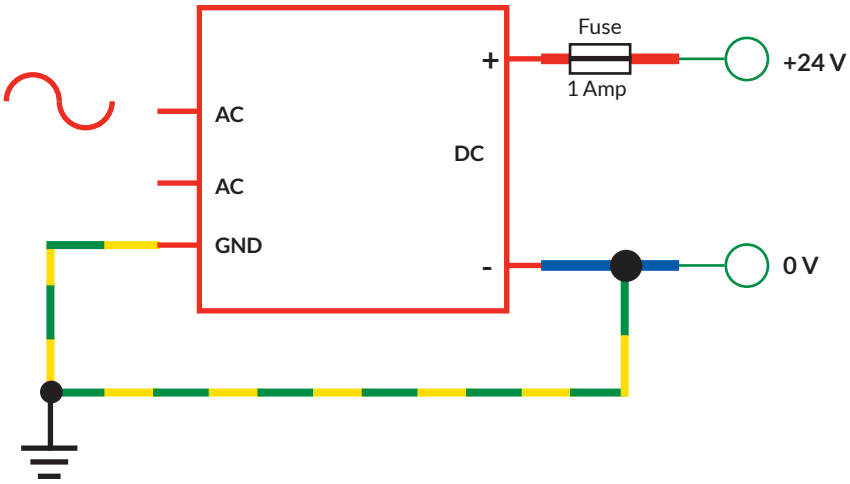
Warning: Failure to follow the installation requirements can result in injury or damage to equipment.

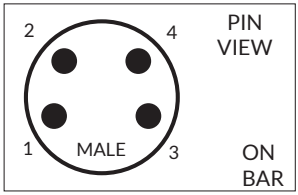


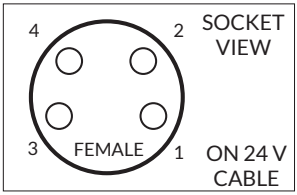
1. Electrical

Using an existing 24 V DC supply:

The 24 V output must be fitted with a 1 Amp fuse e.g. Type : 1 A, T, 250 V
The 0 V output **must** be connected to earth.
The WHITE wire to the M8 4-pin connector **must** be connected to installation earth.







Pin	Colour	Function
1	Brown	24 V
2	White	Earth
3	Blue	0 V and Earth
4	Black	Remote Monitor

2. Status LED and Remote Monitor

The 3024 Compact Bar gives a signal showing its operational status in two ways:

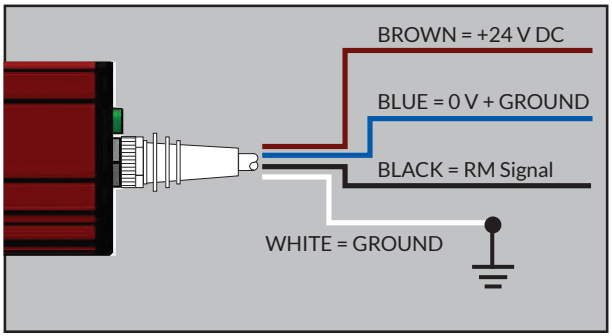
i. LED

- the LED mounted next to the cable connector on the Bar.
- flashes GREEN if all is OK.
- flashes RED if there is a fault.

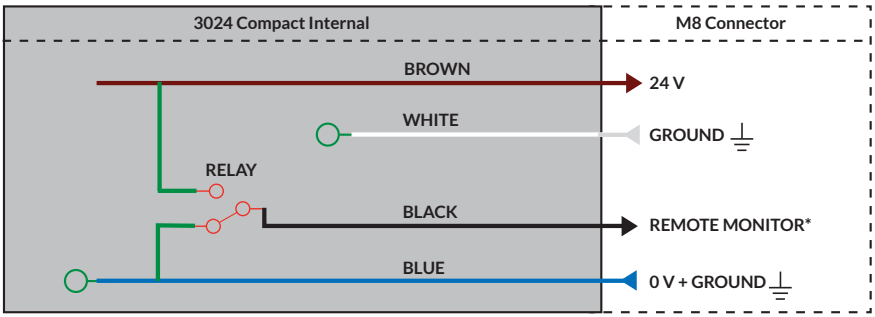
ii. Remote Monitor

- uses the black wire in the 4 wire supply cable to send a 0 V or 21 - 28 V signal to the PLC or other destination chosen by the customer.
- the voltage is taken from the power supply to the Bar. No additional power source is required. The voltage out will be the same as the voltage in: 21 - 28 V DC.

See wiring diagram and examples below.



If the remote monitor function is not needed, then insulate the black wire and do not connect anything to it.



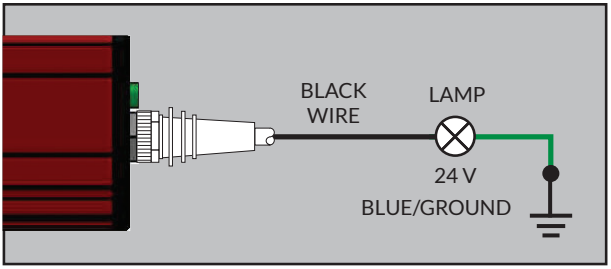
* Source/Sink 100 mA max. Protected by electronic fuse.

Remote Monitor signal is valid 4 seconds after power is applied.

BLACK = 24 V when 3024 Compact status signal **OK**
BLACK = 0 V when 3024 Compact status signal **FAULT**

Example Application Use of Remote Monitor

EXTERNAL LAMP/INDICATOR

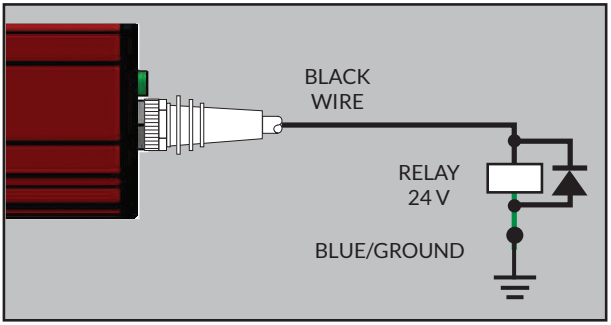


An external indicator can be connected to the BLACK wire to show status. This is useful for bars mounted in inaccessible areas.

Lamp rating 24 V DC, maximum 2 W. An LED can also be used with a suitable resistor.

Maximum current 100 mA.

EXTERNAL RELAY



An external relay can be connected for additional control/feedback configurations.

Coil rating 24 V DC, 2 W max. Maximum current 100 mA.

Faults

A fault signal could mean:

i. **Input voltage is outside of the 21 V - 28 V range.**
   - check the input voltage at the Bar.

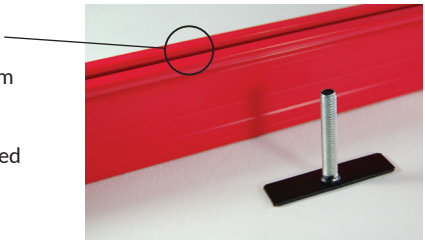
ii. **Bar is overloaded.**
   - clean the Bar.
   - make sure that the positioning of the Bar meets these instructions.

iii. **HV output is not correct.**
   - contact Fraser or distributor.

Where the optional 100 - 250 V AC Power Supply has been ordered, make sure the Power Unit is connected to a 3-wire AC mains supply: Live + Neutral + Ground. The extra Earth wire from the power supply **must** be bonded to Ground. With this optional supply an interface cable is required to access the remote monitor feature.

3. Mechanical

1) Mounting Brackets



Versatile mounting 'T' pieces slide into the slot at the bottom of the Bar.

'T' M6 x 40 stud and flange nut. Two sliding brackets provided with each bar.

Other stud lengths are available. Please contact the manufacturer for options.

8. Maintenance

Turn off electricity to the Power Unit before doing any installation or maintenance work.

Cleaning is the only maintenance required. Dirt around the emitters will reduce efficiency and result in unsatisfactory performance. A toothbrush or nail brush is ideal for cleaning Bars. Do not use a wire brush as this will damage the Bar. The Bar can be washed with soapy water or IPA, but it must be dry on the inside of the Bar around the emitters before turning the power on.

When cleaning around the emitters - **take care as the pins are sharp!**

9. Health and Safety

When installed correctly the ozone generated by this product is less than 0.1ppm and within internationally accepted limits.

Please note, when handling and cleaning, that the emitter pins are sharp and care is needed.

The emitter pins are shockless - there is a large resistor below each emitter reducing the current to a shockless level. However please note that DC current can transfer charge to a body if it is touching or close to an emitter for a longer period. This can give a shock when discharging.

10. Certification and EU Declaration of Conformity

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

Low Voltage Directive: 2014/35/EU.
EMC Directive: 2014/30/EU.

And is entitled to display the CE Mark.

For further instructions and information, please contact the manufacturer.

11. Troubleshooting

On power-up, the status LED will be RED for up to 3 seconds while internal checks are being carried out inside the bar. After this time, if all operating conditions are normal, the status LED will turn GREEN.

If the status LED does not illuminate GREEN or RED, then check the electrical supply. If the electrical supply is OK, then check the connecting cables for damage.

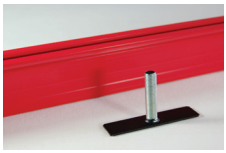
If the status LED is RED, then this indicates overload or other fault:

- Turn the power off and clean the bar.
- Check the electrical supply.
- Check the installation location is as described in this manual.

12. Spare Parts and Accessories

Item Picture	Description	Part No.
	**3 m** cable M8 female, bare ends. **Straight socket.**	80892
	**5 m** cable M8 female, bare ends. **Straight socket.**	80930
	**7.5 m** cable M8 female, bare ends. **Straight socket.**	80931
	**10 m** cable M8 female, bare ends. **Straight socket.**	80932
	**3 m** cable M8 female, bare ends. **90° socket.**	80933
	**5 m** cable M8 female, bare ends. **90° socket.**	80934

12. Spare Parts and Accessories

Item Picture	Description	Part No.
	**7.5 m** cable M8 female, bare ends. **90° socket.**	80935
	**10 m** cable M8 female, bare ends. **90° socket.**	80936
	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
	Mounting 'T' Bracket, including flanged nut.	30248
	Fraser Ioniser Cleaning Kit containing: • 500 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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