Operating Manual

HYPERION™
A Meech Innovation

Hyperion 936IPS
DC Ionising Air Blower

Contents

Introduction	4
Unpacking and Inspection	5
Operation	6
Installation	7
Technical Data and Construction	16
Maintenance	17
Fault Finding	19
Troubleshooting	20
Health and Safety	21
Repairs and Warranty	21
CE Approval	21
Technical Drawing	22

Document Revision 2

Introduction

The Model 936 Ionising Blower provides effective long range ionisation over a large area. Its versatility makes it suitable for a wide range of industrial applications.

The Model 936 Ionising Blower comprises an ionisation head and an integrated fan system. A high volume flow of ionised air is generated by blowing air through the ionisation head at the mouth of the unit. Ionisation is provided by powerful 924IPSv2 bars, generating an ionised field to a depth of up to 1500mm. The 936 unit is powered by 24V power supply via M8 4 pin MURR connector on the rear of the unit. Meech are able to supply a suitable switch mode A900IPS-SM2MS-48W or A900IPS-SM2MS-96W depending on length of blower.

There are many benefits to the Model 936, such as shockless operation due to a resistively coupled ionisation head. As the ionisation is provided by a 924IPSv2 bars it allows for powerful pulsed DC ionisation and very fast decay times. As it has a high volume air flow it provides highly effective long range ionisation.

The 936 is flexible in a number of industries and also allows for simple installation and mounting to suit any application.

Due to the removable grill, it allows for easy access for maintenance of the ionisation head.

Meech 936 blowers are powerful static eliminators which give many years of excellent service, provided that the following instructions are observed closely.

Unpacking and Inspection

The Model 936IPS Blower was carefully packed at the factory. Nevertheless, we recommend careful examination of the carton and contents for any damage. If damage is evident, keep the packing material and immediately notify the carrier of a possible damage claim. Shipping claims must be made by the consignee to the delivering carrier.

Contents:

Standard

936 Blower

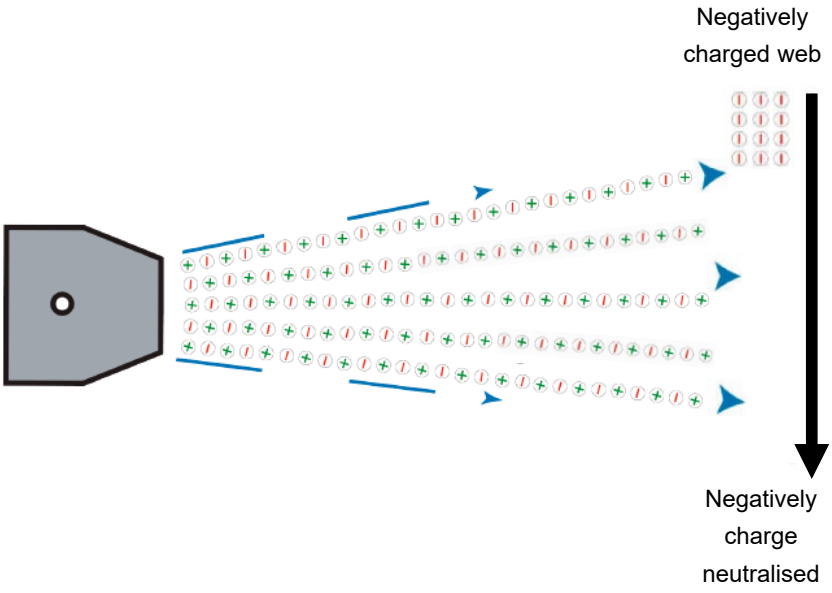
Mounting Kit

Operation

The typical Meech 936 Ionising Blower installation consists of one or more blowers powered by 24V DC power supply.
THIS APPLIANCE MUST BE GROUNDED/EARTHED THROUGH THE MAINS ELECTRICAL SUPPLY.

The 24V DC integrated power unit in each of the two ionising bars contained within the 936 Blower converts the primary electricity supply into a high voltage, low amperage output. The titanium pins of the ionising bars emit the energy to form an ionised air corona.

The fans inside the blower provide an air flow to transport the corona to the object to be neutralised. When a statically charged object passes through this corona, the free moving ions are attracted to the opposite charge on the object. In this way the static electricity is neutralised. Unused ions in the corona recombine or are discharged to earth.



Installation

The correct positioning of the blower is vital to the efficient operation. Please observe the following instructions.

Distance From Object

Although the blower has excellent long range neutralisation capabilities, the general rule is that it should be as close to the object as possible.

Good results can be achieved at distances up to 1500mm but as the distance from the object increases, the speed of the neuralisation will decrease.

Decay Times

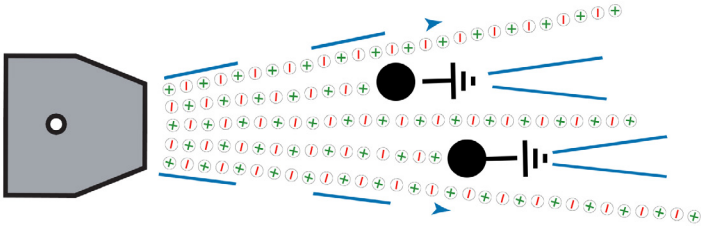
The table below shows the decay times of the charge between 5000V and 500V in relation to the distance from the 936IPS.

Distance	Decay Time
300mm	1.3s
400mm	2.2s
500mm	3.2s
600mm	4.2s

Note: Results in the table above were from test with 936IPS blower with two fans and without fan filter media.

Intervening Objects

If the ionised air is blown through earthed objects (eg a machine frame or cross-rods), these will absorb some of the ionisation and so reduce the neutralisation power. Avoid this whenever possible.



CAUTION: **It is recommended that the following procedure be observed for safe operation of the Model 936 Blower:**
The supply voltage of the power supply must be interlocked with the ON/OFF control of the machine to which the equipment is fitted.

This will ensure that whilst the machine is switched off and thus operatives may gain access to the machine and our equipment, there will be no danger to operatives working in close proximity to our product.
It is assumed that normal safety barriers are in place on the machine to ensure that operatives are unable to access the machine and hence our equipment whilst the machine is switched ON.

Dual Alarm Alert - Remote Monitoring

Remote monitoring of the need to clean the bar is provided by the output signal on pin 2 (white) and fault alert is provided on pin 4 (black). The signal is 0V-24V suitable for direct connection to a PLC input. The output impedance of the signal is 2.2kΩ. The output can also be configured to power an external relay to provide volt-free contacts for other monitoring systems.
Using a BarMaster remote programmer or SmartControl Touch the output can be set to Alarm True = Lo which is factory default or Alarm True = Hi.

NOTE: Make sure that BarMaster is not connected when using the dual alarm remote monitoring feature.

Alarm Pins

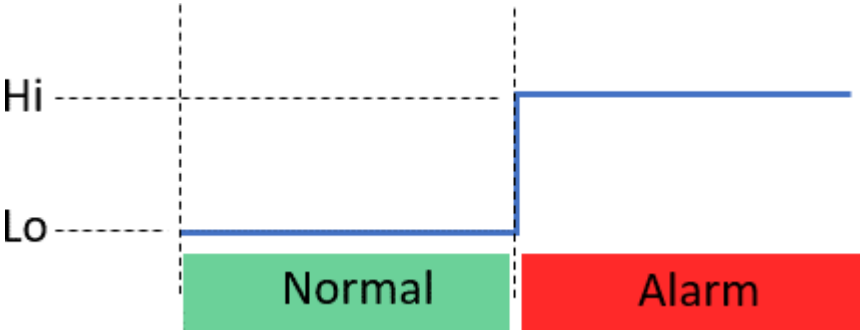
Pin-2(White)	This pin is used to report when the ionising performance of the equipment is low and that it requires cleaning. This is considered as a warning signal. The LED pattern on the unit is **flashing red**.
Pin-4(Black)	This pin is used to report when the HV output of the equipment is critically low. This is considered as a serious fault. The LED pattern on the unit is **solid red**.

Alarm Logic Level

This is given by the configuration of the “Alarm True” setting using the BarMaster.

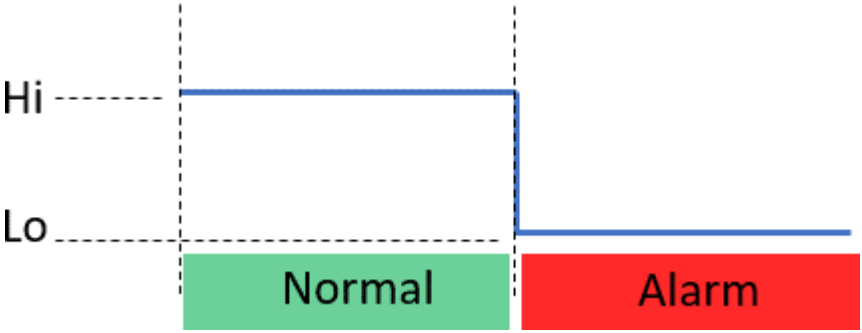
Alarm True = hi

This means the logic on both the alarm pins is active high.



Alarm True = lo

This means the logic on both the alarm pins is active low.

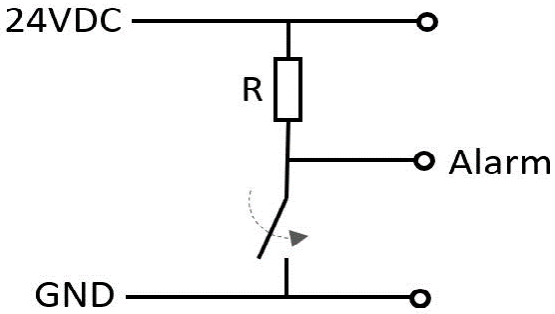


Output Drive

There are 3 different output drive options which are designed to fulfill the vast majority of user requirements and to allow easy integration to PLC equipment.

Option 1 - NPN

Transistor-driven switch which presents a pull-up resistor to 24VDC on the alarm pin. This configuration is the same for both alarm pins (pin-2 and pin-4).



Simplified Diagram of NPN output

Logic Table

Alarm True = Hi

	Start State	Solid Green	Flashing Red	Solid Red
White	Hi	Lo	Hi	Hi
Black	Hi	Lo	Lo	Hi

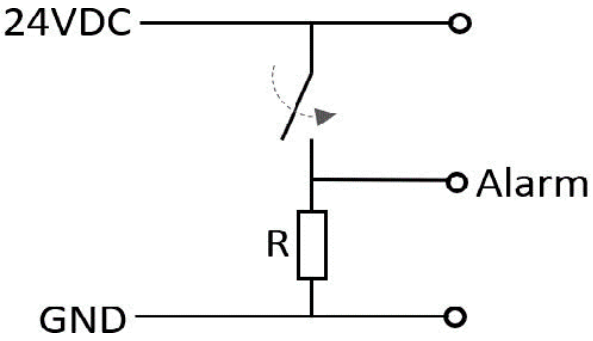
Alarm True = Lo

	Start State	Solid Green	Flashing Red	Solid Red
White	Hi	Hi	Lo	Lo
Black	Hi	Hi	Hi	Lo

Note: On unit power-up, both alarm pins remain in Hi state for up to 60 seconds before these are used as alarm pins.

Option 2 - PNP

Transistor-driven switch which presents a pull-down resistor to GND on the alarm pin. This configuration is the same for both alarm pins (pin-2 and pin-4).



Simplified Diagram of PNP output

Logic Table

Alarm True = Hi

	Start State	Solid Green	Flashing Red	Solid Red
White	Hi	Lo	Hi	Hi
Black	Hi	Lo	Lo	Hi

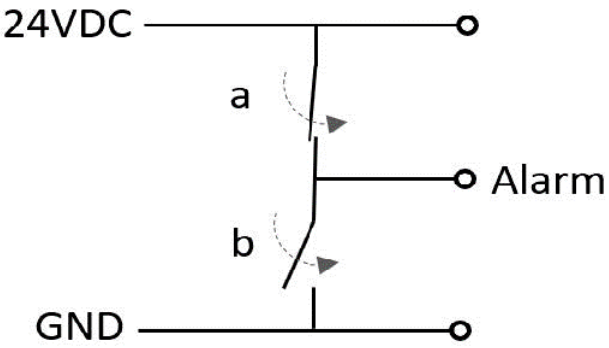
Alarm True = Lo

	Start State	Solid Green	Flashing Red	Solid Red
White	Hi	Hi	Lo	Lo
Black	Hi	Hi	Hi	Lo

Note: On unit power-up, both alarm pins remain in Hi state for up to 60 seconds before these are used as alarm pins.

Option 3 - N+P

This option presents the combination of both of the previous cases, NPN and PNP, however, the alarm lines are hard-driven to either 24VDC or GND. This configuration is the same for both alarm pins (pin-2 and pin-4).



Simplified Diagram of N+P output

Logic Table

Alarm True = Hi

	Start State	Solid Green	Flashing Red	Solid Red
White	Hi	Lo	Hi	Hi
Black	Hi	Lo	Lo	Hi

Alarm True = Lo

	Start State	Solid Green	Flashing Red	Solid Red
White	Hi	Hi	Lo	Lo
Black	Hi	Hi	Hi	Lo

Note: On unit power-up, both alarm pins remain in Hi state for up to 60 seconds before these are used as alarm pins.

Electrical Installation

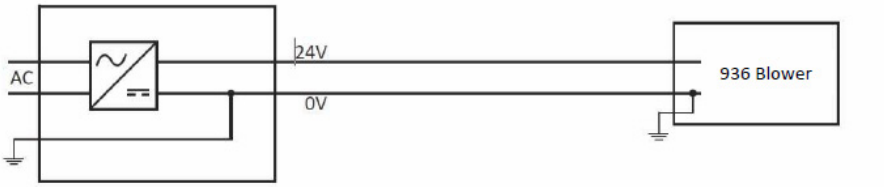
If the ionised air is blown through earthed objects (eg a machine frame or cross-rods), these will absorb some of the ionisation and so reduce the neutralisation power. Avoid this whenever possible.

WARNING

THIS EQUIPMENT MUST BE GROUNDED VIA THE GROUND / EARTH POST ON THE 936 UNIT AND/OR A 24V DC GROUNDED SUPPLY.

Connection using a Grounded 24V DC power supply. E.g. Meech part number A900IPS-SM2MS-48W or A900IPS-SM2MS-96W depending on length of blower.

- Meech 24V DC supplies are grounded internally. They are supplied with a three wire IEC C5 cable.
- The ground connection must be correctly connected at the mains connection.
- The 936 Blower should also be grounded by it's grounding post, to provide additional safety.

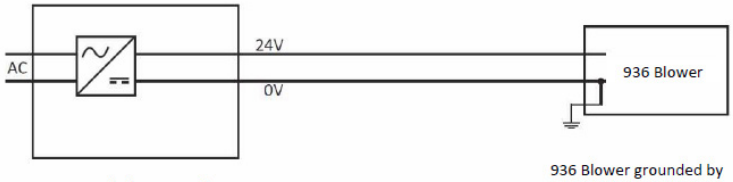


Grounded 24V supply
e.g. A900IPS-SM2MS-48W or A900IPS-SM2MS-96W depending on length of blower.

936 Blower grounded by power supply and ground post on 936 Blower

Connection using an ungrounded 24V DC power supply.

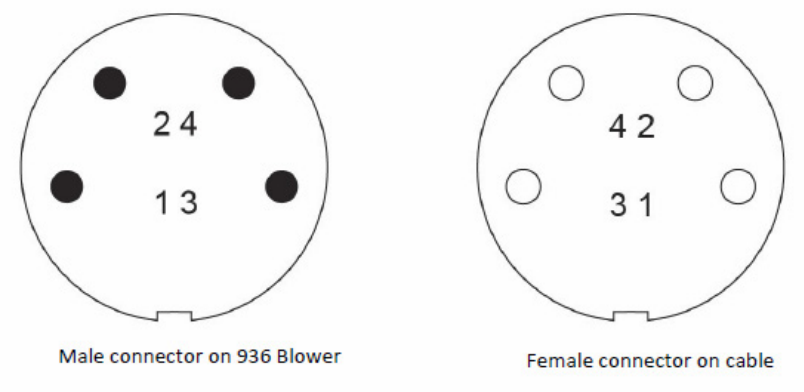
- The output of many 24V power supplies are not grounded.
- If this type of power supply is used, it is vital that the system is grounded using the ground post on the rear of the 936 blower.



Ungrounded 24V supply

936 Blower grounded by ground post on 936 Blower

Connection to the 936 blower is via an industrial M8 4 Pin connector. With the following pin-outs:



Pin	Colour	Function Specification
1	Brown	24V (21-27V)
2	White	Clean Pin and fault alert Output 0V/24V
3	Blue	0V / Ground
4	Black	Fault alert Output 0V/24V

Technical and Construction

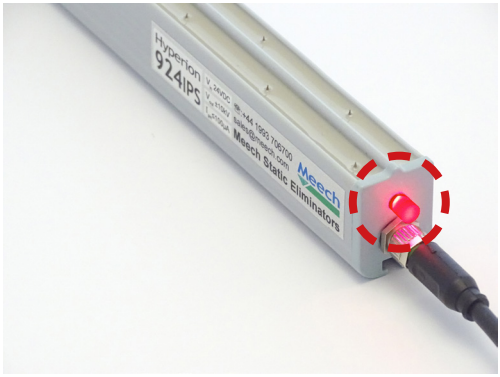
Dimensions	184 x 172 mm
Lengths	300mm, 400mm, 600mm, 800mm, 1000mm, 1200mm
Operating range	150mm - 1500mm
Weight	5.4KG approx. for 400m blower
Construction	Extruded anodised aluminium body with steel plate ends
Max ambient temperature	60°C
Mounting	Steel fixing brackets supplied with each unit
Input Voltage	24V DC grounded
Output voltage	7.5kV pulsed DC
Output Balance	Default setting: 54% positive 46% negative. Adjustable from 80%:20% to 20%:80% with BarMaster via M8 4 pole connector on back panel.
Output Frequency	Default setting 20Hz. Adjustable 1Hz -20Hz with BarMaster via M8 4 pole connector on back panel.
Max. Power Consumption	Blower length up to 800mm = 48W Blower Lengths 1000mm and 1200mm = 96W
Electrical Connection	4 pole M8
Switch	On/off switch on backplate for fans and ionising bars
Indicator LEDs	Green/Red flashing LED on 924IPSv2 bar
Emitters	Sharp titanium pins

Maintenance

The Static Eliminator bars in the mouth of the blower should be cleaned regularly to keep the emitter pins free from dust and other contaminants.

Ionising bars become contaminated with usage. Dirt build-up on the body of the ioniser and, particularly on the pins, will cause a drop in performance. To get the best performance from the ionising bars contained in the 936 Blower, it should be cleaned as part of regular machine maintenance.

If regular cleaning is not carried out, the ionising bars will detect the drop in performance and trigger the Clean Pin alert and the LED on the ionising bar will flash red.



Cleaning of the emitter pins of the ionisation bars

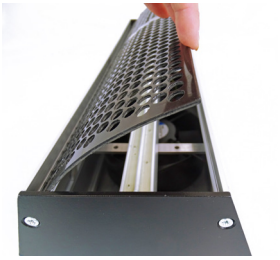
Ensure the blower is switched off and isolated from the mains electrical supply.

a) Remove the front black plastic grill by bending gently and pulling out.

b) Using a dry tooth brush (or a similar brush with non conductive bristles), brush the pins and upper surface of the two 924IPSv2 ionising bars.

c) With a cloth clean the exterior and interior surfaces of the blower. A cloth moistened with a small amount of IPA or methylated spirits is recommended.

d) Replace the black plastic grill by the reverse procedure.



Fault Finding

To reduce the time it takes to resolve a problem, the following process must be completed before requesting assistance from Meech.

Cleaning

If regular cleaning is not carried out, the bar will detect a drop in performance and this will trigger the Clean Pin alert and the LED will flash red.
If the LED flashes red and the bar drops in performance, follow the cleaning procedure in the Maintenance section on pages 13-14.

If cleaning does not rectify the problem contact Meech Static Eliminators Ltd. or your local Meech Distributor.

LED Status on ionising bars

When the equipment powers on, the LED on the ionising bars will show green whilst the system monitors the bars performance.

Below is the table showing the operation for a 924IPSv2 bar and means of the LED and actions required. (Taken from the operating guide)

Troubleshooting

Solid Green LED	Meaning	In normal operation the LED on the bar will illuminate Green. This indicates that the bar is operating correctly with good ionisation performance.
No LED	Meaning	No power to bar
	Action	Check 24V Power Supply over pins 1 and 3. (Brown and Blue wires)
Flashing Green LED	Meaning	BarMaster remote programmer is connected.
	Action	After programming, reconnect directly to the power supply to resume normal operation.
Flashing Red LED	Likely cause	Contamination causing a drop in performance.
	Action	Switch off power supply and clean as described in Maintenance section. Turn the power on and check for green solid LED
Solid Red LED	Likely Cause	Abnormal output current detected
	Action	Check installation for metallic objects on the emitter pins. Should the solid red LED persist, contact your Meech distributor

The 924IPSv2 requires a grounded 24V DC supply. The 0V line must be connected to ground. Failure to do so, will result in damage to the bar or the 24V supply and will void the warranty.

Repairs And Warranty

The 936 blower is warranted by Meech Static Eliminators Ltd to the original purchaser against defects in material and workmanship for one year after purchase. Should any malfunction occur, please return the bar directly to Meech Static Eliminators or your local agent. All products returned to the factory MUST be accompanied by a return authorisation number and must be shipped prepaid. For prompt service, ship the unit to the factory with the return authorisation number shown clearly on the label. Be sure it is well packed in a sturdy carton with shock absorbing material.

Include a note stating the nature of the problem as specifically as possible, and also include instructions for returning the bar to you. We will pay one-way return surface shipping costs on any repairs covered under the warranty.

Field repairs should not be undertaken during the warranty period. Repair attempts by unqualified personnel will invalidate the warranty.

CE Approval

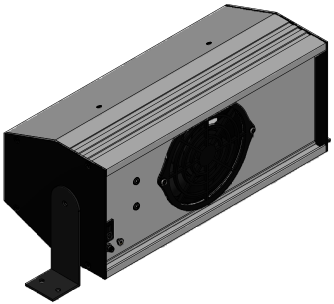
A CE Declaration of Conformity for this product exists in respect of the Electromagnetic Compatibility Directive 2014/30/EU.

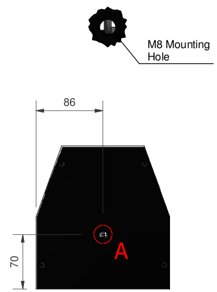
CE

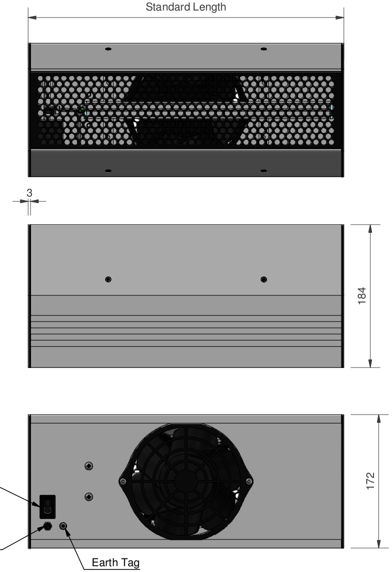
Health and Safety

Emission of Ozone: Considerably below international standard of 0.01 ppm.

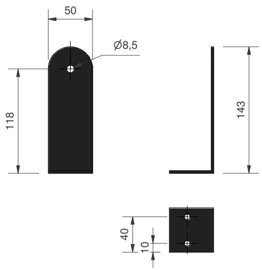
Blower with Mounting Brackets







Mounting Bracket



936IPS Blower Lengths	
Standard Length	No. of Fans
0300	1
0400	1
0600	2
0800	2
1000	3
1200	3

Meech

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web: www.meech.com

'Meech International' is a trading style of Meech Static Eliminators Ltd

TITLE :	936IPS Blower
DRAWING NO:	B936IPS-XXXX-01
MATERIAL :	Various
FINISH :	Various
TOLERANCE UNLESS OTHERWISE SPECIFIED	Machined Work Metric ± 0.1mm Unmachined Fabrications ± 1mm Angular ± 0°30'
DIMENSIONS IN MM DO NOT SCALE CRITICAL TO FUNCTION (CTF) DIMENSIONS AS MARKED	
PROJECTION	SHEET A3 — SCALE NTS
DATE :	22/11/2019
REVISION :	
SHEET :	1 / 1
DETAIL :	Marketing
DRAWN BY :	Samuel Davies
CHECKED BY :	David Hyde
SIGNED OFF BY :	David Hyde

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