Operating Manual







Hyperion 906
Power Unit

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1. Safety instructions

Before using this product, read the following safety and operating notes to ensure your own personal safety and to help protect your equipment. Failure to do so could result in injury. Connected equipment may require additional safety instructions. Observe all safety instructions for additional equipment before operating.

1.1. Definition of safety warnings & symbols

Safety and operating notes found in the document will be supplemented with the following warnings and symbols.

6.61	Caution	A low-risk hazardous situation where minor or moderate injury can occur.
Safety warnings	Notice	A low-risk hazardous situation where damage to the equipment & products can occur.
	General hazard	This symbol draws attention to a hazardous situation.
	Electrical shock	This symbol draws attention to the risk of electrical shock.
Symbols	Notice	This symbol draws attention where instructions must be followed.
	Referral	This symbol instructs the reader to consult to a separate information source.

1.2. General safety

Before setting up the equipment:

- Read the operating instructions carefully and ensure you understand how to correctly use the equipment.
- Installation & testing must only be completed by suitably qualified personnel.
- Inspect the working environment and ensure it is clean and clear of hazards before removing equipment from packaging & product installation.
- Visually check all equipment for damage. If damaged, contact your local Meech representative before continuing.
- Always keep a copy of the operating manual close to the system to refer to.

1.3. Electrical safety

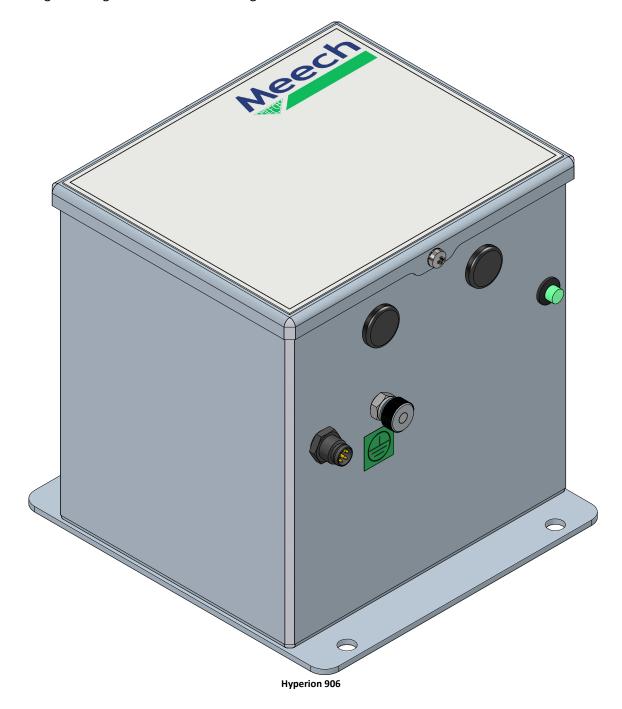
Before working on the equipment:

- Before installing or performing maintenance on the equipment, ensure the system is electrically isolated. Failure to do so could result in injury.
- Check the equipment and cables for any damage. If damaged, contact your local Meech representative before continuing.
- Ensure all wiring is completed by suitably qualified personnel.
- Check all wiring connections are correct in relation to the wiring diagrams later in this manual.

2. Introduction

The Hyperion 906 Power Unit is powered from a 24VDC power supply and produces an adjustable output of 2 to 7kVAC, 5mA max, suitable for any Meech AC ionising product.

Settings & configurations can be set using either a Meech BarMaster or SmartControl Touch.



3. Package contents

Carefully examine the packaging and its contents before use. If damage is evident, do not destroy the packaging and immediately notify the carrier of a possible damage claim. Shipping claims must be made by the consignee to the carrier.

The following items will be found inside the 906 packaging:

Item	Product code	
Hyperion 906 Power Unit	906 variant	Variant model code
	906	A906-5kV
		A906-7kV
	906 HL 5kV [†]	A906HL-5kV
	906 HL 7kV [‡]	A906HL-7kV
Earth cable	D3310	
Quick start guide	M0053	

^{* =} Only one 906 unit is included

^{‡ =} Suitable for 915EX



Caution – Risk of injury & equipment damage.

Observe correct manual handling procedures when removing the 906 from its packaging

3.1. Options

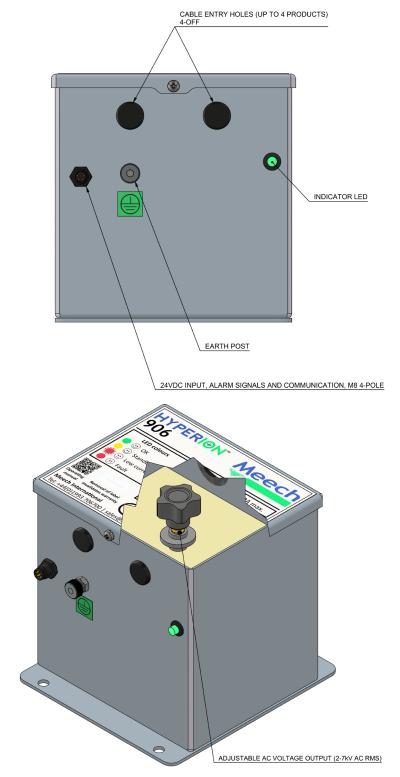
The following items can be purchased from Meech to supplement & provide extra functionality to the 906.

Item	Product code	
Switchmode power adaptor 48W Switchmode Power Adaptors take the local electrical supply and convert it to a stable and filtered 24VDC output.	A900IPS-SM-48W-STRIP A900IPS-SM-48W-EURO A900IPS-SM-48W-UK A900IPS-SM-48W-USA	Stripped Ends Schuko European UK Plug USA Plug
Hyperion BarMaster Remote Programmer The BarMaster is a remote programmer used for changing parameters on Hyperion products.	A900-BARMASTER-F	
Hyperion SmartControl Touch SmartControl Touch allows the user to monitor, control and adjust the performance of multiple connected Hyperion ionising bars and sensors via the built-in touchscreen or remotely via PLC, tablet or remote desktop computer.	ASMARTCON-TOUCH-LAN	
4-pin M8 2m connection cable For connection of the 906 to a customer's own 24VDC power supply.	A900IPS-PCS2 Contact your local Meecl options.	n representative for

^{† =} Suitable for 914EX

4. Component overview

The 906 features a status LED to alert the user should any parameter fall outside a predetermined range. A BarMaster or SmartControl Touch is required to both view and modify its output settings.



Hyperion 906 Power Unit overview

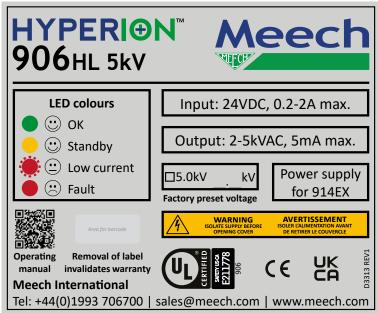
4.1. 906 HL variants



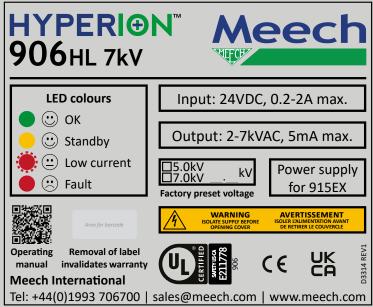
Caution – Risk of injury & equipment damage.

The 906 HL must be positioned in a non-hazardous area. The 906 HL must **NOT** be used/placed in EX rated zones.

The 906 HL variants are intended to drive Meech EX ionising bars, which are designed for use within Hazardous Locations. Each HL variant has the bar it must be used with, as well as its maximum output voltage specified on the label on its enclosure.



906 HL 5kV label

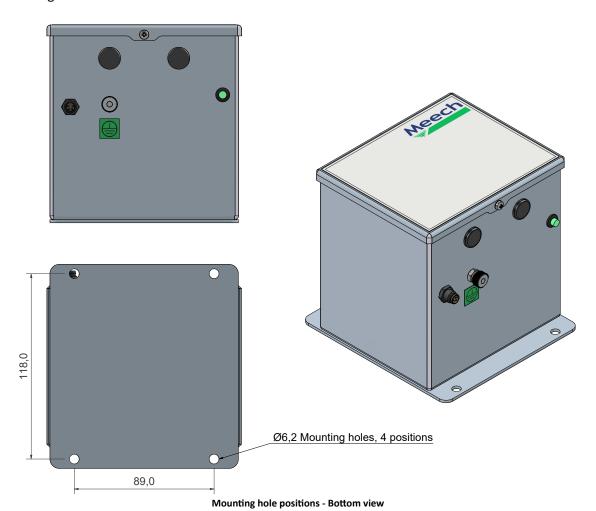


906 HL 7kV label

5. Installation

5.1. Mechanical installation

The 906 should be mounted on a surface capable of supporting 4kg, in a well-ventilated area, away from any sources of potential contamination. The 4x 6mm holes in the flange are intended for mounting the 906.





Notice -

Unit failure through contamination will invalidate the warranty.

Ensure the unit is protected from sources of contamination.



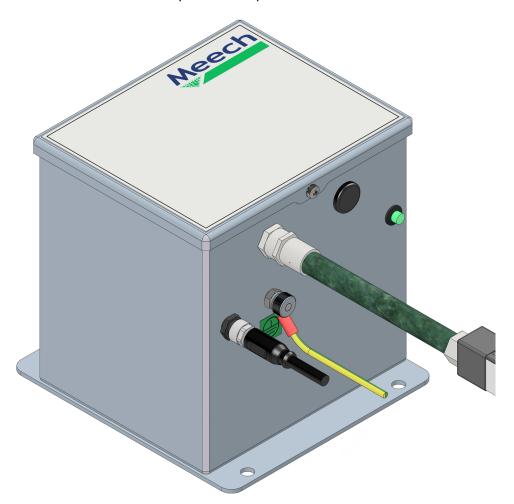
Notice -

AC bars not operating in the same phase will not operate at optimal efficiency.

AC bars in close proximity to each other must be connected to the same

5.2. Ionising product connection

The following sections detail how to connect up to 4x Meech AC ionising products via the ports on the 906, as well as detail the necessary electrical inputs.





Caution -

From the HV output sockets and beyond, an ES2 circuit (with respect to IEC62368-1) is present.



Caution -

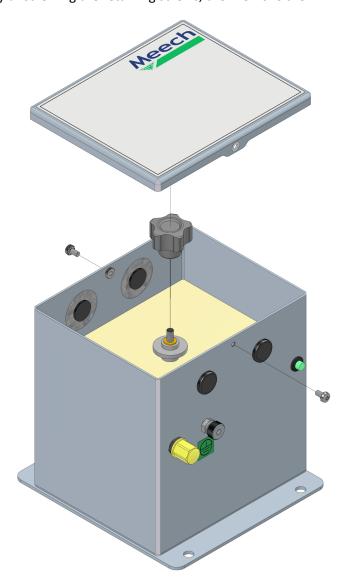
Injury due to electric shock.

Before making any connections, ensure the 906 is electrically isolated.

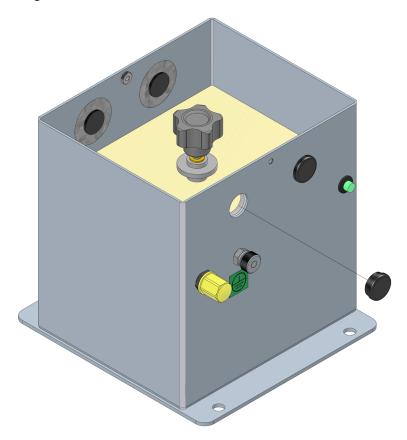


Please ensure that only Meech supplied products are connected to HV ports.

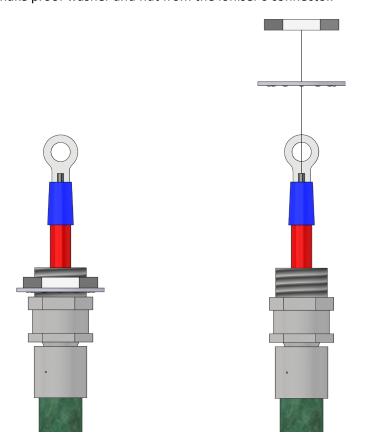
1. Remove the lid by unscrewing the retaining screws, then remove the M4 knob.



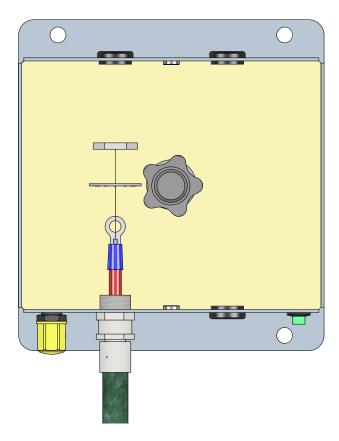
2. Remove a rubber grommet.



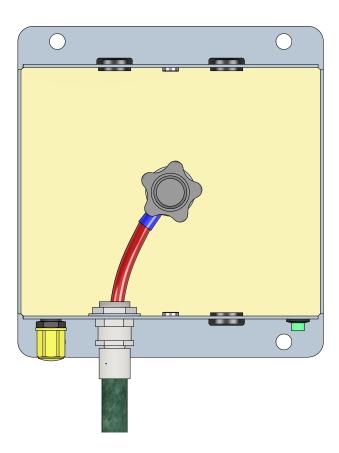
3. Remove the shake proof washer and nut from the ioniser's connector.



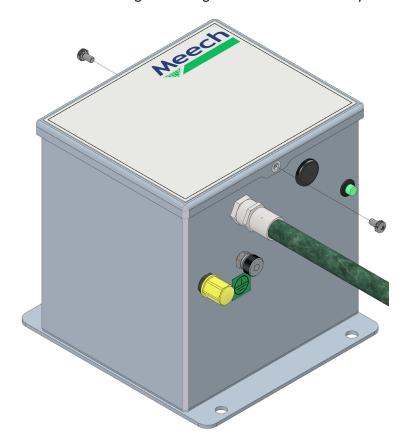
4. Insert the ioniser's connector through the hole.



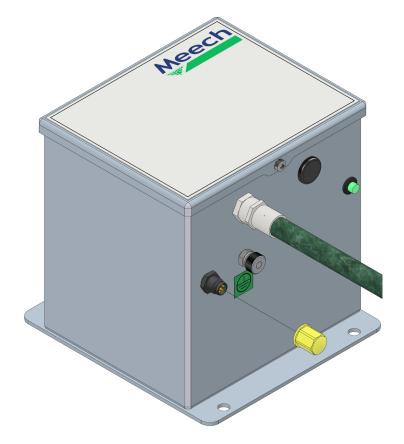
5. Refit the shake proof washer and nut onto the ioniser's connector. Tigthen the nut until it is fully secured.



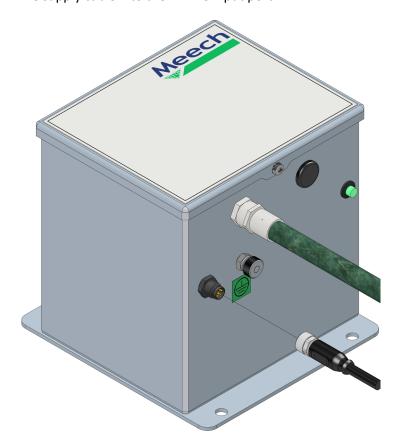
6. Refit the lid and fasten the retaining screws. Tigthen the screws until they are fully secured.



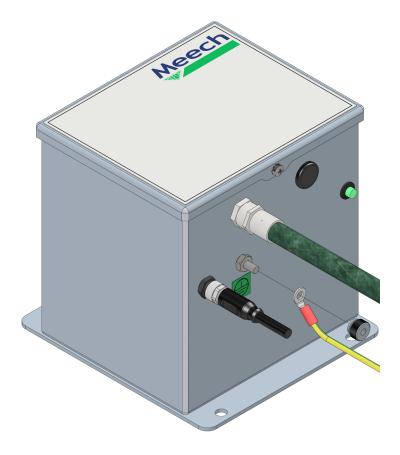
7. Remove the transit cap.



8. Connect the 24VDC supply cable into the 24VDC input port.



9. The 906 must be earthed using the M4 earth post. Fit the earth cable, and secure it with the M4 thumbnut.



6. Grounding & 24VDC supply

The 906 must be grounded through the power supply, as well as through the M4 Earth post on the unit.

All power supplies used must be compliant with IEC62368-1 or IEC60950-1.



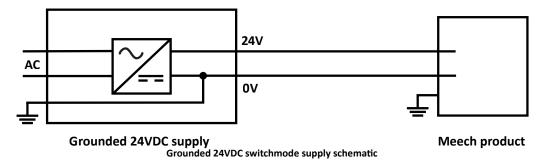
Notice -

The 906 must be electrically grounded.

Failure to do so may damage the equipment and will invalidate the warranty.

6.1. Meech 24VDC switchmode power supply

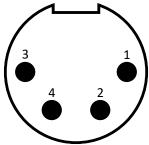
This refers to the use of a Meech 48W 24VDC switchmode power supply to power the 906, which is grounded internally & supplied with an IEC C13 cable. See section 3.1 for product codes.



6.2. Customers own 24VDC power supply

It is the customers responsibility to check that the 24VDC power supply being connected is grounded.

- The 24VDC power supply must be protected with a 2A fuse.
- Connection to the 906 is through the M8 4-pin socket. The figure below shows the pin numbers of the connector.



Male connector on the 906, as viewed from the mating face.

Pin	Colour	Function	Specification
1	Brown	V _{in} (2A max)	24VDC (22 to 26V)
2	White	Alert output	0V/24VDC
3	Blue	GND	0V
4	Black	Fault output/standby input	0V/24V

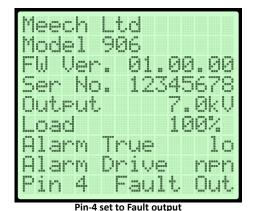
7. Operation

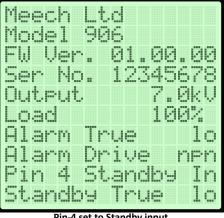
The 906 features a status LED that displays the units health and indicates any active alarms. A BarMaster or SmartControl Touch is required for adjustment of its output parameters.

7.1. Using a BarMaster

The BarMaster is connected inline with the 24VDC power supply cable for the 906. Attach the 24VDC power cable to the BarMaster, then fit its cable to the 24VDC input port on the 906. When finished, disconnect the BarMaster and reconnect the 24VDC to the 906.

When powered, the screen will display data similar to below. The arrows keys on the BarMaster keypad can be used to navigate through and adjust the 906 parameters.





Pin-4 set to Standby input

BarMaster keypad					
Up		Press to cycle through the parameters			
Down					
Left		Press to adjust the parameters			
Right					
ОК	ОК	This button is redundant and has no function.			

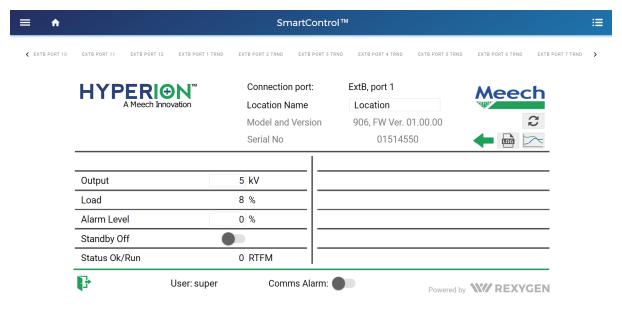


Please refer to the BarMaster operating manual for more information.

7.2. Using a SmartControl Touch

The SmartControl Touch is powered by a 24VDC and supports direct connection of up to six devices. When used with extension units, up to 30 Meech Hyperion devices can be connected. The output parameters can be adjusted by simply touching the values.

With the 906 connected, its touchscreen will display a screen similar to below.



SmartControl Touch user interface for 906



Notice -

Ensure the 906 is correctly configured before connecting the SmartControl Touch.

Pin-4 of the 24VDC input port is to fault output by default. Before connecting a SmartControl Touch, ensure that Pin-4 is set to fault output.



Please refer to the SmartControl Touch operating manual for more information.

7.3. Modifying the output parameters



Notice -

Ionising equipment will not operate at their optimum and may be damaged if the output parameters are incorrectly set.

Ensure the output parameters are correct for the connected ionising equipment.



Please refer to the operating manual of the connected ionising product for specific operating parameters.

7.3.1. Health monitoring

The performance of the 906 can be measured by monitoring its load percentage with a BarMaster/ SmartControl Touch. Connecting multiple ionisers to the 906 will increase its load, up to 100%.

When the load reaches either 0% or 100%, the status LED on the 906 will either flash red or be solid red, and an alarm signal will be sent from either Pin-2 (white) or Pin-4 (black) of the 24VDC input port. When the load reaches 100%, the unit will cut out to ensure operator safety and to protect any attached ionisers.

Over an ionisers life time, its emitter pins will gradually wear down and dirt will accumulate on both the pins and its body. This will reduce the ionisers performance, and will slightly decrease the 906 load percentage. As part of regular maintenance, it is recommended to clean both the emitter pins and body of the ioniser. Regular cleaning will restore the load percentage, extend the ionisers lifespan and ensure optimal performance.

7.3.2. Voltage

The voltage must be set dependent on the connected ioniser, as well as the distance between the ioniser and the target material. For example, a close range or delicate application relies on a lower output voltage, whereas a longer range or heavily charged target will require a higher output voltage.

Generally, Meech ionising products should be run at their default voltage setting for optimum performance. The voltage output of the 906 depends on the variant, but it can be adjusted by using a BarMaster/SmartControl Touch.

The table below lists the operating voltages for ionising products compatible with the 906.

Ionising product	Operating voltage
914 AC Ionising Bar	5kVAC
914EX Hazardous Area AC Ionising Bar	5kVAC
915 AC Ionising Bar	7kVAC
915EX Hazardous Area AC Ionising Bar	7kVAC
925 High Temperature AC Ionising Bar	6kVAC
954v3 Ionising Nozzle/Air Gun	5kVAC

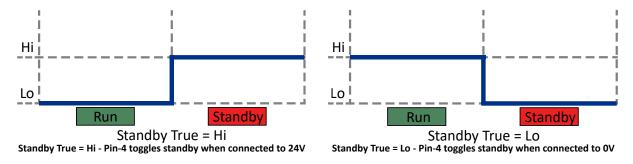
7.4. Remote control

The 906 is capable of being controlled remotely, through 24VDC input port or SmartControl. This allows the 906 to be toggled in and out of standby mode when connected to a separate PLC/switch system.

7.4.1. 24VDC input port

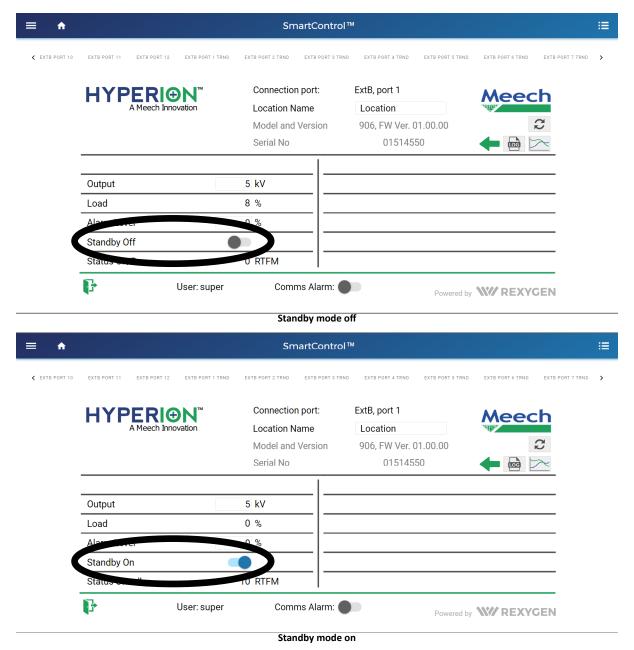
By adjusting the Pin-4 (black) setting from Fault output to Standby input with a BarMaster, standby mode is toggled by either connecting Pin-4 to 24V (Standby True = Hi) or OV GND (Standby True = Lo).

Refer to section 6.2 'Customers own 24VDC power supply' for more information on the 24VDC port.



7.4.2. Software

Once the 906 is connected to a SmartControl Touch through the 24VDC input port, standby mode can be toggled through its interface as seen below (circled).





Please refer to the SmartControl Touch operating manual for more information.

8. Monitoring

The Hyperion 906 Power Unit continually monitors its internal health and can trigger an alarm should any parameter fall outside a predetermined range.

Alarms can be monitored either via the status LED, or through the alarm outputs.

8.1. Status LED

The LED colour combinations are below:

LED colours	Alarm status		Description - corrective actions
Green		Normal	Normal operation
Yellow		Normal	Standby - HV output is off
Flashing green		Normal	Normal operation - BarMaster/SmartControl connected
Flashing yellow	••	Normal	Standby - HV output is off, BarMaster/SmartControl connected
Red	••	Fault	HV overcurrent - Check outputs/reduce load
Flashing red	••	Alert	Low ion current - Check attached ionisers for contamination
Flashing green/red	••	Fault	Internal issue - Restart the device
Flashing red/yellow	••	Fault	Real Time Fault Monitoring (RTFM) - Refer to section 8.1.1.
Flashing green/yellow	••	Alert	Real Time Fault Monitoring (RTFM) - Refer to section 8.1.1.

- Fault The 906 has a fault, and the output has been shut off.
- Alert Attention may be required for the 906.

If the 906 has a fault, perform the *corrective actions* above then cycle power to reset the unit.

8.1.1. Real Time Fault Monitoring codes

The following RTFM codes may be observed on the status LED to provide a more detailed alarm overview. The LED will flash green or red with up to 5 yellow flashes, to display different fault codes.

LED colours	Alarm status	Description – Corrective actions
Green & 2 yellow flashes		HV output: Approaching current limit – Reduce output load
Green & 3 yellow flashes	Alert	24VDC power supply: Approaching under voltage – Check power supply
Green & 5 yellow flashes		Internal temperature: Approaching temperature limit – Ensure 906 has sufficient cooling
Red & 4 yellow flashes	5. 0	24VDC power supply: Reached over voltage – Check power supply
Red & 5 yellow flashes	Fault	Internal temperature: Reached temperature limit – Ensure 906 has sufficient cooling

8.2. Remote monitoring

8.2.1. Alarm outputs

Remote alarm monitoring is provided by Pin-2&4 of the 24VDC input port. These alarm signals output either 0 or 24V and are suitable for direct connection to a PLC input, or to control an external 24V relay.

- Alert (Pin-2 white)
 - This pin is used to report when attention may be required for the 906.
- Fault (Pin-4 black)

This pin is used to report when the 906 has a fault, and the output has been shut off (unless configured as standby input – see section 7.4.).

On 906 power-up, Pin 2&4 will remain in Hi state for up to 60 seconds before they are used as outputs.

Note: When a BarMaster remote programmer is connected, alert and fault outputs are temporarily disabled

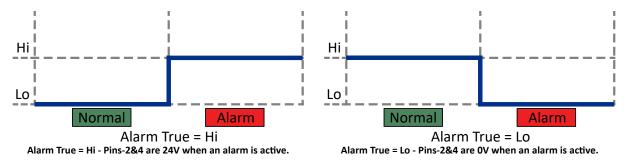
8.2.2. Alarm output drive options

Using a BarMaster*, the alarm output can be configured to meet most requirements. As standard, the 906 will be supplied with a factory preset configuration of Output drive = NPN, where Alarm True = Lo.

There are 3 different output drive options which are designed to allow easy integration with most PLC equipment.

- **1.** Output drive = NPN 24V is supplied via an internal 2.2kΩ resistor, 0V is supplied directly. **
- 2. Output drive = PNP 24V is supplied directly, 0V is supplied via an internal $2.2k\Omega$ resistor. **
- 3. Output drive = N+P Both 24V & 0V are supplied directly. ***

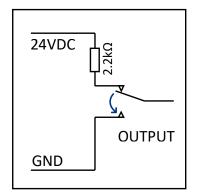
The output polarity (Alam True) can be set to go to Hi (24V) or Lo (0V) when there is an issue.





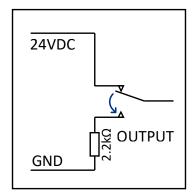
- * = Please refer to BarMaster operating manual
- ** = Using NPN (default Hi) or PNP (default Lo) allows for multiple products to be connected in parallel, triggering a common alert without interfering with each other's operation.
- *** = Using N+P does not allow for any products to be connected in parallel.

Output Drive = NPN Alarm True = Lo

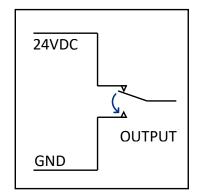


Default: Can be used with multiple devices in parallel.

Output Drive = PNP Alarm True = Lo

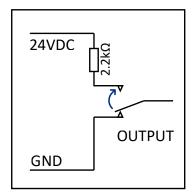


Output Drive = N+P Alarm True = Lo

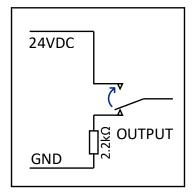


When Alarm True = Lo, OK = 24V & Alert/Fault = 0V

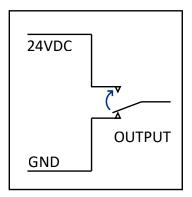
Output Drive = NPN Alarm True = Hi



Output Drive = PNP Alarm True = Hi



Output Drive = N+P Alarm True = Hi



On power on, the output signal stays high for 60 seconds, so Alarm True=Hi may cause issues on power cycle.

When Alarm True = Hi, OK = 0V & Alert/Fault = 24V

9. Technical & construction data

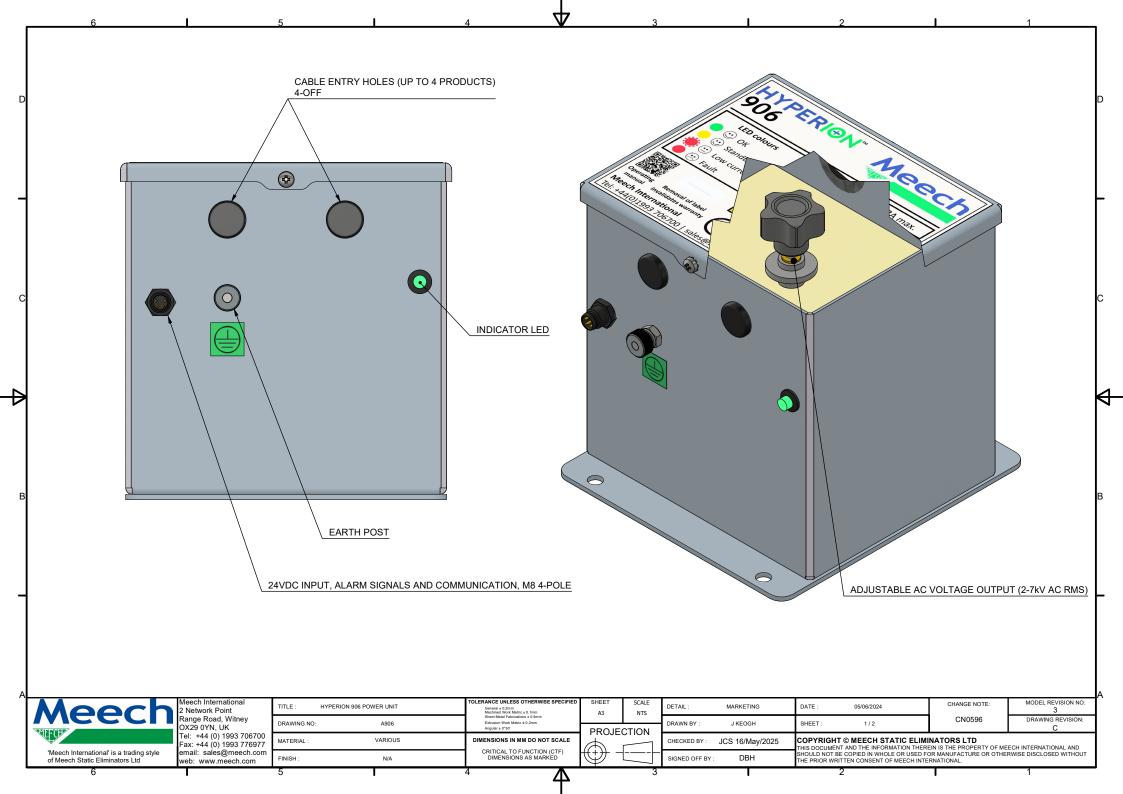
Dimensions (LxWxH)	120mm x 130mm x 126mm			
Weight	Approx 3.85kg			
Maximum ambient temperature	55°C	55°C		
Mounting	4x 6mm holes			
Mounting height	To comply with UL 62368-1, the height ≤2m	e 906 must be mounted at a		
Enclosure	Powder coated steel			
Electrical connections	4-pin M8, earth terminal & M4	HV output post		
Input current	Maximum 2A			
Input voltage	24VDC (22 to 26VDC)			
Output ports	4x HV connection ports			
Output current	Maximum 5mA			
	A906-5kV	2 to 7kVAC (Preset to 5kV) [†]		
Output voltage	A906-7kV	2 to 7kVAC (Preset to 7kV) [†]		
Output voltage	A906HL-5kV	2 to 5kVAC (Default 5kV) [†]		
	A906HL-7kV	2 to 7kVAC (Default 7kV) [†]		
Output frequency	70Hz			
Alarm output/standby input	Dual outputs for Alert/Fault monitoring (0/24V)*: 1x Alert output 1x Fault output/standby input			
Alarm output drives	Compatible with IEC 61131-2 type 1,2,3 plc inputs			
Local indication	Green/yellow/red LED			
Protection class	IP40 construction			

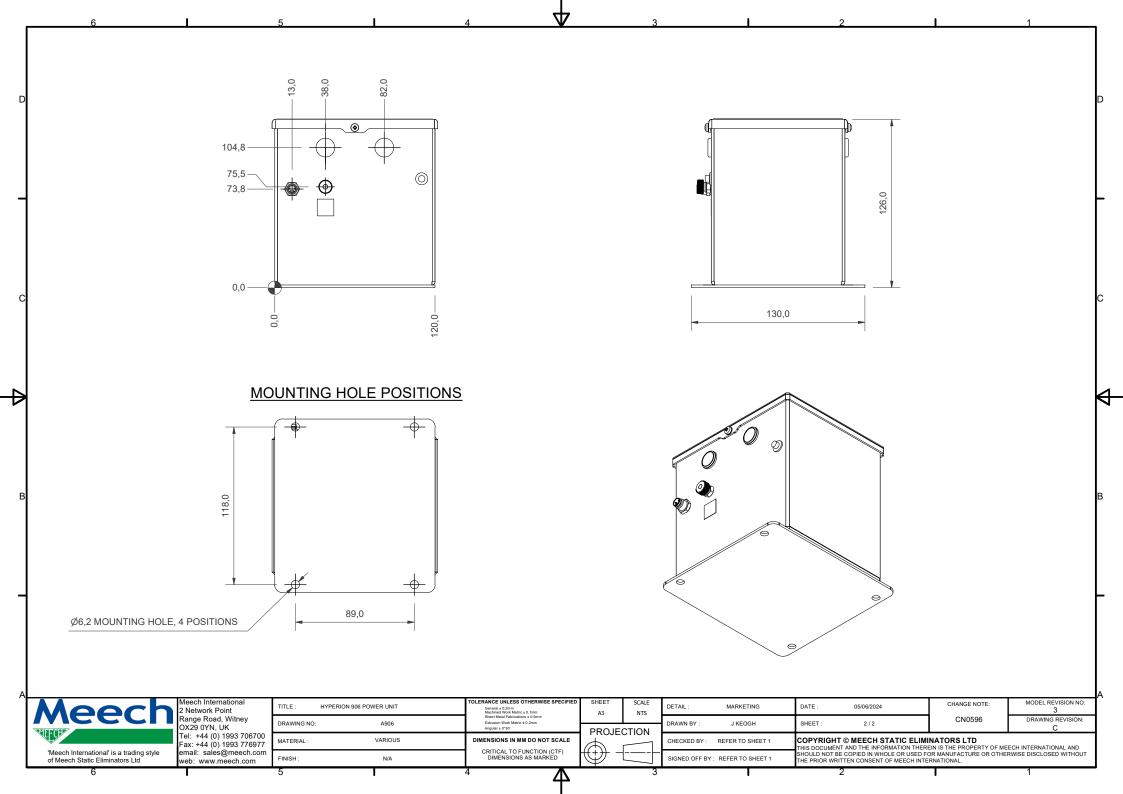
⁼ Adjustable via BarMaster
† = Adjustable via BarMaster or SmartControl Touch

10. Technical drawings

Contact Meech customer services at customerservice@meech.com for additional technical drawings, providing the model code (see section 3).

Page	PulseDrive variant	Variant model code
26.27	Hungrian OOC Payer Unit	A906-5kV
26-27	Hyperion 906 Power Unit	A906-7kV





11. Maintenance

The 906 should be regularly cleaned with a dry cloth to keep it free from dust and other contaminants.

Should the 906 become wet, ensure it is thoroughly dried before restoring power to it.

12. CE approval

A CE Declaration of Conformity for this product exists and can be provided on request.



13. UL approval

The Hyperion 906 Power Unit is compliant with UL Listing requirements.

A copy of the UL certification can be found at www.meech.com/download/ul-certificates/



14. Health & safety

- Emission of Ozone
 - Considerably lower than the international standard of 0.1ppm.
- Output current
 - The maximum output current is less than 5mA to prevent serious harm to the operator, nevertheless any contact with the output post should be avoided where possible.
- Usage restrictions
 - This equipment is not suitable for use in locations where children are likely to be present.

15. Repairs & warranty

The Hyperion 906 Power Unit is warrantied by Meech International Ltd. to the original purchaser against defects in material and workmanship for 2 years after shipment.

For support, contact your local Meech representative. Alternatively, more details can be found at:

https://meech.com

support@meech.com

+44 (0)1993 706700

Meech International

2 Network Point Range Road Witney, Oxfordshire OX29 0YN United Kingdom

Tel: +44 (0)1993 706700 Email: sales@meech.com



1298 Centerview Circle Akron, Ohio 44321 United States Tel: +1 330 564 2000

Fax: +1 330 564 2005 Email: info@meech.com

Meech Static Eliminators (Shanghai)

7G, 7F, LP Tower #25 Xianfeng Road 201103 Shanghai

China

Tel: +86 400 820 0102 Fax: +86 21 6405 7736 Email: china@meech.com

Meech Shavotech

29/2, Kharadi Off Pune-Nagar Road Old Kharadi Mundhwa Road Pune: 411014, Maharastra

India

Tel: +91 (0)703 093 8211 / +91 (0)741 000 4817

Fax: +91 (080) 28395963 Email: india@meech.com

Meech Elektrostatik SA

Kaiserbaracke 166 B-4780 St. Vith Belgium

Tel: +32 (0)80 670 204 Fax: +32 (0)80 862 821 Email: mesa@meech.com

Meech International (Singapore)

7 Temasek Boulevard 12 - 07 Suntec Tower One Singapore

038987

Tel: +65 65918859

Email: singapore@meech.com

Meech CE

Gábor László utca 2 Budapest 1041 Hungary

Tel: +36 1 7977039 / +36 30 2803334

Email: ce@meech.com



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