Meech

Operating Manual

Model 992v3-30kV

Static Generator

Contents

Introduction

The Model 992v3 30kV Static Generator can be set in either Constant Voltage or Constant Current Mode to create a controlled level of static charge to impart temporary bonding (static pinning) between materials, at least one of which is insulative.

The 992v3 provides a Constant Voltage output that is adjustable over the range 0 to 30kV or a Constant Current output that is adjustable between 0 and 500 µA. The output settings of the unit are shown on a display panel. The adjustability of the voltage or current enables the unit to be used in a variety of applications and with a diversity of materials.

The 992v3 is available in either negative or positive output polarity versions.
It is used in conjunction with the Model 993R spark free generator bar.

Mode of Operation

The 992v3 has two modes of operation; Constant Voltage mode or Constant Current mode.

Constant Voltage Mode

In Constant Voltage Mode, the voltage is set (constant) and the current fluctuates with changing application conditions.

This would typically be used for applications where the material to be statically pinned is continuous (reel to reel type machines).

Constant Current Mode

In Constant Current Mode, the current is set (constant) and the voltage fluctuates with changing application conditions.

This would typically be used for applications where the material to be pinned is not continuous (sheeting type machines).

Inspection

The Model 992v3 was carefully packed at our factory in a container designed to protect it from accidental damage. Nevertheless, we recommend careful examination of the carton and contents for any damage. If damage is evident, do not destroy the carton or packing material and immediately notify the carrier of a possible damage claim. Shipping claims must be made by the consignee to the delivering carrier. In addition, please also notify Meech International of any damage claims that may be made against the delivery carrier.

Contents:

Included with the Model 992v3:

1. Instruction Manual

2. IEC Mains Power Cable

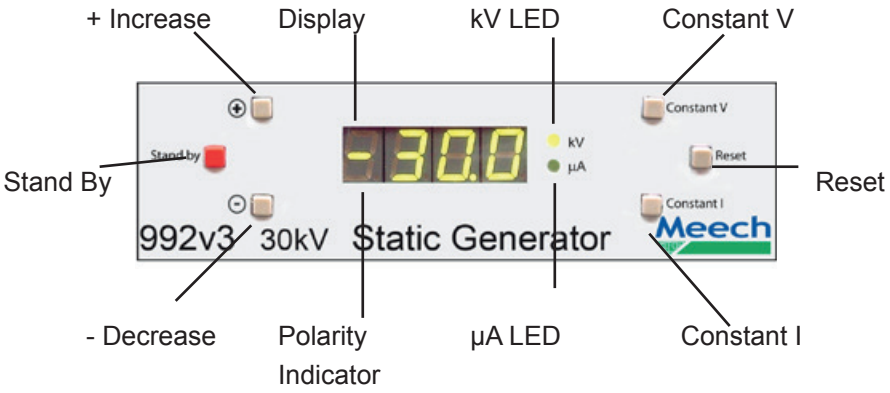
3. Fixing Bracket

4. 2 x M4 Countersunk Screws

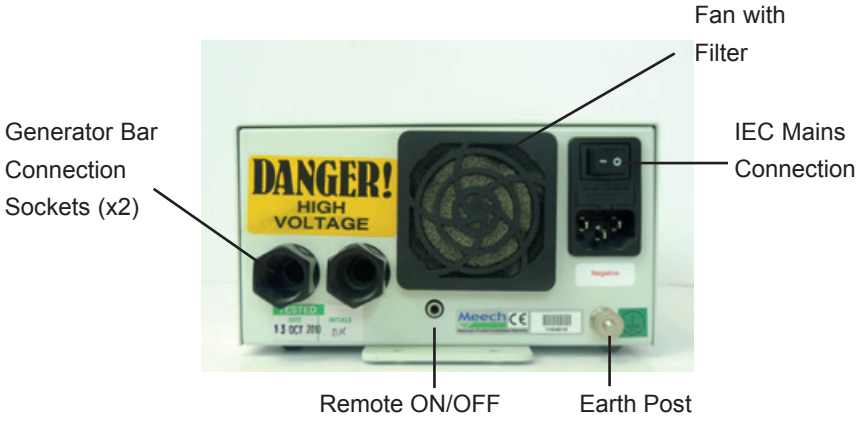
5. 3.5mm Jack plug

Features

Front Panel Controls



Rear Panel



Installation

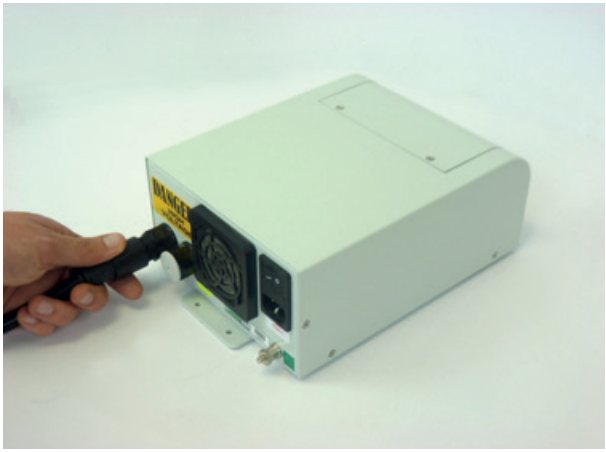
INSTALLATION AND CONNECTION MUST BE COMPLETED BY A QUALIFIED ELECTRICAL ENGINEER

THIS EQUIPMENT MUST BE GROUNDED / EARTHED EITHER VIA THE MAINS PLUG OR BY DIRECT CONNECTION TO THE GROUND / EARTH POST ON THE REAR OF THE STATIC GENERATOR.

The 992v3 Generator must be mounted in a position to prevent contamination from fluids and must be well ventilated.

Connection of a Model 993R to the Model 992v3 Static Generator

- Insert the clear tube of the generator bar into the High Voltage Connection Socket of the generator.



- If fitting two generator bars, remove the red plug from the second High Voltage Connection Socket and fit the second bar in a similar way.

(See also 993R Generator Bar Operation and Installation Manual).

- Connect the electrical supply to the generator via the IEC mains socket on the rear of the unit using the IEC Power Cable (provided).

The generator is fitted with an internal switchmode power supply; thus any voltage from 85 to 265V, 50Hz or 60Hz, can be supplied to the unit.

- Switch on the electrical supply to the generator.

The default factory settings are:

1. Voltage mode active
2. Voltage output 0 kV
3. Current limit 500 µA (maximum)

The kV LED will be illuminated

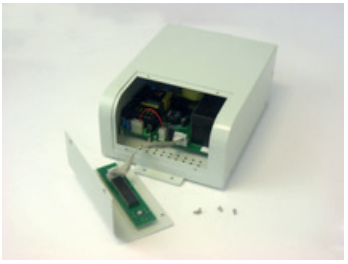
Mounting

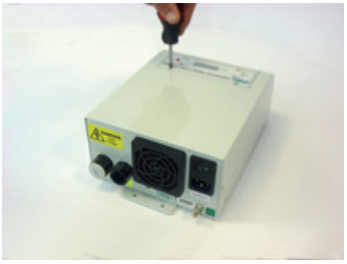
The 992v3 can be mounted on a flat surface and has four rubber feet fitted to the underside of the unit.

It is also possible to mount the 992v3 vertically using the eye bolt holes and mounting bracket provided. (See mounting details at the end of this manual for eye bolt positions). When mounted vertically the front control panel should be removed by unscrewing the 4 retaining screws and refitted as shown in the photos overleaf.

1. 

2. 

3. 

4. 

Operating Modes and Functions

The 992v3 Generator has two modes of operation:

1. Constant Voltage Mode
2. Constant Current Mode

And three functional controls.

1. Stand By Function
2. Trip Function
3. Remote ON/OFF

Function Operating Modes

Constant Voltage Mode

Display with 992v3 operating in Constant Voltage Mode

In constant voltage mode the generator holds the output voltage at the desired level. The current drawn at this voltage will fluctuate and be determined by:

- The number and length of generator bars connected to the unit,
- The environmental conditions (temperature and humidity),
- The generator bar's proximity to electrically grounded parts of the machine to which it has been fitted.

The presence of material between the generator bar and the ground reference

Should the current required by the bars at the desired voltage exceed the current limit set in the unit, then the unit will limit the current to that set value (desired voltage may not be achieved). Raising the current limit will enable the desired voltage level to be attained. See constant current mode operation on how to increase the current limit. If the current limit has been set to 500 µA (the default setting/ the maximum available) and the desired output voltage still cannot be obtained, then the generator bar must be repositioned (moved further away from the nearest electrically grounded machine framework) to reduce the total current required by the system and enabling the desired voltage to be reached.

Constant Voltage mode is selected on the control panel by pressing the Constant V button 

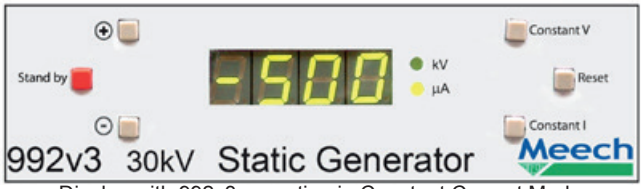
and when active is indicated by the illuminated kV LED 

. The display shows the actual output voltage of the 992v3.

Pressing and holding the Constant V button at any time will display the set voltage. When the Constant V is released the display will show the actual output voltage.

To adjust the output voltage (adjustable from 0 - 30kV), press and hold the Constant V, and use + and - to adjust the set voltage.

Constant Current Mode



Display with 992v3 operating in Constant Current Mode

In constant current mode the generator will hold the current delivered by the generator at the set limit. The current drawn by the system is dependant on:

- The number and length of charge bars connected to the unit
- The set operating voltage
- The environmental conditions (temperature and humidity)
- The charge bar's proximity to electrically grounded parts of the machine to which it has been fitted

To achieve the desired current the voltage limit will need to be adjusted.
However it may not be possible to draw the required current with the generator bar setup even with the generator operating at maximum voltage.

In this case, to achieve the required operating current the position of the generator bar must be adjusted, (moved closer to the proximity ground reference). This will increase the current drawn by the installation arrangement.

The optimum distance of the charge bar to the proximity ground will depend upon required current and voltage. Typically the charge bar should be positioned 40mm from the target.

Constant Current mode is selected on the control panel by pressing the Constant I Button 

and when active is indicated by the illuminated µA LED being  

. The display shows the actual current being drawn by the system.

Pressing and holding the Constant I button at any time will display the set current. This setting is used to limit the amount of current that can be drawn by the system.

To adjust the current limit (adjustable from 0 - 500µA), press and hold Constant I and use + and - to adjust the current limit. When the Constant I button is released, the display will show the actual current being drawn by the system.

Stand By Function

Display with 992v3 in Stand by function

Stand by function is activated by pressing the red Stand by button. When active, the display shows **"St"**.

In stand by function the outputs of the generator are switched off. This permits the removal of the generator bar to allow cleaning of the bar or its repositioning.

Activation of the outputs is achieved by exiting stand by function by pressing the “Stand by” button. The 992v3 will return to its previously set-up mode.

When the unit is in stand by function, it is possible to check and adjust both the set voltage and set current by pressing and holding the “Constant V” or “Constant I” button. When the button is released the unit returns to stand by function.

Trip Function

Display with 992v3 “Tripped” out

The 992v3 will shut down (trip) if an overload condition is detected. This can occur in the case of a sudden increase in load on the output. For example a short to ground from a damaged HT cable.

In this condition the display will show “trIP” and the output will be switch OFF.
The system installation should be inspected to verify high voltage cable integrity.

Pressing and releasing the Reset button 

will reactivate the outputs.

When the 992v3 has tripped, it can also be reset by switching off power to the 992v3 at the mains IEC switch and switching it back on again.
If the unit continues to “trIP” (overload), contact your local Meech sales office.

Remote ON/OFF Function

The outputs of the 992v3 can be switched ON / OFF remotely via the jack plug socket situated on the rear of the unit.

Remote signal connection

Using the 3.5mm jack plug connect to an external volt free contact, for example a relay.

The external device used to switch the 992v3 ON/OFF must be a volt free contact (relay). Failure to use a volt free contact may damage the 992v3.

Open relay contact	- 992v3 is OFF
Closed relay contact	- 992v3 is ON

When the 992v3 is powered and the remote ON/ OFF function is being used, the display of the 992v3 shows 0.0 when the remote signal is OFF. When the remote signal is ON the display will show the output voltage or output current as selected.

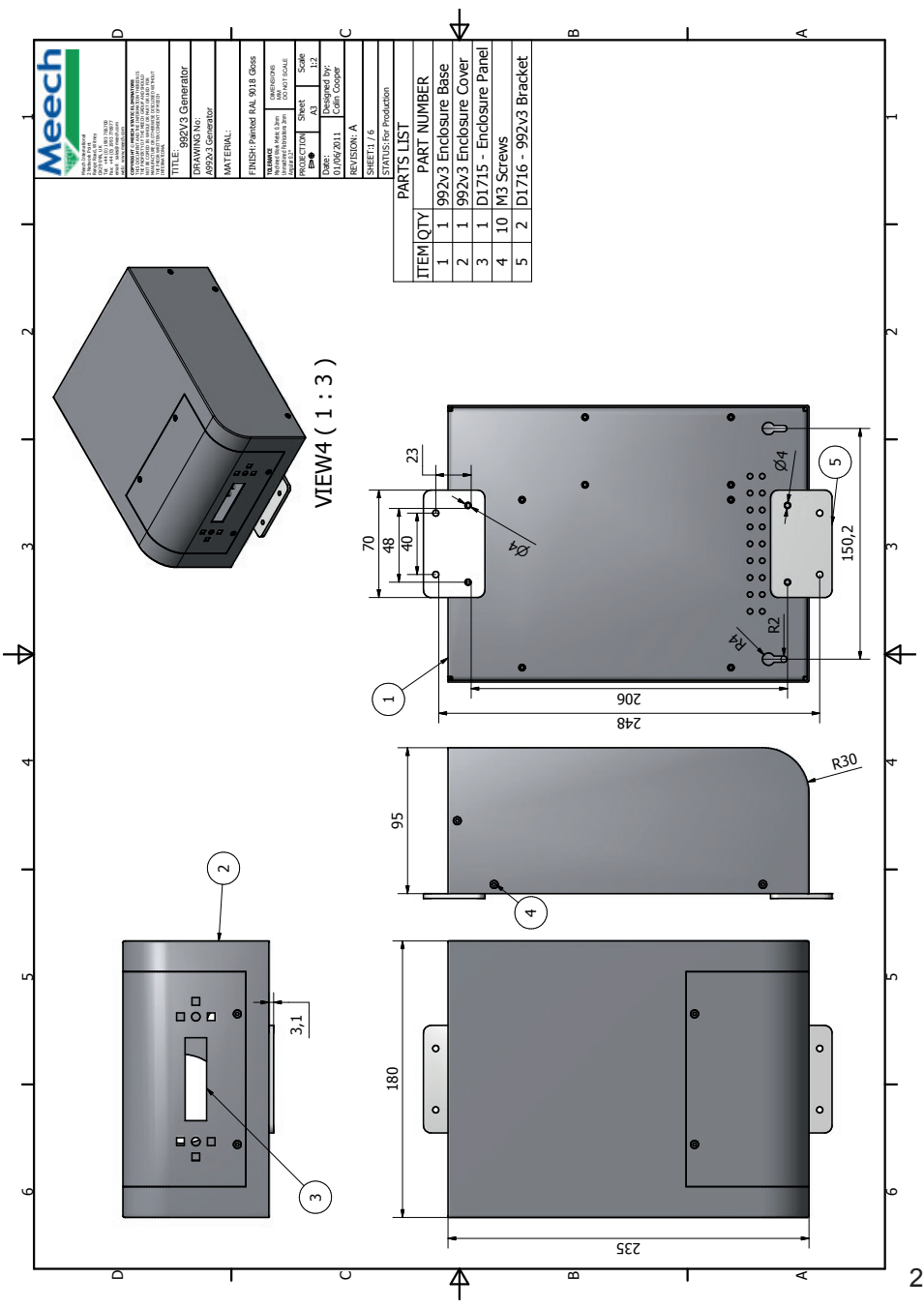
Specification

Input connection	: IEC socket - fused
Input voltage	: 85 to 265V
Input frequency	: 47 to 63 Hz
Dimensions	: 95mm (H) x 180mm (W) x 235mm (D)
Weight	: 3.25 kg
Enclosure	: Painted steel
Maximum Temperature	: 60 Deg C
Output voltage	: 0 to 30kV
Output current	: 0 - 500 µA max
Output polarity	: Negative or Positive (to be specified)
Remote Jack Socket	: 3.5 mm

Maintenance

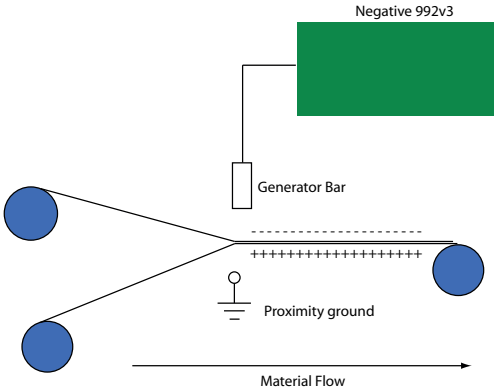
The only maintenance required is that the exterior of the 992v3 Generator should be cleaned regularly with a dry cloth to keep it free from dust and other contaminants. It is important to clean the fan filter periodically to allow a free flow of air for cooling purposes. This will allow the system to work to its full efficiency. To access the filter, prise off the plastic filter cover gently using a flat-headed screwdriver. Brush or blow the filter to clean and reposition both filter and cover before use.

992v3 Case and Mounting Detail



Constant Voltage Mode - Typical Application

Reel To Reel

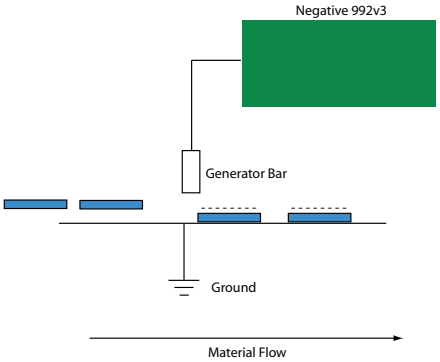


Fault Finding - Constant Voltage Mode

Required voltage cannot be achieved	Increase current limit.
Required voltage cannot be achieved with current limit set at maximum	Move generator bar further away from the proximity ground.
Unit has no output	Check unit has not been placed in stand by mode. Press and release stand by button to reactivate outputs. Check unit has not tripped. Press and release reset button to reactivate outputs having checked installation.
Unit has tripped	Check for damaged high voltage cable, any obstructions between the charge bar and proximity ground. Clean charge bar.

Constant Current Mode - Typical Application

Sheets pinned to a conveyor



Fault Finding - Constant Current Mode

Required operating current cannot be achieved	Increase current limit.
Required current cannot be achieved with voltage set at maximum	Move generator bar closer to the proximity ground.

Repairs And Warranty

The 992v3-30kV bar 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 distributor. 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

An EC Declaration of Conformity for this product exists in respect of the Low Voltage Directive:72/23/EEC (“LVD”) & Electromagnetic Compatibility Directive: 89/336/EEC (“EMCD”)

CE

Health and Safety

Emission of Ozone: Considerably below international standard of 0.1ppm.

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