Operating Manual

Meech

HYPERION™
A Meech Innovation

Operating Manual
Hyperion 994CG
Compact Generator

Contents

Document version : 4

Software version : v2.30

Introduction

The 994CG generator is the most powerful compact IML generator available in the market. Powered by 24VDC , with dimensions of only 150 (L) x 40 (W) x 45 (H) mm, it's maximum output, 25kV, meets the ever increasing demands of the In Mould Labelling (IML) market.

The 994CG is available with a choice of two output connection methods. A plug and socket version, using proprietary Meech HT connectors and a terminal version that allows the use of simple crimp terminals. Both designs allow the connection of up to four Hydra distributors, which is sufficient for the label on a 500mm diameter container. The system can be expanded using high-voltage splitters, to accommodate larger containers or multiple impression tools. The use of the Hydra system, gives the 994CG the fastest, most reliable and consistent label pinning available.

The high voltage output is activated by a remote signal from a PLC or volt-free contact. The voltage level is set by a 4-20ma input (1-5VDC). This can be provided by a PLC output or, alternatively, using a Meech remote setpoint controller.

As with all Meech Hyperion products the 994CG can be connected to a BarMaster to access all configuration options.

The Hyperion BarMaster remote programmer is available for purchase from the Meech network: Visit www.meech.com to find your nearest Meech office or distributor for further product information.

Contents:

Standard Equipment

994CG Terminal
Product no: A994CG-TERMINAL-01

994CG Socket
Product no: A994CG-SOCKET-01

Optional Equipment

Remote Set Point Control. Allows voltage to be set and controlled manually
Product no: A994CG-RSC-01

BarMaster remote programmer. Allows optimisation of the output of the 994CG
Product no: A900-BARMASTER-F

M12 - M12 cable connecting RSC unit to 994CG, 10m,
P. No: A994CG-M12-FF10

24VDC Supply & mains cable
P. No: A900IPS-SM2MS

M8 - M12 adaptor cable connecting BarMaster to 994CG
P. No: A994CG-M12M8-1

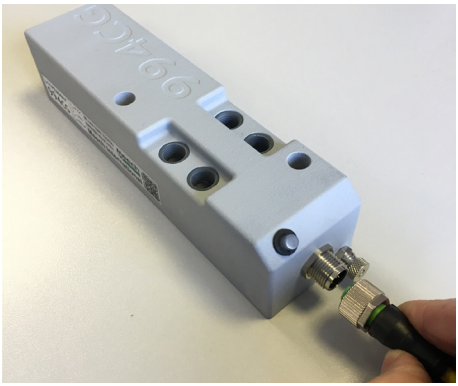
Unpacking and Inspection

Your Hyperion 994CG was carefully packed at the 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.

Features and Benefits of Hyperion 994CG

Low voltage wiring.



Mounted on the robot head, the 994CG is powered by 24VDC via a 5-pin M12 Connector. This removes the need to route high voltage cables through the drag-chain.

Compact High Voltage Power Unit

The power supply uses surface mount high voltage components to reduce the dimensions to give the class leading compactness.

Adjustable Output

A 994CG features adjustable output voltage up to 25kV. This can be controlled remotely by a PLC control or an optional Meech Remote Setpoint Controller. Alternatively it can be set to a fixed value using a Meech BarMaster

Fast On/Off

The high voltage output needs to be turned on and off to suit the cycle of the robot. This can be by a relay contact or PLC output. The 6ms response time of the output is exceptionally fast and helps keep cycle times to a minimum.

Remote Set Point Control

For applications where PLC control and BarMaster connectivity are not in use, the output voltage of the 994CG can be manually set via the Meech Remote Set Point Control unit.

BarMaster Interface

The 994CG can be adjusted using a BarMaster programmer, this allows the adjustment of maximum voltage and the logic of the HT monitoring output.

Sealed Construction

IP66 construction allows the 994CG to be mounted in harsh operating areas. If the 994CG does become wet, it must be thoroughly dried before being powered-up.

Installation

Mechanical Installation

The 994CG should be mounted securely, using both of the through-hole mounting points using M4x30 cap head screws.

Electrical Installation

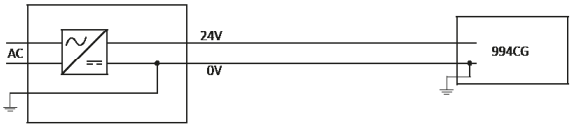
WARNING

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

Connection using a Grounded 24V DC power supply. E.g. Meech part number A900IPS-SM2MS.

- 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 994CG should also be grounded by it's grounding post, to provide additional safety.

Connection using a grounded 24 V DC power supply.
Eg. Meech part number A900IPS-SM2MS



Grounded 24v supply
e.g. Meech A900IPS-SM2MS

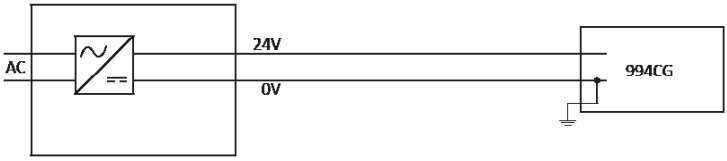
994CG grounded
by power supply and
ground post on 994CG.

Grounded 24v supply
e.g. Meech A900IPS-SM2MS

994CG grounded
by power supply and
ground post on 994CG.

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 994CG.



Ungrounded 24V supply

994CG grounded
by ground post.

Connection to the 994CG is via an industrial M12 5 Pin connector. With the following pin-outs:

No.	Colour	Function	Specification
1	Brown	Input	+24V DC (21..30VDC)
2	White	Ouput	HT Status monitor. 0/24VDC. Pulled-up internally to 24V by 2.2kΩ resistor.
3	Blue	Input	0V
4	Black	Input	Remote HT ON/OFF. Pulled-up internally to 24V by 10kΩ resistor.
5	Grey	Input	HT Voltage control 4-20mA (or 1-5VDC). Input resistance 250Ω.

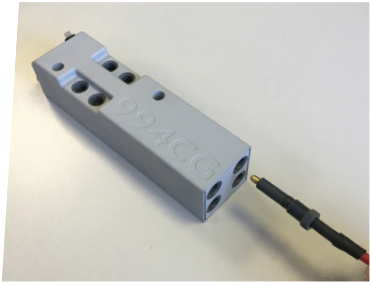
High Voltage Output Connections

The high voltage output connections MUST only be made with the 24V input power to the unit DISCONNECTED.

The type of connection used with the 994CG will depend on whether the 994CG installed is either the Socket model, or the Terminal model.

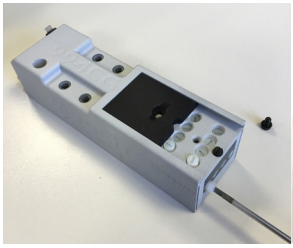
994CG (Socket)

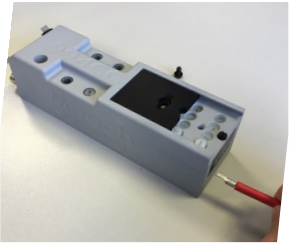
The 994CG Socket model connects to the Hydra System using a Meech proprietary grey HT connector. The Plug on the end of the Hydra system is inserted into the high voltage end of the 994CG and secured in place by the locking collar. The unused outputs should be blanked off with the plugs provided.



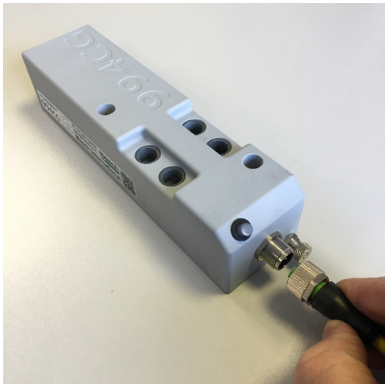
994CG (Terminal)

The 994CG Terminal model connects to the Hydra system using a 3.5mm crimp on the end of the HT cables (E.g. RS Components Stock No.: 433-084) These are inserted into the high voltage end of the 994CG and secured in place by a plastic grub-screws (supplied). The black sliding lid MUST be used to cover the connections once fixed. The unused outputs should be blanked off with the spare grub-screws provided.





Connection using Meech 24VDC power supply



Meech 24VDC supplies are grounded internally. It is important that the mains connection offers a ground connection. Two-pin outlets without a ground connection must not be used, unless the ground post of the 994CG is connected to ground.

Connection using customer's own power supply:

It is the customer's responsibility to check that either the 24V power supply they will be using is grounded. If it is NOT grounded they must check that grounding it via the ground post on the 994CG will not affect any other systems running from that power source.

The 24V supply should be protected with a 1 Amp fuse.

HT OK - Remote Monitoring

Remote monitoring of the HT is provided by the output signal on the white wire. 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 the output can be set to hi (factory default) or lo. The output signal activates when the output voltage reaches at least 80% of the requested value. In normal operation, the HT OK signal will activate a few milliseconds after the HT output is switched on. If the required output voltage cannot be reached , the HT OK output will NOT activate and the LED will go red.

Operation

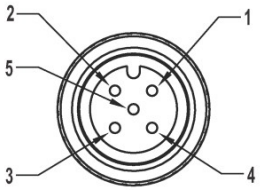
The 994CG should be kept in Standby mode with 24V applied to the brown wire, pin 1, whenever the robot is powered up.
The output voltage should be set by the 4-20mA input on the grey wire, pin 5, or controlled by the Max Output setting. The 4-20mA signal can be from an analogue output of a PLC or from a Meech Remote Setpoint Controller (RSC).

The HT output should be activated by grounding or disconnecting the black wire, pin 4. This can be controlled by a relay or by a PLC digital output.

The state of the 994CG is shown by the local LED:

Green	Continuous		Standby
Green	Fast Flashing		HT output ON
Green	Slow Flash		BarMaster connected
Red	Continuous		Overload or HT fault.

Caution
Always turn off the 24V supply before connecting or disconnecting the M12 connector. Failure to do so could result in stored charges giving a small electric shock.



KEY

1 = Brown

2 = White

3 = Blue

4 = Black

5 = Gray

994CG - Adjusting Settings with BarMaster

The 994CG has built-in protection to preserve the parameter settings in an electrically noisy environment.

To make setting changes the Adjust Lock needs to be turned off and the Communications timeout needs to be disabled. Using a BarMaster connected to a Remote Set Point Controller or 994CG the following steps need to be followed.

BarMaster Controls

To scroll through the menu use the up down function.

To reset the ion Ref use the left right control, pressing the right arrow will reset the ion Ref.

Step 1

Scroll curser down to “Adjust Lock”

Step 2

Scroll Right to change setting to OFF

Step 3

Scroll Down to “Comm Timeout”

Step 4

Scroll Right to change setting to OFF

The 994CG is now unlocked and settings can be changed.

Adjust Lock will reset after 30 seconds of no use. To unlock repeat steps 1 & 2.

Using the scroll up down left & right controller, make setting adjustments.

Once settings have been finalised the Comm Timeout must be set to “ON”

Step 5

Scroll Down to “Comm Timeout”

Step 6

Scroll Right to change setting to ON

994CG - Comms TimeOut Reset.

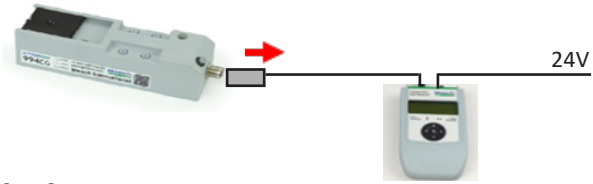
During the set-up of an 994CG, a BarMaster will be required to access the settings in the 994CG generator.

Powering on the 994CG with the BarMaster inline, will require the Communications TimeOut to be disabled within 40 seconds. If the Comms TimeOut is not deactivated, the BarMaster will not be allowed to make adjustments.

Turning off the power and then turning it back on,
may result in the BarMaster displaying only a black square,
and the LED on the 994CG lighting up showing power is available,
but no communication.

Step 1

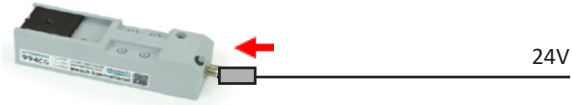
Disconnect the power cable from the 994CG



Step 2

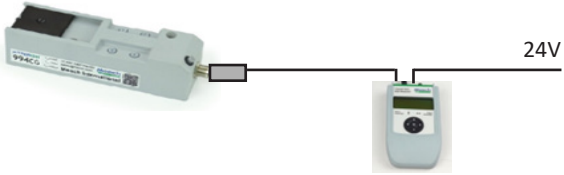
Connect the power cable directly to the 994CG or remote setpoint controller (RSC)

Wait 10 seconds



Step 3

Reconnect the BarMaster back into the system. You will now have 40 seconds to switch off the Comms Timeout.

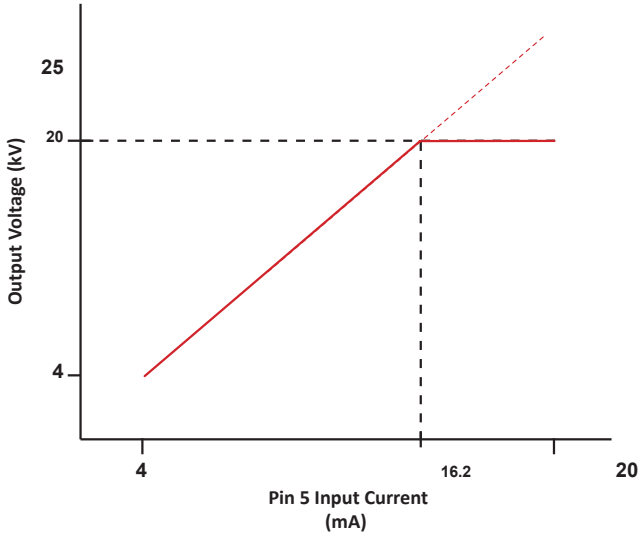


Information and settings available from BarMaster.

Line	Type	Values	Description
Model	Data	e.g. 994CGv2.08 *Default= V2.30.03 (subject to change)*	*Model number and software version*
Ref	Data	e.g. 30/16/1	*Batch reference.*
Adjust Lock	Input Setting	On/Off *Default = On*	On powering up, the Adjust Lock will be On. This prevents any adjustment to the parameters. To adjust the parameters, change Adjust Lock to off. After a 20 second period of inactivity, the Adjust Lock will automatically re-engage.
Max Output	Input Setting	4kV..25kV *Default = 25KV*	*Max Output Voltage.* If 4-20mA input is **off**, the output voltage is fixed at this value. If 4-20mA input is **on**, the output voltage adjustment range is limited from 4kV up to the set Max Output value See diagram 1 for further information
HT ok o/p =	Output Setting	lo/hi *Default = hi*	*A 0V or 24V DC output signal* If set to **lo**, the output signal will be 0V to confirm that the HT output is OK and 24V when the unit is in standby or cannot attain the required output voltage. If set to **hi**, the output signal will be 24V to confirm that the HT output is OK and 0V when the unit is in standby or cannot attain the required output voltage. This is the default setting.
HT on i/p =	Input Setting	lo/hi *Default = hi*	*Input signal line (Black wire pin 4) internally pulled up to 24V by 10k pull-up resistor.* If set to **lo**, the HT output will turn on when the Black wire (pin 4) is grounded. If set to **hi**, the HT output will turn off when the Black wire (pin 4) is grounded. See diagram 2 for more information.

4-20mA I/P=	Input Setting	on/off *Default = Off*	*Input signal to set the output voltage.* If set to **on**, the output voltage will set by the 4-20mA (or 1-5VDC) input up to the value set by the **Max output** setting. If set to **off**, the output voltage will be fixed at the value set by the Max output setting. See diagram 1 for further information
Hours Run	Data	001505 *Deafult = 000000*	*Total number of hours the 994CG has been powered (in Stand-by or with HT output on)*
Communication Timeout	Control Setting	On/Off *Default= On*	Timeout of communication lines. By default, communication with a BarMaster is enabled for 40 seconds after powering up. After which, the communications will be disabled , to protect the parameter settings of the unit from the effects of interference. The communications can be set permanently ON, by turning Comm Timeout to Off.

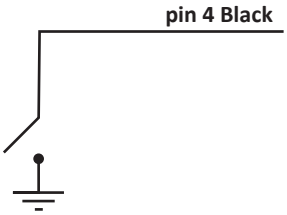
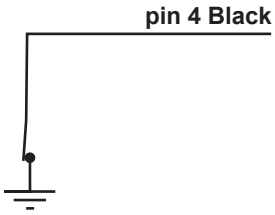
Diagram 1 - Control of output voltage.



Settings:

- 4-20mA input ON
- Max output 20kV
- Adjustmant range is capped to 20kV (no further adjustment after 16.2 mA)

Diagram 2 - on/off control logic

	HT i/p = lo	HT i/p = hi
	**OFF**	**ON**
	**ON**	**OFF**

Technical Characteristics

Supply Voltage	**24VDC (21..30VDC)**
Electrical Consumption	**600mA max**
Input Connection	**M12 5 Pole**
Output Voltage	**Adjustable 4 to 25kV (Negative)**
Output Current	**Up to 500 µA**
Output ports	**4 (Meech HT sockets or Terminal Connection)**
Local Indication	**Red/Green LED**
Max Temperature	**55 °C**
Protection Class	**IP66**
Dimensions	**994CG (Terminal) - 150x40x45mm (LWH)**
	994CG (Socket) - 170x40x45mm (LWH)
Weight	**0.4kg**
Housing Material	**DuraForm PA (Nylon 12)**

Maintenance

The only maintenance required is that the exterior of the Model 994CG Static Generator should be cleaned regularly with a dry cloth to keep it free from dust and other contaminants.

CE Approval

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

Health and Safety

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

Repairs And Warranty

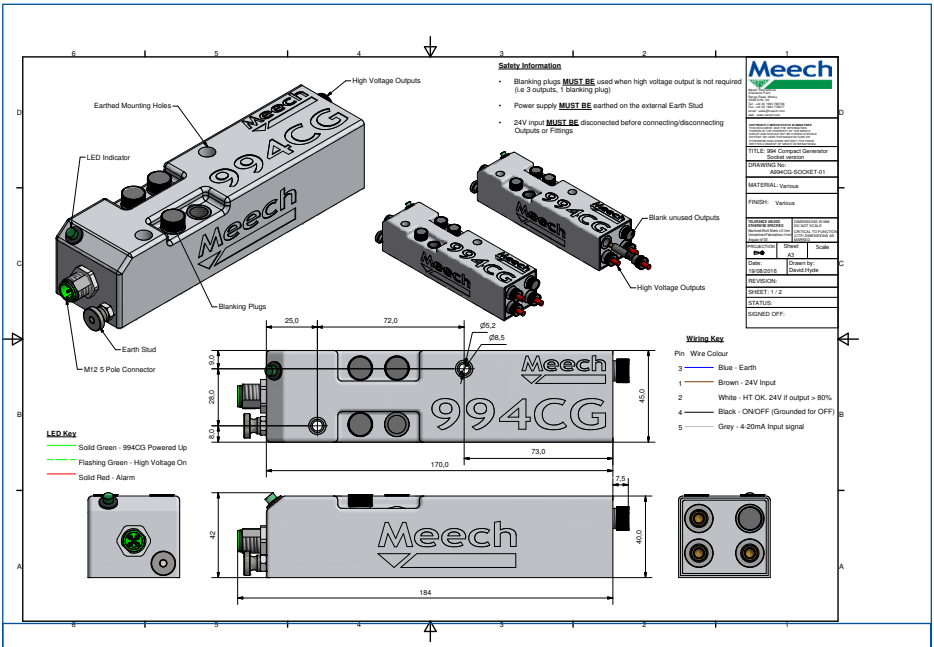
The Meech 994CG is warranted by Meech Static Eliminators Ltd. to the original purchaser against defects in material and workmanship for two years after shipment. Should any malfunction occur, please return the bar directly to Meech Static Eliminators Ltd. or your local Meech Distributor.

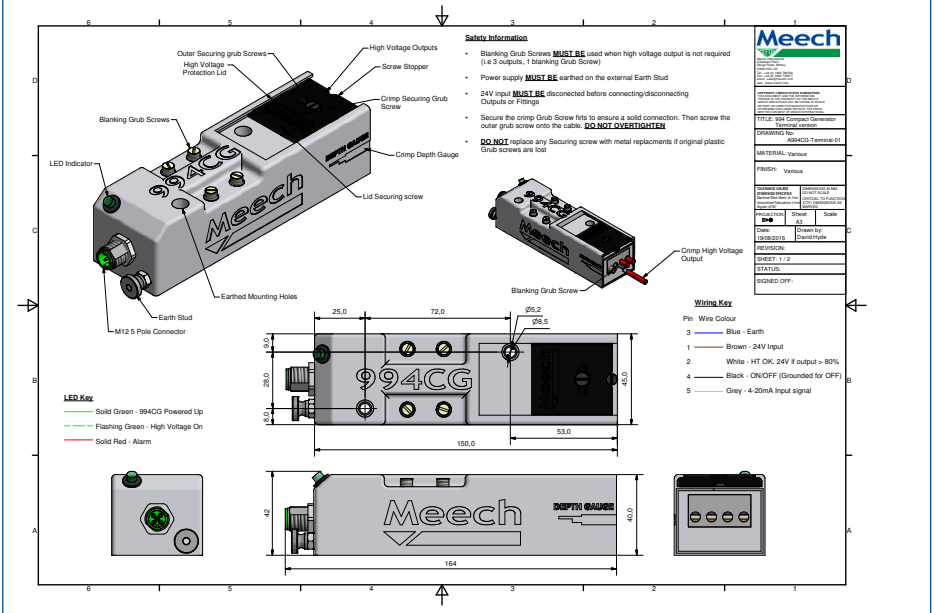
Failure to ground the 994CG will result in damage to the generator or the 24V DC supply. Any damage resulting from failure to ground the 994CG will void the warranty. The 994CG requires a grounded 24V DC supply and / or grounding using the ground post on the 994CG. See page 7 for details.
When grounding using the 24V DC supply the 0V line **must** be connected to the ground.

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 that 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 shipping costs on any repairs covered under the warranty.

Technical Drawing





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