

GB



®

Operating instructions

Discharging power pack Multistat S

Ident number: 01.7870.000, 01.7870.050, 01.7871.000,
01.7871.050



Static Line

Keep for future use!



Table of contents

1	Operator instructions	4
1.1	Symbols used in operating instructions	4
1.2	Symbols on the discharging power pack.....	5
2	Safety	6
2.1	Intended use	7
3	Product overview.....	8
4	Install	9
5	Operate	14
5.1	Normal operation	14
5.2	Normal operation and monitoring	15
6	Troubleshooting	17
6.1	Replacing fuse.....	18
6.2	Flow chart.....	19
7	Accessories/spare parts	20
8	Technical data	22
8.1	Key figures and specifications.....	22
8.2	Supply voltage	22
8.3	Ambient conditions	23
8.4	Connected lengths.....	24
8.5	Housing.....	25
9	Taking out of operation	26
9.1	Storing.....	26
9.2	Disposing	26

1 Operator instructions

Before installation and commissioning read these operating instruction in full. Always observe the safety instructions. These operating instruction is a part of the product; make sure you retain them for later use or subsequent owners.

The discharging power pack is maintenance free and operationally safe when used as intended.

The term “high voltage” is abbreviated HV in these operating instructions (e.g. HV terminal).

The illustrations in this document are a simplified representation of the product. They render only the technical facts and provide support for the text. Departures from the actual product may be noticeable. However, these deviations neither reduce the proper function nor mitigate the specifications of the product.

1.1 Symbols used in operating instructions



Always observe this safety instruction to avoid critical or fatal injuries.

NOTICE

Always observe this safety instruction to avoid damage to property.

NOTE:

Important notes and additional information.



Never dispose of with household garbage.

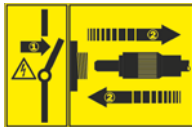


Caution, danger spot warning!

1.2 Symbols on the discharging power pack



WARNING!
High voltage



ATTENTION!
Only plug in/unplug the ionizing unit at the HV terminal when the discharging power pack is switched off.

2 Safety

Only the persons authorized by the operator may carry out tasks on the discharging power pack.

The installer must be a trained and qualified electrician and read the operating instructions in full.

The operator must read the operating instructions in full.

When working on the discharging power pack, switch off the voltage supply and secure against inadvertent switching on.



Hazards caused by manipulated or faulty discharging power pack

Unauthorized modifications, moisture or damage to the discharging power pack may result in electric shocks or fire hazards due to sparking.

- For reasons of safety, never open or modify the discharging power pack.
- In the event of visible damage or suspected electrical defects, take the discharging power pack out of operation immediately and secure against inadvertent reuse.
- Protect the discharging power pack from moisture.
- Never carry out any unauthorized repairs to the discharging power pack.
- Always switch off the discharging power pack after use.
- Do not keep any inflammable materials in the vicinity of the discharging power pack or its components.



Damage to device and risk of fire

Short circuits can occur as a result of soiling in the high-voltage (HV) connection point. This can lead to faults with the discharging power pack and cause a fire.

- The high-voltage connections and plugs must be clean, dry and free of grease.
- Use blind plugs to protect the unused HV connection points against environmental influences. Ensure that the blind plugs are clean, dry and free of grease.

2.1 Intended use

WARNING

Risk of explosion!

The discharging power pack may generate sparks which ignite gases, dust or similar substances.

- Never install or use the discharging power pack in areas with potentially explosive atmospheres.
-

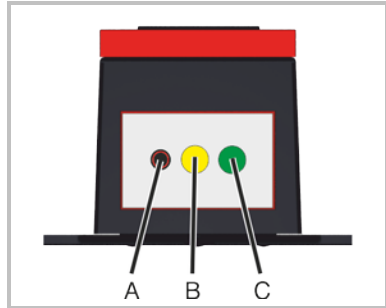
The discharging power pack is intended exclusively for the supply of alternating high voltage to HAUG ionizing units with X-2000 connector. In combination with an ionizing unit, electrostatic charges are neutralized in a production process.

Always observe the installation and operating conditions indicated in these operating instructions.

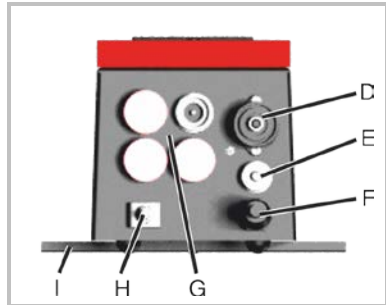
Warranty only covers products, accessories or spare parts of HAUG GmbH & Co. KG.

3 Product overview

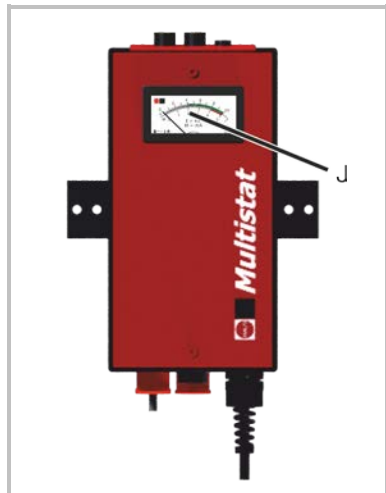
- A Fuse holder with fuse
(Replacing fuse, refer page 18)
- B Error indicator lamp
(flashes yellow in the event of a defect)
- C Mains switch (lights up green when discharging power pack is switched on)



- D K1 signalling socket (monitoring)
- E K6 signalling socket (external reset)
- F Mains supply
- G 4 x HV terminal
- H Ground connection (terminal)
- I Bracket



- J HV display



4 Install

WARNING

Risk of explosion!

The discharging power pack may generate sparks which ignite gases, dust or similar substances.

- Never install or use the discharging power pack in areas with potentially explosive atmospheres.

WARNING

Electric shock hazard!

An electric shock hazard results from a faulty connection of the discharging power pack to the power supply.

- The discharging power pack must only be installed by a trained and qualified electrician.

NOTICE

Damage to equipment!

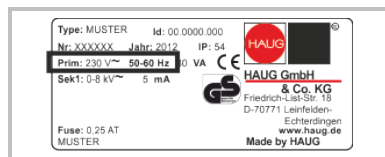
Continuous overloading of the discharging power pack may result in failures.

- Never exceed the permissible connected length.
- Never install the discharging power pack on a surface generating or radiating heat.
- Never install at a location subject to direct solar irradiation.

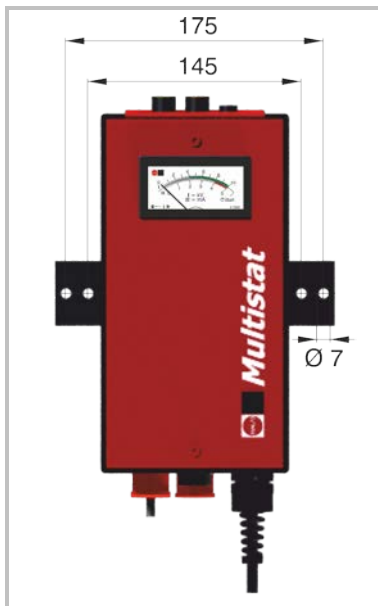
1. Check the model plate of the discharging power pack against the ordering data. In the event of damage to the discharging power pack, contact HAUG GmbH & Co. KG.

2. Before connecting, make sure that the correct supply voltage is available for the discharging power pack.

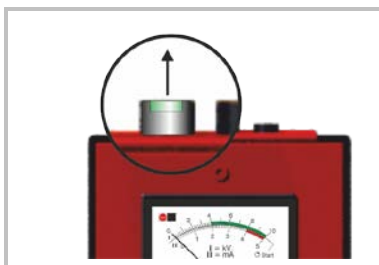
- The model plate attached to the housing indicates the voltage.
- If the supply voltage is incorrect, the discharging power pack may be damaged.



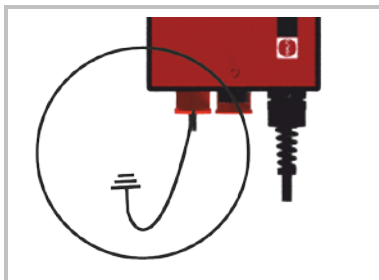
3. Place the discharging power pack at the desired location and attach with the enclosed retaining plate, if appropriate.
 - The operation of the discharging power pack is not affected by the position in which it is installed.
 - We recommend installing the discharging power pack with the HV terminals pointing downwards (to protect them from moisture, oil and dirt).



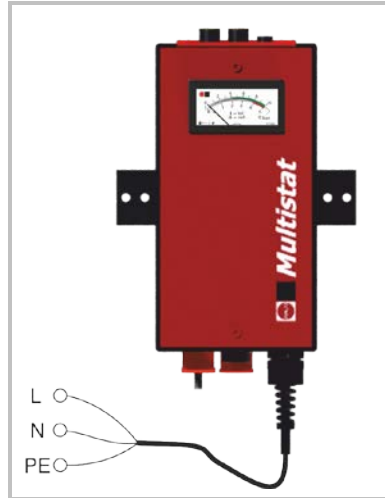
4. Ensure that the discharging power pack is switched off.



5. The ground socket of the discharging power pack must be connected to ground potential in line with applicable standards.
 - Grounding cables of at least 1,5 mm² must be used.



6. Connect the discharging power pack to the supply voltage. Always connect the protective earth conductor (green-yellow) with a functioning protective earth of the mains.
- Connecting the PE conductor via parts of a machine body is insufficient.
 - L = brown conductor
 - N = blue conductor
 - PE = green/yellow conductor

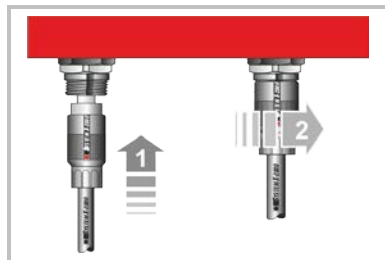
**NOTICE**

Contact and separation spark-overs!

When the ionizing unit is plugged in or unplugged while the discharging power pack is switched on, spark-overs will occur at the HV connection. This may result in defects in the discharging power pack.

- Switch off discharging power pack before plugging in/unplugging ionizing unit.

7. Connect the ionizing unit to the HV terminal of the discharging power pack.
- Insert the ionizing unit's HV plug in the HV terminal of the discharging power pack and press the HV cable until it reaches the stop.
 - Screw the screw cap onto the HV terminal and tighten by hand.

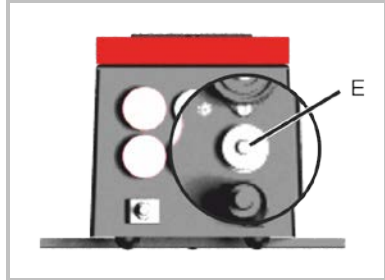


NOTE:

Compliance with maximum connection length specifications is required.

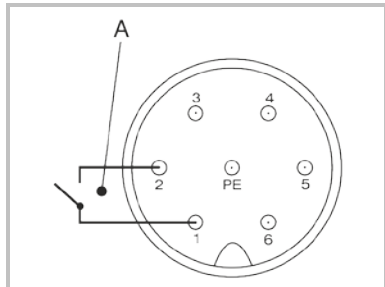
Use blind plugs to protect the unused HV connection points against environmental influences. Ensure that the blind plugs are clean, dry and free of grease.

8. If required, the signalling line K6 can be connected to the K6 signalling socket (E).
- The K6 signalling socket allows the discharging power pack to be reset externally.



Configuration of K6 signalling socket:

- A External reset (potential-free normally open contact)

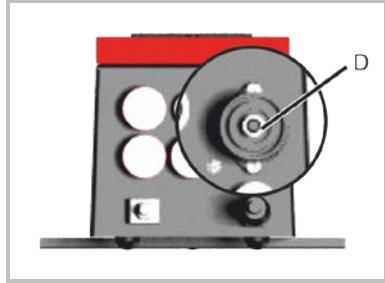
**NOTE:**

The discharging power pack can be reset by actuating the external reset button or switching the unit off/on (mains switch or mains voltage).

NOTE:

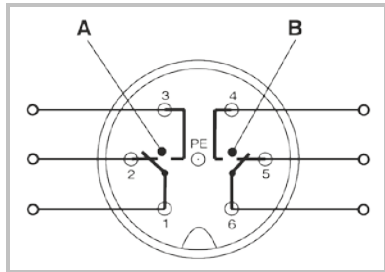
Leave the unused signal socket closed or secure it with the sealing cap to prevent the ingress of environmental influences. The sealing cap must be clean, dry and free of grease.

9. If required, the signalling line K1 can be connected to the K1 signalling socket (D).
- The K1 signalling socket can be used to monitor the correct function of the discharging power pack.
 - Relay contact rating:
max. 24 V~ / 35 V=,
max. 50 mA



Configuration of K1 signalling socket:

- A Relay contact mains failure
B Relay contact operational failure



Switching status table for K1 signalling socket

	Operating conditions		Contacts closed	
Normal operation	Mains voltage present	HV present	1 and 3	5 and 6
Internal fault	Mains voltage present	HV failure	1 and 3	4 and 6
External fault	Mains failure	Not defined	1 and 2	5 and 6

More information in chapter "Normal operation and monitoring" on page 15.

NOTE:

Leave the unused signal socket closed or secure it with the sealing cap to prevent the ingress of environmental influences. The sealing cap must be clean, dry and free of grease.

10. The discharging power pack is ready for operation.

5 Operate

Preconditions:

The discharging power pack and the ionizing unit are connected and installed as specified in the operator instructions.

NOTE:

After an error, the discharging power supply unit switches off the HV and the error lamp starts to flash with a delay of up to 20 seconds.

This can be triggered by:

- *a drop of the high voltage at the HV output to below 4.2 kV~.*
- *a sparkover in the ionization system.*
- *a short circuit in the ionization system.*

The discharging power pack can be reset by triggering the external reset or switching off/on (mains switch or mains voltage). If the defect persists, refer to the following chapter "Troubleshooting". Refer page 17.

5.1 Normal operation

Optionally, the signalling line K6 (accessory) can be connected to the K6 signalling socket (E). This allows an external reset to be carried out.

1. Switch on the discharging power pack using the mains switch (C).
 - The mains switch will illuminate green to confirm.
 - The HV output voltage is indicated at the HV display (J) of the discharging power pack.
 - The discharging power pack is in operating mode.

NOTE:

The flashing of the error indicator lamp indicates a defect. The discharging power pack can be reset by triggering the external reset or switching off/on (mains switch or mains voltage). If the defect persists, refer to the following chapter "Troubleshooting". Refer page 17.

5.2 Normal operation and monitoring

To enable monitoring, connect the signalling line K1 (accessory) to the signalling socket K1 (D).

NOTE:

The relays of the K1 signal socket switch with a maximum delay of 20 seconds.

1. Switch on the discharging power pack using the mains switch (C).
 - The mains switch will illuminate green to confirm.
 - The HV output voltage is indicated at the HV display (J) of the discharging power pack.
 - The discharging power pack is in operating mode.

The function of the discharging power pack can be evaluated by means of the connected signalling line K1.

NOTE:

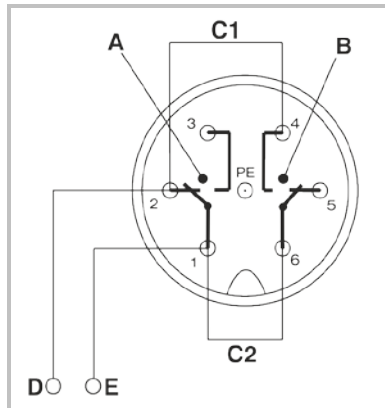
The flashing of the error indicator lamp indicates a defect. The discharging power pack can be reset by triggering the external reset or switching off/on (mains switch or mains voltage). If the defect persists, refer to the following chapter "Troubleshooting". Refer page 17.

Application examples (e.g. connection to PLC)

Example 1:

- A Relay contact for mains failure
- B Relay contact for HV failure

- C1 Bridge 1
- C2 Bridge 2
- D Output
- E Input

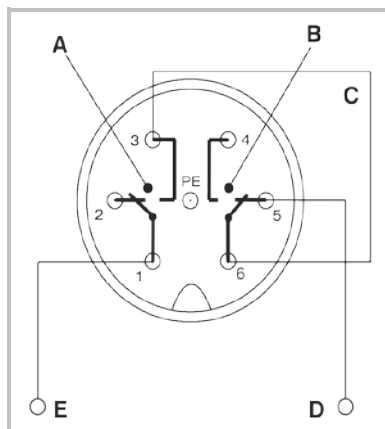


High-voltage	Continuity (D and E)
Normal operation	no
Malfunction	yes

Example 2:

- A Relay contact for mains failure
- B Relay contact for HV failure

- C Bridge
- D Output
- E Input



High-voltage	Continuity (D and E)
Normal operation	yes
Malfunction	no

6 Troubleshooting

WARNING

Electric shock hazard!

The discharging power pack is operated electrically and generates a high electric voltage. In the event of any faults, there is a risk of an electric shock.

- Faults may only be eliminated by a trained and qualified electrician.

NOTE:

If the error cannot be removed in this way, return the discharging power pack and ionizing unit for checking to HAUG GmbH & Co. KG (the address is provided on the back of the envelope).

Error	Cause	Measure for removing fault
No ionization	Mains failure	Check mains fuse
	No HV	Check fuse in discharging power pack.
		Check connections in discharging power pack.
		Check HV output of discharging power pack using the Combicheck (Accessories/spare parts, refer page 20).
Error indicator lamp flashes	Discharging power pack is damaged	Shut the discharging power pack down immediately and secure against switching on.
	Ionizing unit is dirty	Clean ionizing unit
	Short circuit	Perform work steps according to the following flow chart. Refer page 19.
	Sparkover	Perform reset

6.1 Replacing fuse

NOTICE

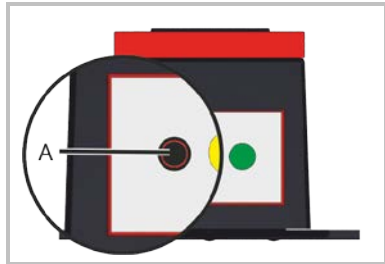
Damage to equipment!

An incorrect fuse in the discharging power pack may cause a defect. This may result in a cable fire.

- Only use fuses of the specified type.
- Never use repaired fuses.
- Never bridge the fuse.

The unit type and the rated voltage are indicated on the nameplate.

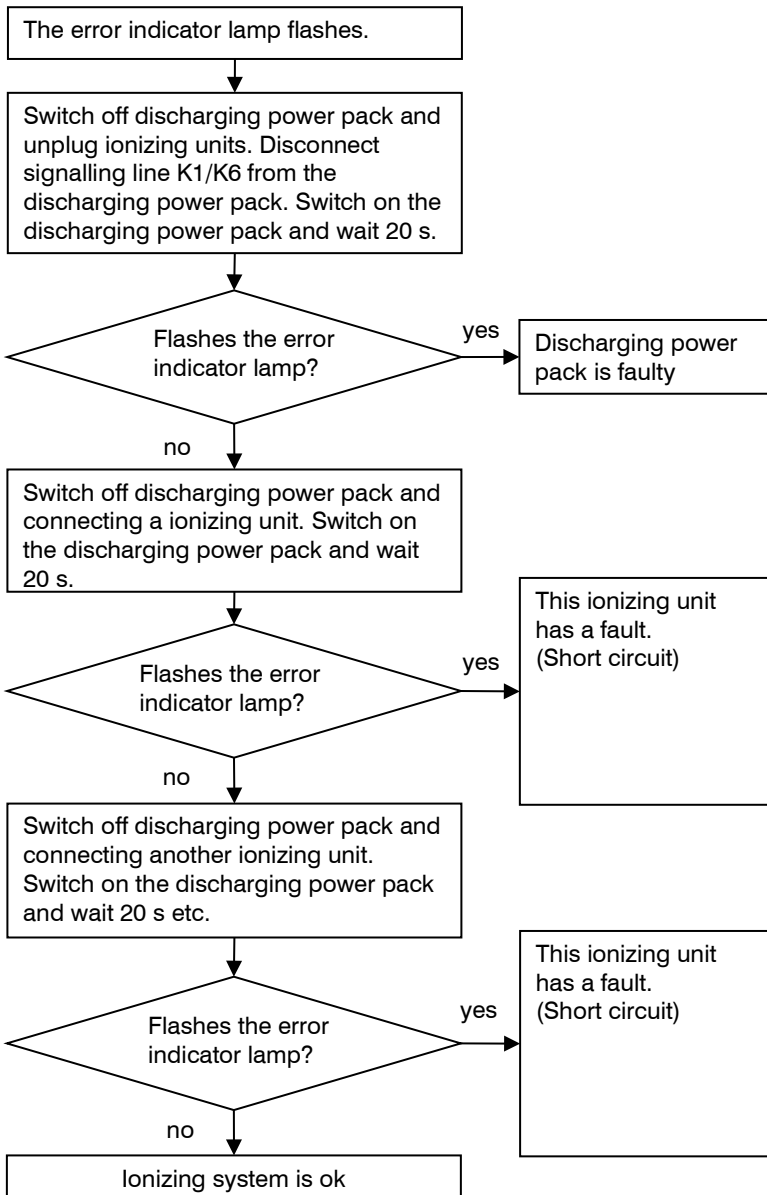
1. Disconnect discharging power pack from supply.
2. Determine and remove the cause for the blown fuse.
3. Detach the fuse holder (A) using a screwdriver and lift out.
4. Replace fuse and reattach fuse holder.



Use the following fuse only:




- 100 / 115 V = 0,50 A slow, 5 x 20 mm
- 200 / 230 V = 0,25 A slow, 5 x 20 mm





6.2 Flow chart



7 Accessories/spare parts

Accessories and spare parts can be sourced from your authorized sales partner or directly from HAUG GmbH & Co. KG (the address is provided on the back of the envelope).

Article	Illustrations	Order number
Circular plug (K1)		X – 0616
Right-angle plug (K1)		X – 5718
5 m shielded signalling line K1 with assembled plug		06.8941.000
10 m shielded signalling line K1 with assembled plug		06.8941.001
20 m shielded signalling line K1 with assembled plug		06.8941.002

Article	Illustrations	Order number
Control plug (K6)		X – 7807
5 m shielded signalling line K6 with assembled plug		06.8976.000
10 m shielded signalling line K6 with assembled plug		06.8976.001
20 m shielded signalling line K6 with assembled plug		06.8976.002
Combicheck		12.7231.000
Blind plug for HV terminals		X – 3521

8 Technical data

8.1 Key figures and specifications

Reference temperature 23 °C

HV connections	4
High voltage	~ 6.7 ±1 kV
Short circuit current	I_k approx. 5 mA
Relay contact load K1 signal socket	max. ~ 24 V/35 V=; max. 50 mA
A pulse cannot be applied	

8.2 Supply voltage

Unit type	Nominal value	Frequency range	Power input
01.7870.000	230 V~ ±10 %	50 – 60 Hz	$P_{max} = 80 \text{ VA}$
01.7870.050	200 V~ ±10 %	50 – 60 Hz	$P_{max} = 80 \text{ VA}$
01.7871.000	115 V~ ±10 %	50 – 60 Hz	$P_{max} = 80 \text{ VA}$
01.7871.050	100 V~ ±10 %	50 – 60 Hz	$P_{max} = 80 \text{ VA}$

8.3 Ambient conditions

Never use in potentially explosive atmospheres.	
Use indoors only.	
Temperature:	
Rated range of use	+5 to 45°C
Limit range for storage and transport	-15 to 60°C
Relative humidity (RH):	
Rated range of use	20% to 65% RH
Limit range for storage and transport	0 % to 85 % RH
Compressed air:	
Rated range of use	810 hPa to 1074 hPa
Vibrations:	
Limit range for storage and transport	max. 1.5 g (10 to 55 Hz), 1 h
Impact	max. 15 g in each direction
Recommended position for operation:	HV connections pointing downwards

8.4 Connected lengths

Unit type	Permissible connected length	Maximum ionizing bar length Type A	Maximum ionizing bar length Type B
Discharging power pack	18 m	18 m	6 m

	Ionizing bar
Type A	EI RN, EI RNE, EI RA, EI RAE, EI RNOF, EI RAOF, EI HRN, EI HRA, EI HRE, EI HRAE, EI PS, EI PRX, EI PRV, EI SL, EIW
Type B	EI VS, EI VSE, EI VSA, EI VSAE, EI VC, EI VCA, EI VCE, EI VCAE, EI VSOF, EI VSAOF

Ionizing bar Type A:

The maximum cable length (KL) is the permissible connected length (AL) minus the connected ionizing bar length (SL).

$$KL = AL - SL$$

Ionizing bar Type B:

The maximum cable length (KL) is the permissible connected length (AL) minus 3 x the connected ionizing bar length (SL).

$$KL = AL - (3*SL)$$

8.5 Housing

Protection type	IP 54
Protection class	I
Mains supply	approx. 2,6 m fixed on unit
Dimensions:	
Height	245 mm
Width	130 mm
Depth	130 mm
Weight:	5 kg

9 Taking out of operation

WARNING

Electric shock hazard!

The discharging power pack is operated electrically and generates a high electric voltage. Improper decommissioning may result in electric shock.

- Decommissioning may only be carried out by a trained and qualified electrician.
-

1. Disconnect discharging power pack from supply.
2. Disconnect the mains line from the voltage supply.
3. Disconnect the ionizing unit from the HV terminal.
4. Disconnect the signalling line from the discharging power pack.
5. Remove the discharging power pack from the production process.

9.1 Storing

Always store our products in a dry and cool place.

9.2 Disposing



Never dispose of electrical appliances together with household garbage.

Always collect separately and dispose of in an environmentally responsible way. Always observe national and regional waste disposal regulations for the disposal of electrical appliances.

If proper disposal of our products is not possible, returning the units to us may be an option. We dispose of our products in an environmentally responsible way. The address is provided on the back of the envelope.



made by



HAUG GmbH & Co. KG

Friedrich-List-Straße 18
D-70771 Leinfelden-Echterdingen
Telefon: +49 711 / 94 98-0
Telefax: +49 711 / 94 98-298

www.haug.de
E-Mail: info@haug.de

HAUG Biel AG

Johann-Renfer-Strasse 60
CH-2500 Biel-Bienne 6
Telefon: +41 32 / 344 96-96
Telefax: +41 32 / 344 96-97

www.haug.swiss
E-Mail: info@haug.swiss