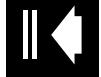


Operating instructions

Charging generator HW 30



Charge Line





Keep in a safe place for future reference!

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Types

HW 30 positive	115 V / 230 V
HW 30 negative	115 V / 230 V

1

Notes on operating instructions

In these operating instructions, the charging generator "HW 30" is also referred to as "the unit".

For the resistance-coupled charging electrode, the abbreviation ALW or charging unit is used.

1.1

Pictorial markings used

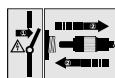


In these operating instructions

**WARNING!**

High voltage!

Danger of fatal accidents!

**WARNING!**

*Only plug in/unplug coaxial connector
when the unit is switched off!*

**ATTENTION!**

Important instructions!

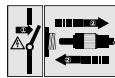


On the unit

**WARNING!**

High voltage!

Danger of fatal accidents!

**WARNING!**

*Only plug in/unplug coaxial connector
when the unit is switched off!*

2

Safety



ATTENTION!

The units must be protected from humidity and moisture!

The unit is operationally safe, provided that it is operated in accordance with its intended use.

Operating errors, misuse or defects will result in dangers:

- For life and limb of the operator.
- For the unit and other assets.

Also note Chapter 4.1 (refer to page 10 "Important installation notes").

2.1

Intended use



ATTENTION!

Do not install or use the unit in areas subject to explosion hazards.

The unit is intended exclusively for the high-voltage supply of HAUG ALW charging bars. It generates an adjustable direct high voltage of 0...40 kV, with positive or negative polarity, depending on the unit type.

The direct high voltage is intended for charging material webs in industrial production processes.

For reasons of safety, unauthorized conversions and modifications of the unit are not permitted. The installation and operating conditions indicated in these Operating Instructions must be adhered to.

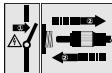
2.2

Danger sources

**WARNING!**

High voltage!

Danger of fatal accidents!

**WARNING!**

*Only plug in/unplug coaxial connector
when the unit is switched off!*

**ATTENTION!**

The operator must provide protective equipment against direct contact when installing the charging units!

Defective high-voltage terminals and cables may lead to danger of electric shocks. Shut down the unit immediately in case of visible damage and suspected electrical defects.

The charging units connected to the unit conduct high voltage during operation. Any contact with live charging units may result in injuries and consequential damage. The operator must therefore provide the units with a safety device against direct contact.

2.3

Installer qualifications

The unit may be installed by trained electricians only. The above mentioned person must have read the operating instructions and must follow the instructions, notes and safety advice.

2.4

Operator qualifications

The unit may be maintained and put into operation by trained electricians only or by authorized persons informed about the potential dangers. The above mentioned persons must have read the operating instructions and must follow the instructions, notes and safety advice.

3 Design, operating elements

Figure 1

1. Pulse / Signalling terminal
2. Mains supply
3. Fuse (for replacement refer to page 17, Section 7.1)
4. Ground connection
5. 2 High-voltage terminals (type ALW)

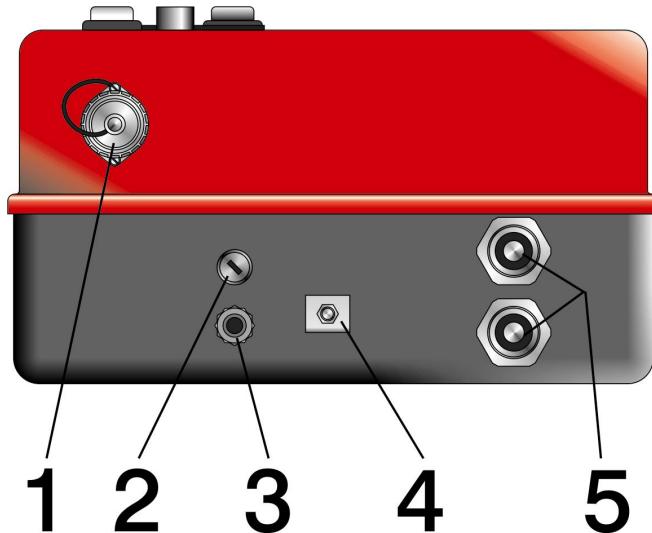
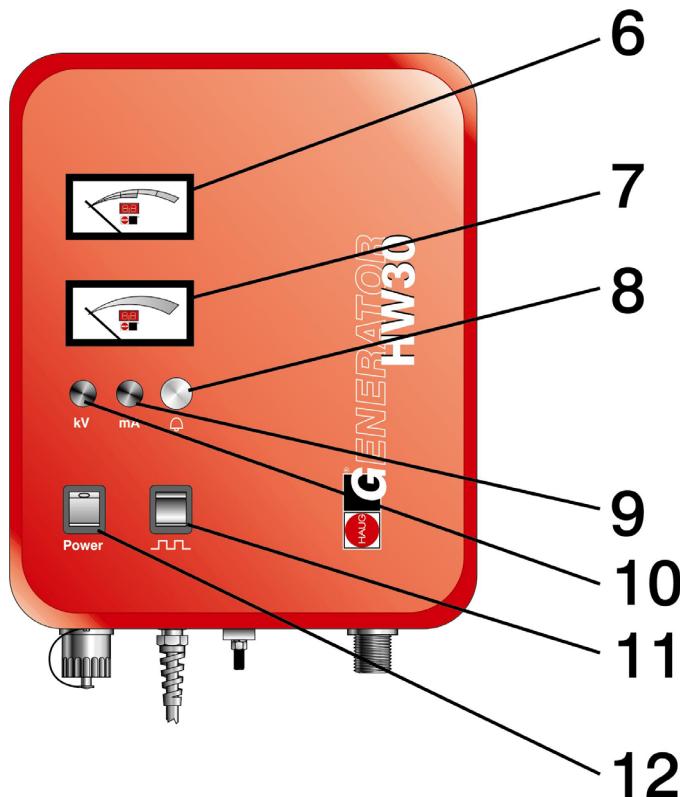


Figure 2

6. Voltage measuring instrument (kV)
7. Current measuring instrument (mA)
8. Reset pushbutton and indicator lamp; lights up yellow when the set current threshold is exceeded and flashes in case of defect
9. Current threshold operating potentiometer
10. High-voltage operating potentiometer
11. Toggle switch pulsed/permanent operation
12. Mains switch; green lamp is on when unit is switched on



4

Installation

The unit may be installed by trained electricians only. The above mentioned person must have read the operating instructions and must follow the instructions, notes and safety advice.

4.1

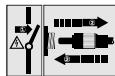
Important installation instructions



WARNING!

High voltage!

Danger of fatal accidents!



WARNING!

Only plug in/unplug coaxial connector

when the unit is switched off!



ATTENTION!

The operator must provide protective equipment against direct contact when installing the charging units!

The operation of the unit is not affected by the position in which it is installed. However, we recommend installing the unit so that the high-voltage terminals point downwards (to protect it from humidity, oil and dirt).

Do not place the unit on a surface generating or radiating heat. Avoid installation positions exposed to direct sunlight.

The charging units connected to the unit conduct high voltage during operation. Any contact with live charging units may result in injuries and consequential damage. The operator must therefore provide the units with a safety device against direct contact.

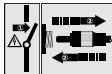
4.2

Setting up, connecting

**WARNING!**

High voltage!

Danger of fatal accidents!

**WARNING!**

Only plug in/unplug coaxial connector

when the unit is switched off!

1. Before connecting always check that the unit is suitable for the local mains voltage (the voltage is indicated on the name plate). Incorrect mains voltage may result in damage to the unit.
2. Attach the unit at the desired location using the enclosed retaining plates.
3. Ensure that the charging generator is switched off (for mains switch, refer to page 9, Fig. 2, item 12).
4. Connect charging units to the high-voltage terminals (see page 8, figure 1, item 5). Install the charging unit in line with the relevant operating instructions.
5. Connect ground terminal with the machine ground.
6. Connect the unit to the mains. Connect the PE conductor (green-yellow) with the protective earth of the mains. Connecting the PE conductor via parts of a machine body is insufficient.
7. If required, connect signalling line K1 (see page 12, chapter 4.3).
8. The unit is ready for operation.

4.3

Pulse / Signalling connection



ATTENTION!

No destructive electrical loads may be applied to the signalling contacts (to protect the electronic system of the unit).

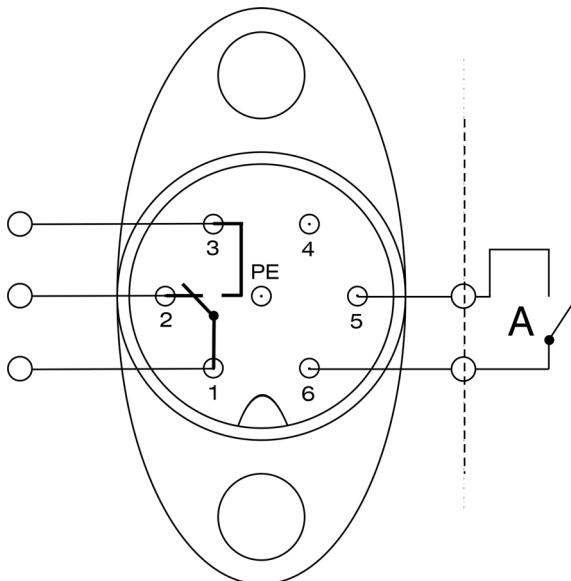
Before plugging in the signalling line K1, please self-discharge by touching grounded machine parts.

Signalling line K1 must be configured according to the following pin assignment diagram.

Figure 3

Pin assignment of pulse/signalling terminal

A: External pulse switch



Output states:

	Operating conditions		Contacts closed
Normal operation	Mains voltage present	High-voltage present	1 and 2
Internal fault	Mains voltage present	High voltage failure	1 and 3
External fault	Mains failure	Not defined	Not defined

Contact load max. 24 VAC / 35 VDC, max. 50 mA

5

Application



ATTENTION!

Protective equipment against direct contact with the charging units must be provided.

The units must be protected from humidity and moisture!

The unit may be put into operation by trained electricians only or by persons instructed in the potential dangers. The above mentioned persons must have read the operating instructions and must follow the instructions, notes and safety advice.

Disconnect the units properly from the voltage supply and dry if they have become wet or moist.

5.1

Putting into operation



ATTENTION!

The setting under item 6 should be completed within 10 s, as otherwise a protective relay will switch off the high-voltage. The signaling lamp flashes to indicate this status. Continue adjusting the setting according to item 6 after pressing the reset pushbutton.

Preconditions:

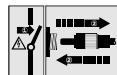
The charging generator and the charging units must be connected correctly.

1. Put changeover switch for pulsed/continuous operation into required position.
2. Turn operating potentiometer high-voltage (see page 9, figure 2, item 10) to the extreme left (minimum).
3. Turn operating potentiometer current threshold (see page 9, figure 2, item 9) to the extreme right (maximum).
4. Switch on the unit at the mains switch (see page 9, figure 2, item 12). The green lamp will light up for confirmation.
5. Set operating potentiometer high voltage to desired value. The voltage measuring instrument (see page 9, figure 2, item 6) will now show the set voltage.
6. Do not turn the operating potentiometer current threshold towards minimum until the process is running, until the indicator lamp (see page 9, figure 2, item 8) lights up. Then turn slightly back towards maximum until the indicator lamp extinguishes. The current measuring instrument (see page 9, figure 2, item 7) will indicate the current.

5.2

Instructions for setting the high-voltage

The output voltage depends on the current load. This is why the voltage increases if an existing counter-electrode is covered with insulating material.

6**Remedy of defects****WARNING!***High voltage!**Danger of fatal accidents!***WARNING!***Only plug in/unplug coaxial connector
when the unit is switched off!*

Any remedy of defects must be carried out by trained electricians only. The above mentioned person must have read the operating instructions and must follow the instructions, notes and safety advice.

6.1 Troubleshooting

Faults	Testing	Measures
Mains switch does not light up when unit is switched on	Check mains voltage	
	Check mains connection	
	Check the fuse	Replace defective fuse (see page 17, section 7.1)
Charging generator does not deliver any voltage	Voltage measuring instrument does not indicate voltage	Set operating potentiometer high voltage (see page 9, figure 2, item 10) to maximum
	Yellow indicator lamp flashing	Push reset button (see page 9, figure 2, item 8)
Charging generator switches off after approximately 10 s	Yellow indicator lamp lights up	Turn operating potentiometer current threshold (see page 9, figure 2, item 9) to higher setting

7**Maintenance and repairs*****WARNING!****High voltage!**Danger of fatal accidents!*

This unit does not include any parts which can be maintained or repaired by the operator. HAUG only is authorized to repair or calibrate the unit.

Should the unit prove defective or if a defect is suspected, switch off unit immediately and secure against subsequent reuse.

7.1**Changing the fuse**

- 1 Switch off unit.
- 2 Determine and remove the cause for the blown fuse.
- 3 Detach the fuse holder using a screwdriver and lift out.
- 4 Replace fuse and reattach fuse holder.
- 5 Use the following fuses only:

Use the following fuses only:

Unit type	Fuse
115 V positive/negative	2,50 A slow, 5 x 20 mm
230 V positive/negative	1,25 A slow, 5 x 20 mm

The unit type and the rated voltage are indicated on the nameplate.
Only use fuses of the type indicated.

7.2**Accessories**

Article	Order number
Circular plug	X - 0616
Right-angle plug	X - 5718
Signalling line K1 (incl. plug, assembled)	5 m shielded
Signalling line K1 (incl. plug, assembled)	10 m shielded
Signalling line K1 (incl. plug, assembled)	20 m shielded

8 Technical data

8.1 Characteristics and specification

Reference temperature 23 °C

High-voltage terminals	2 HAUG High-voltage terminals (type ALW)
High-voltage	$U = \text{approx. } 40 \text{ kVDC}$
Short-circuit current	$I_k \leq 4,5 \text{ mA}$
Pulse / Signalling connection	Contact load max. 24 VAC/35 VDC, max. 50 mA
Max. pulse frequency	1 Hz

8.2 Supply voltage

Type	Nominal value	Operating range	Frequency range	Power input
HW 30	115 V / 230 V	$\pm 10 \text{ \%}$	50 - 60 Hz	$P_{\max} = 60 \text{ VA}$

8.3 Ambient conditions

Ambient temperature:	
Rated application range	+5 °C to +45 °C
Extreme range for storage and transport	-15 °C to +60 °C
Humidity:	
Rated application range	20 % to 65 % RF
Extreme range for storage and transport	0 % to 85 % RF
Air pressure:	
Rated application range	800 mbar to 1060 mbar
Vibrations:	
Extreme range for storage and transport	max. 1.5 g (10 to 55 Hz), 1 h
Shock	max. 15 g in each direction
Recommended service position:	vertical, supply cable downwards

8.4 Housing

Protection type	IP 54
Protection class	I
Mains connection	approx. 2,6 m fixed on unit
Dimensions:	
Height	approx. 345 mm
Width	approx. 370 mm
Depth	approx. 162 mm
Weight:	approx. 13 kg

9

Disposal

Observe and maintain national and regional waste disposal regulations for the disposal of the unit!

Notes:

Notes:



made by



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