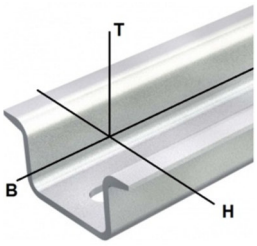
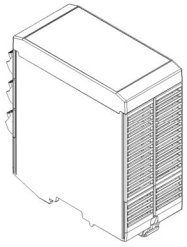
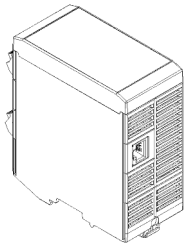
PowerSupplyIonizer

230V power supply for ionization system

The PowerSupplyIonizer is a power supply for ionization systems with a 24V AC supply voltage. This power supply was specially designed for the operation of ionizers of the DigitalAeroBar Model 5225S from SIMCO-ION.
Thanks to the power supply, it is now easily possible to operate up to 12 ionizers, evaluate the common alarm contact and monitor the failure of one or more ionizers. The alarm contact and the failure of an ionizer are monitored accordingly by the power supply in order to be able to generate discrete signals that can be evaluated by the PLC.
There are two variants of the power supply available, both of which are identical in terms of function and structure. However, what differs is the connection point for the ionization system. The first variant has connection terminals, the second has an RJ45 socket. Further information can be found under technical data electrical, PIN assignment and the connection principle.







Key commercial data

Packing unit	1 pc
Weight per piece (excluding packing)	575g
Weight per piece (including packing)	600g
Country of origin	Germany

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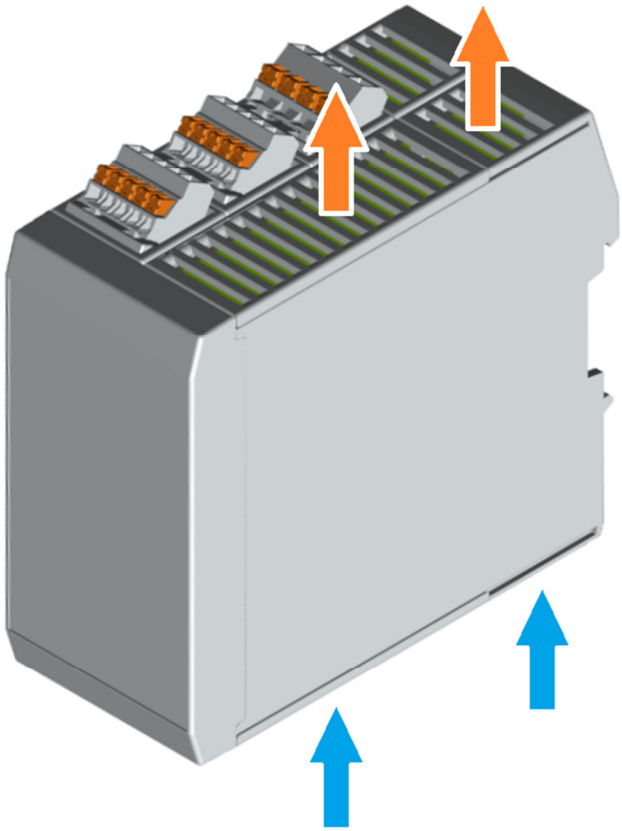
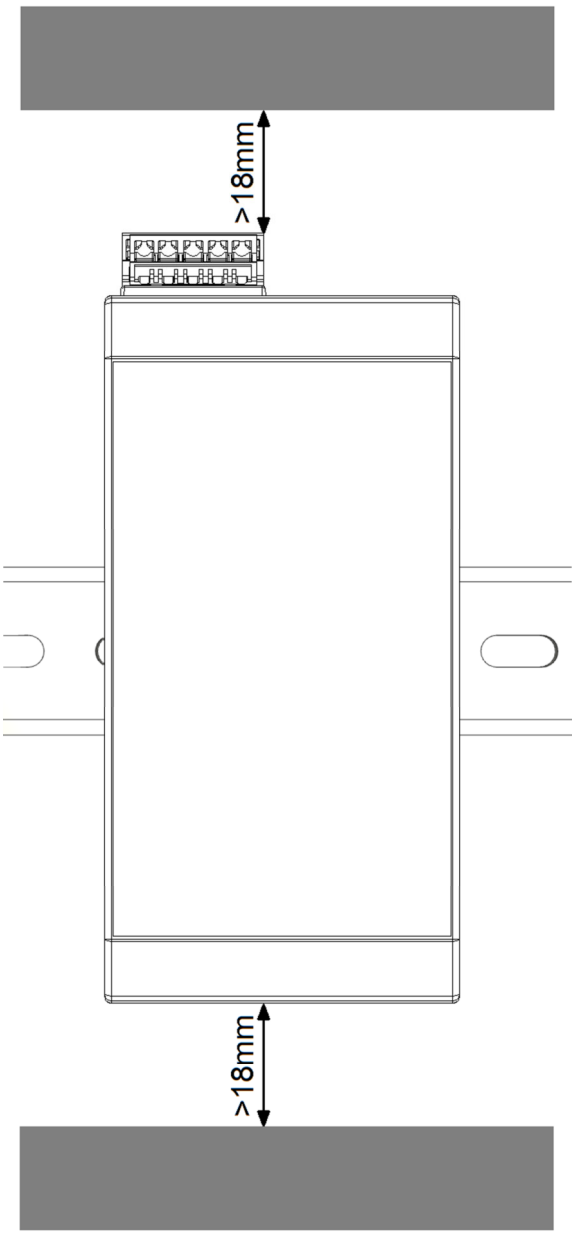
Technical data mechanically

Width (W)	50mm
Height (H)	110mm
Depth (D)	118mm
Ambient temperature (operation)	0°C … 40°C
Ambient temperature (storage/transport)	-20°C … 70°C
Relative humidity	90% without condensation
Mounting position	horizontal



depending on the type, the illustration may vary



Technical data electric

Nominal voltage U_{1N} – Input side	1~ 230V AC (± 2%)
Nominal frequency f_N	50 / 60Hz
Nominal current I_{1N} – Input side	max 100mA
Nominal apparent power S_{1N} – Input side	max 16VA
Nominal voltage U_{2N} – Output side	24V AC
Nominal current I_{2N} – Output side	max 530mA
Nominal power P_{2N} – Output side	max 13W
No-load voltage U_L – Output side	30V AC
Number of max ionizers Model 5225S	12 pcs
Transformer type	Block VCM 16/1/24
Transformer classification	Safety isolating transformer
Efficiency	76%
No-load loss	typ. 1,8W
Protection class	IP20
Connection data connectors X1/X2	
Connection type	Push-in spring connection
Conductor cross section solid	0,25mm^2 … 1,5mm^2
Conductor cross section flexible	0,25mm^2 … 1,5mm^2
Conductor cross section with ferrule, without plastic sleeve	0,25mm^2 … 1mm^2
Conductor cross section with ferrule, with plastic sleeve	0,25mm^2 … 0,75mm^2
Stripping length	10mm
Connection data connectors X3	
Connection type	Push-in spring connection
Conductor cross section solid	0,25mm^2 … 2,5mm^2
Conductor cross section flexible	0,25mm^2 … 2,5mm^2
Conductor cross section with ferrule, with/ without plastic sleeve	0,25mm^2 … 2,5mm^2
Conductor cross section with TWIN-ferrule, with plastic sleeve	0,5mm^2 … 1,5mm^2
Stripping length	10mm
Connection data connectors X4	
Connection type	RJ45 connector

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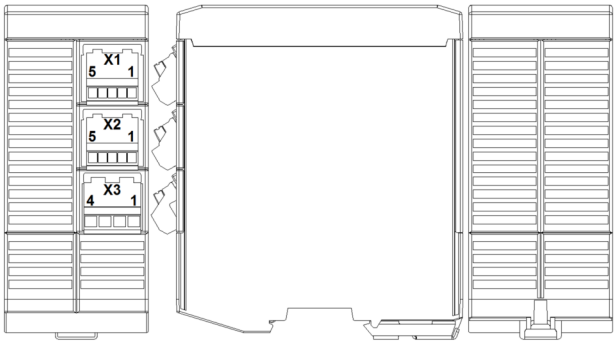
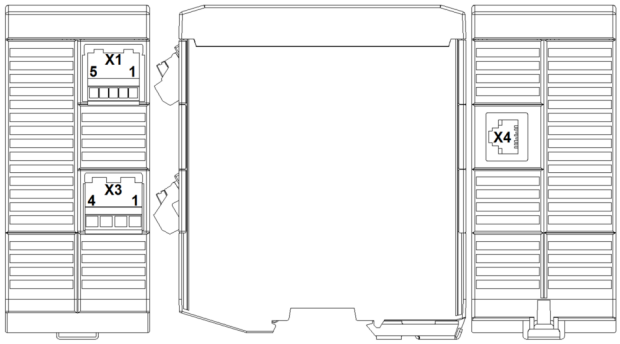
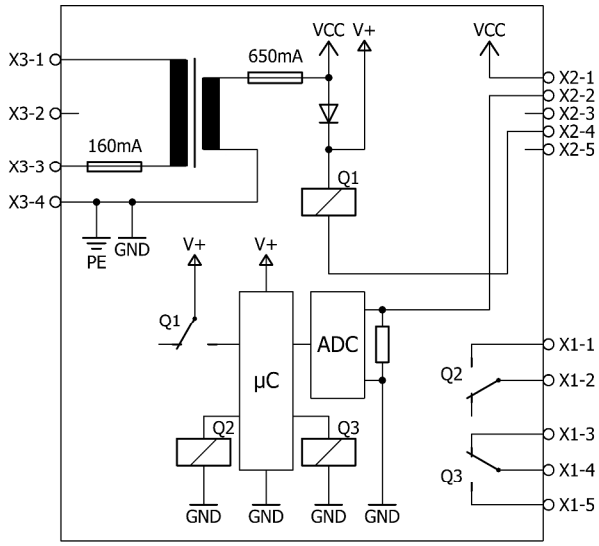
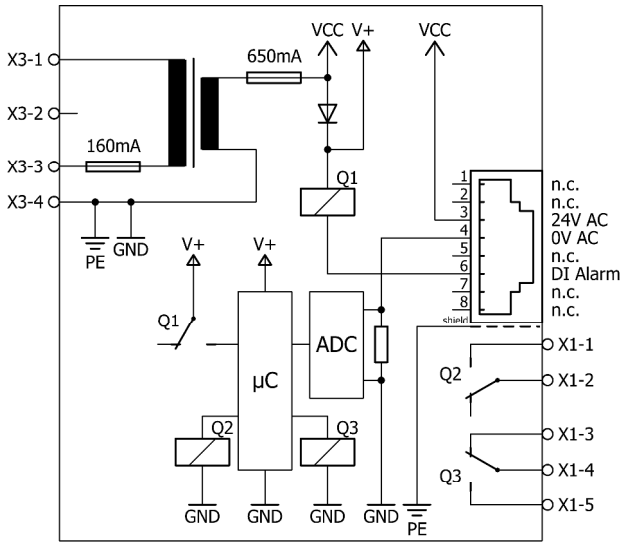
Standards and Regulations

Standards/regulations	EN IEC 61000-6-2: 2019
	EN 61000-6-3: 2007 +A1:2011 +AC:2012
	EN 50178: 10/97

PIN assignment

PowerSupplyIonizerTerminal	PowerSupplyIonizerRJ45
	
	
X1-1: DQ Error Ionizer X1-2: DQ Error Ionizer X1-3: DQ Error Load Monitoring X1-4: DQ Error Load Monitoring X1-5: DQ Error Load Monitoring X2-1: 24V AC X2-2: 0V AC X2-3: n.c. X2-4: DI Alarm X2-5: n.c. X3-1: 230V N X3-2: n.c. X3-3: 230V L X3-4: PE	X1-1: DQ Error Ionizer X1-2: DQ Error Ionizer X1-3: DQ Error Load Monitoring X1-4: DQ Error Load Monitoring X1-5: DQ Error Load Monitoring X3-1: 230V N X3-2: n.c. X3-3: 230V L X3-4: PE

Functionality of the device

Power supply	Status LED green	Error LED red	Contact Q2 X1-1/2	Contact Q3 X1-4/5	Function
0V AC	●	●	-		Normal
230V AC	●	●	-		Error

 Subject to change without notice

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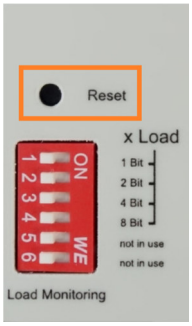
230V AC	●	☀	-	⌒	Error
230V AC	☀	●	-	⌒	Normal

Error condition	Status LED green	Error LED red	Contact Q2 X1-1/2	Contact Q3 X1-4/5	Function
At least one ionizer has an error.	☀	☀	delay 5s	-	Normal
At least one ionizer is not connected, has failed or has not been registered correctly with the power supply.	☀	200ms	-	delay 12s	Normal
The power supply is loaded with a nominal current I_{2N} that is too high on the output side.	☀	100ms	-	delay 2s	Normal
There is no error.	☀	●	⌒	⌒	Normal

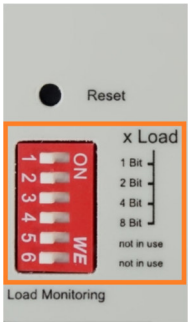
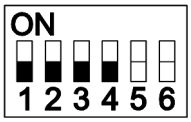
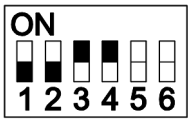
Function Normal:
The function of the device lies in its specified parameters.

Function Error:
The device is defective and should be replaced.

● LED does not light
☀ LED lights up green
☀ LED lights up red
☀ LED flashes



If the device has an error, a reset by pressing it with a ballpoint pen or similar may help. If the device error persists after a reset and turning off the power, the device should be replaced.

	If the DIP switches 01 to 04 are in the “OFF” switch position, then the load monitoring is deactivated. The monitoring off too high nominal current I_{2N} on the output side will not be deactivated.	
	Using DIP switches 01 to 04, the number of ionizers that are powered by the power supply can be registered. The number can be set from 1 to 12 using the DIP switches. If the DIP switch setting results in a value greater than 12, the value 12 will still be used. The DIP switches 05/06 are not in use.	
DIP switch 01 in switch position “ON” number+1; DIP switch 02 in switch position “ON” number+2 DIP switch 03 in switch position “ON” number+4; DIP switch 04 in switch position “ON” number+8		

Safety regulations and installation notes

	Before startup please ensure: • Only skilled persons may install, start up and operate the device. • Observe the national safety and accident prevention regulations.
	WARNING: Danger to life by electric shock! • Never carry out work when voltage is present. • Establish mains connection correctly and ensure protection against electric shock. • The device must be switched off outside the power supply in accordance with the regulations of EN 60950-1 (e.g. by means of line protection on the primary side). • Cover termination area after installation in order to avoid accidental contact with live parts (e.g. installation in control cabinet). • Protect the device against foreign bodies penetrating it.
	NOTE: Danger if used improperly! • The device is a built-in device. • The IP20 degree of protection (IEC 60529/EN 60529) of the device is intended for use in a clean and dry environment. Do not subject the device to any load that exceeds the described limits. • Observe mechanical and thermal limits. • Ensure that the primary-side wiring and secondary-side wiring are the correct size and have sufficient fuse protection.
	• It is not permissible to open or modify the device. Do not repair the device yourself but replace it with an equivalent device. Repairs may only be carried out by the manufacturer. The manufacturer is not liable for damage resulting from violation. • The device may only be used for its intended use.

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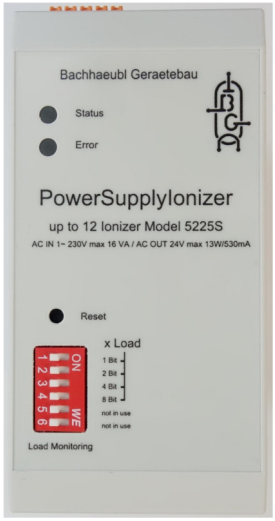
Pictures



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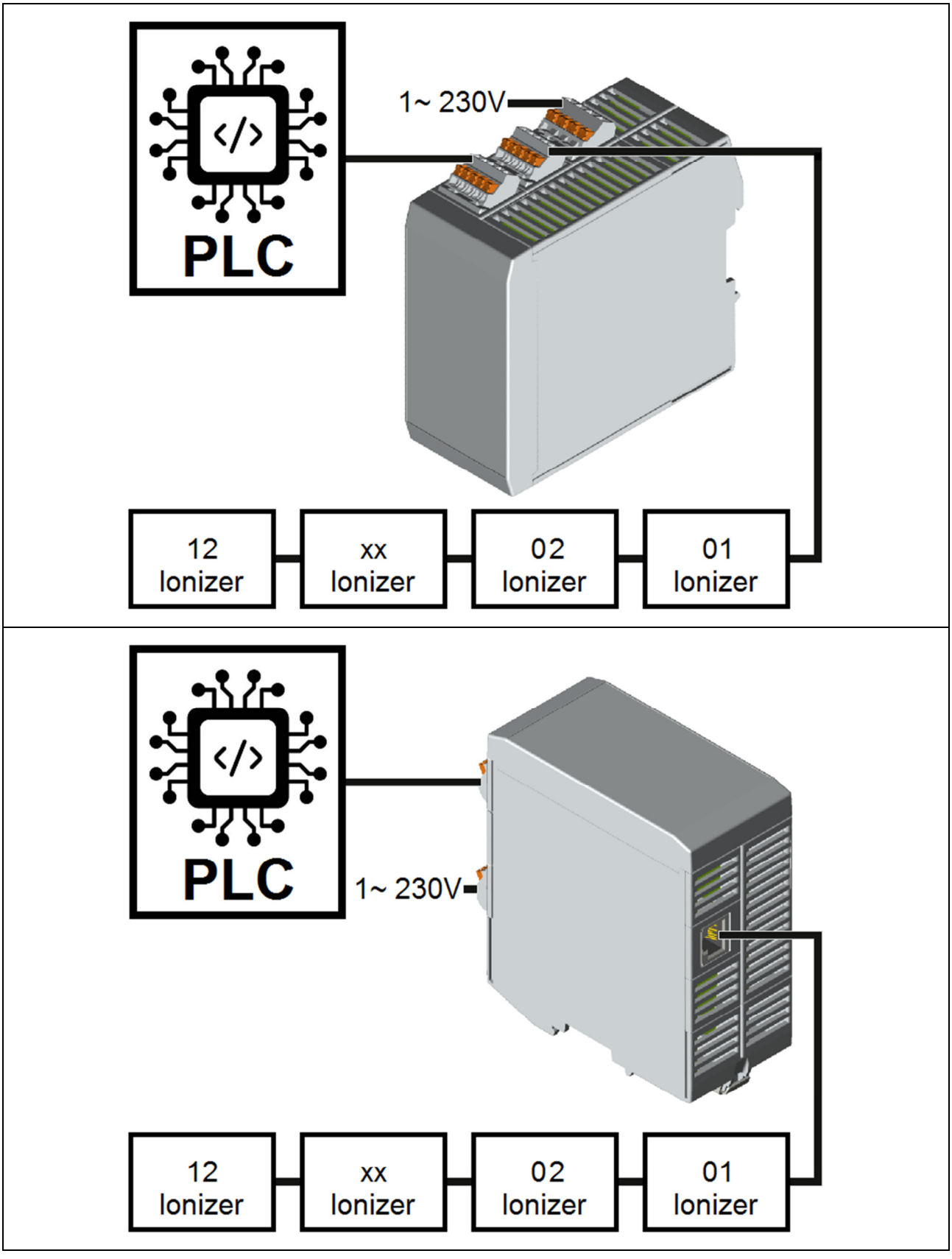
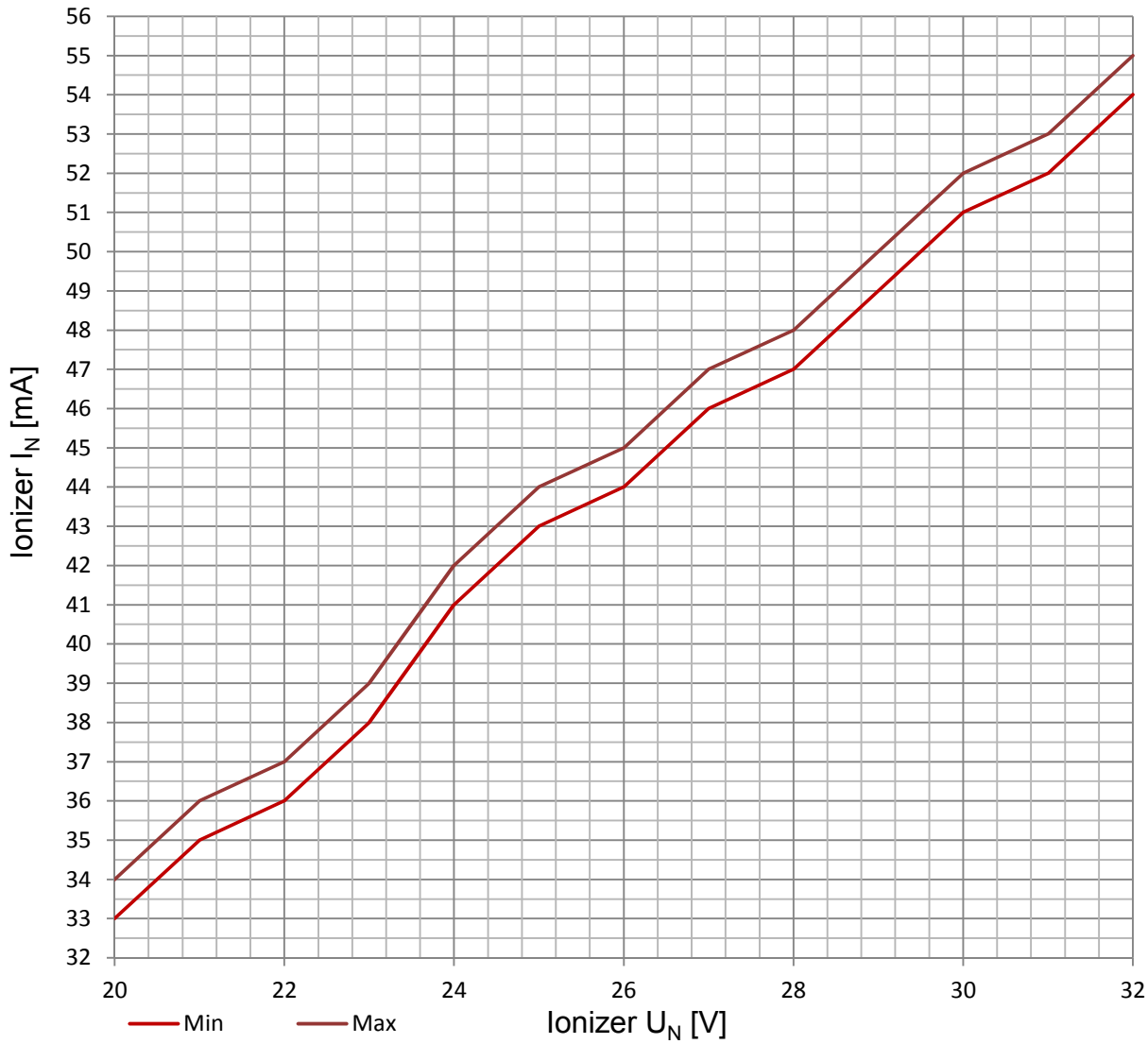
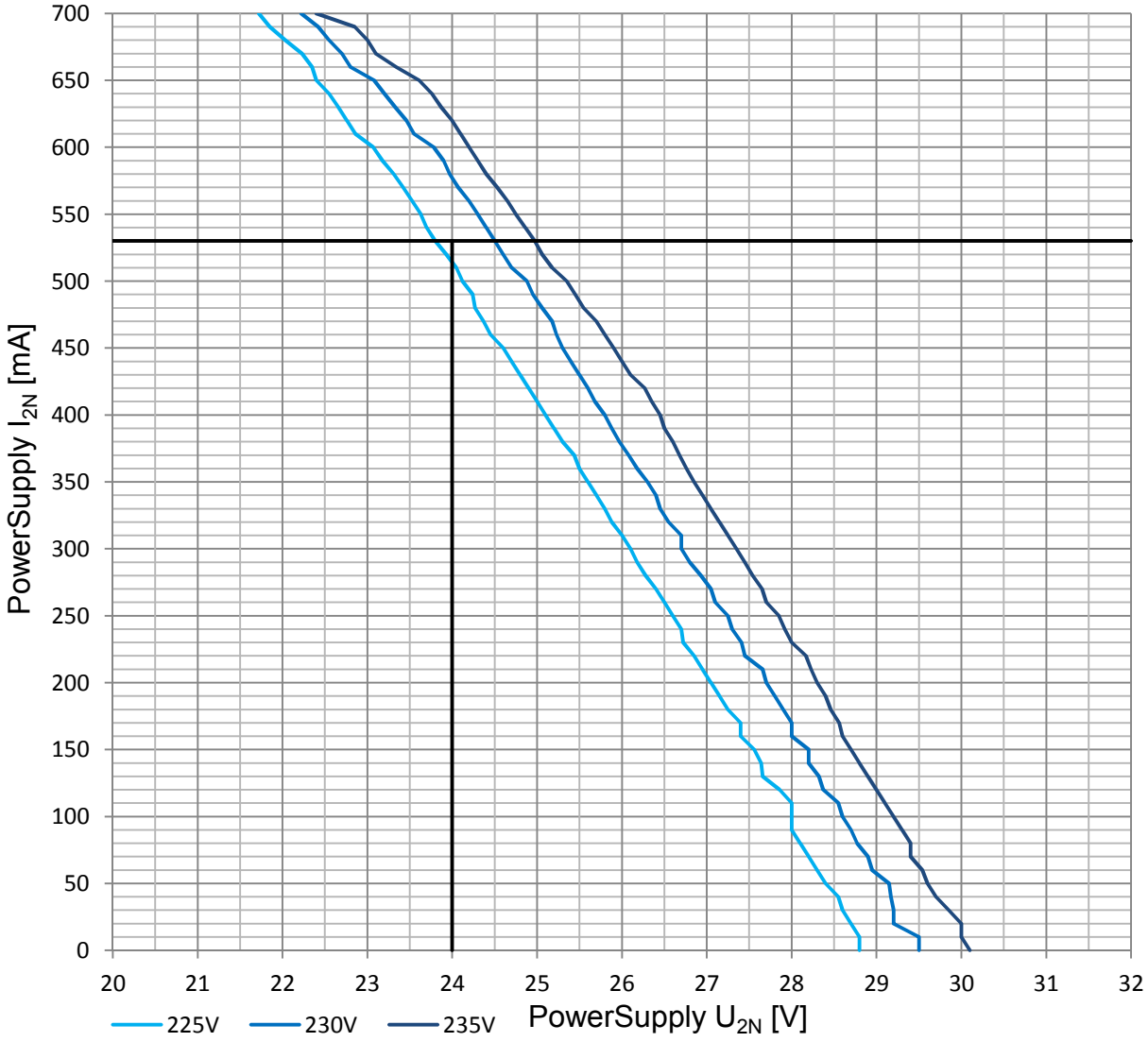
Connecting principle



Diagram



The diagram shows the nominal current of an ionizer Model 5225S depending on the nominal voltage. Due to the fact that the nominal current fluctuated greatly when the series of measurements was taken, there are two characteristics (Min, Max).



The diagram shows the nominal voltage U_{2N} of the power supply depending on the load current I_{2N}.