

Datasheet

**High Voltage Power Supply of the device class
HPS (LPS) 2nd Generation, 6 kW, 19"**



Attention

The unit must not be operated with the cover removed to avoid the possibility of lethal shock to the operator!

There are no user maintainable parts inside the power supply!

Unit may only be operated with protective ground conductor connected.

We decline all responsibility for damages and injuries caused by an improper use of the device. It is strongly recommended to read the manual before operation!

All information in this document is subject to change without notice. We take no responsibility for any error in this document. We reserve the right to make changes in the product design without any notification to the users.

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Technical data

Device class

Table 1: Technical data, device class

Device class HPS(LPS) 2 nd Generation, 6 kW, 19“								
Output power P _{nom} [kW]		6						
Output voltage V _{nom} [kV]		1	2	3	5	6	10	20
Output current I _{nom} [A]		6 (10) ⁴⁾	3 (5) ⁴⁾	2 (3.4) ⁴⁾	1.2 (2) ⁴⁾	1 (1.7) ⁴⁾	0.6 (1) ⁴⁾	0.3 (0.5) ⁴⁾
HV-connector		GES 11 HBT ¹⁾	LEMO PSA.3S.CTA.C62 ¹⁾					GES 21 HBT ¹⁾
Polarity		x, n → negative or p → positive						
Efficiency		> 90% (V _{in} = 400 V, P _{nom})						
Ripple and noise (HPS)		Voltage control: Δv < 0.5% * V _{nom} ¹⁾ Current control: Δi < 1% * I _{nom} ¹⁾						
Stability		Δv < 0.1% * V _{nom} (for 8 h with constant conditions, after ½ h warmup)						
Voltage regulation		Δv < 0.1% * V _{nom} (ΔV _{in} , 0 ≤ I _{out} ≤ I _{nom})						
Current regulation		Δi < 0.1 % * I _{nom} (ΔV _{in} , 0 ≤ V _{out} ≤ V _{nom})						
Accuracy		Voltage: < 1% * V _{nom} ¹⁾ for one year current: < 1% * I _{nom} ¹⁾ for one year						
Temperature coefficient		<2 * 10 ⁻⁴ /K ¹⁾						
Control (local, FP)		Optional front panel operation via rotary encoders and displays (LCD)						
Remote control (all interfaces are electrically isolated)	AIO	Analogue signals			Level 0 V – 5 V			
		Digital signals			Low level 0 V - 4 V High level 8 V - 15 V or open			
	USB	Via USB Interface						
	SPS	Optional, separation of analogue (AIO) und digital (DIO) output signals ²⁾						
	RS232	Optional, via RS232 Interface ²⁾						
	CAN	Optional, via CAN Interface ²⁾						
	IEEE	Optional, via IEEE Interface ²⁾						
	Ethernet	Optional, via Ethernet Interface ²⁾						
	Supply		V _{in} = 3 x 400 V – AC ± 10% I _{in} < 15 A (V _{in} = 360 V, P _{nom}) Line frequency 47 Hz < f _i < 63 Hz Internally fused with circuit breaker 3 x 16 A with medium characteristic Inrush current approx. 15 A					
Cooling		Forced cooling with integrated fans (≤ 360 m³/h)						
Monitoring		ARC, three phase mains voltage, auxiliary voltage, over voltage, temperature, Interlock						
ARC-Management with adjustable parameters		ARC-Wait, ARC-Number, ARC-Time, ARC-Ramp-Time						
ARC-current limitation (ACL)		Optional, limitation of the output current during an ARC to less than 5 A, available only at an output voltage of 10 kV ¹⁾³⁾						

Table 2: Continuation: technical data, device class

Device class HPS(LPS) 2 nd Generation, 6 kW, 19"		
Working conditions		Temperature: 0°C to 50 °C Humidity: 20% to 90%, no condensation
Storage conditions		Temperature: -25°C to 80 °C Humidity: 20% to 90%, no condensation
Electromagnetic compatibility	Emission	EN 55011 (curve A)
	Immunity	EN 61000 4-2, EN 61000 4-3, EN 61000 4-4, EN 61000 4-8
Safety standard		EN 61010-1 (VDE 0411)
Dimensions, Weight		1 kV ≤ V _{nom} ≤ 10 kV: 4U –19" depth: 500 mm, ca. 26 kg V _{nom} = 20 kV: 4U –19" depth: 500 mm, ca. 32 kg
Series LPS		Very low output voltage overshoot
HV outputs		Standard 1 HV output Optional 2 HV outputs ¹⁾
Current measurement of two HV outputs (2HC)		Optional, 2 HV outputs with additional current measurement of both HV outputs Available up to 10 kV output voltage ^{1), 3)}
Extended operating area		Optional, constant power operation within specified limits
Electrically isolated return of the high voltage		Potential difference between return conductor and protective ground up to ± 200 V ¹⁾

¹⁾ other values on request

²⁾ not all interfaces can be combined

³⁾ a combination out of the options ACL and 2HC increases the height of the device to 6 HE

⁴⁾ value in parentheses corresponds to the maximum output current at the option extended operating range

Electrical wiring of the high voltage output

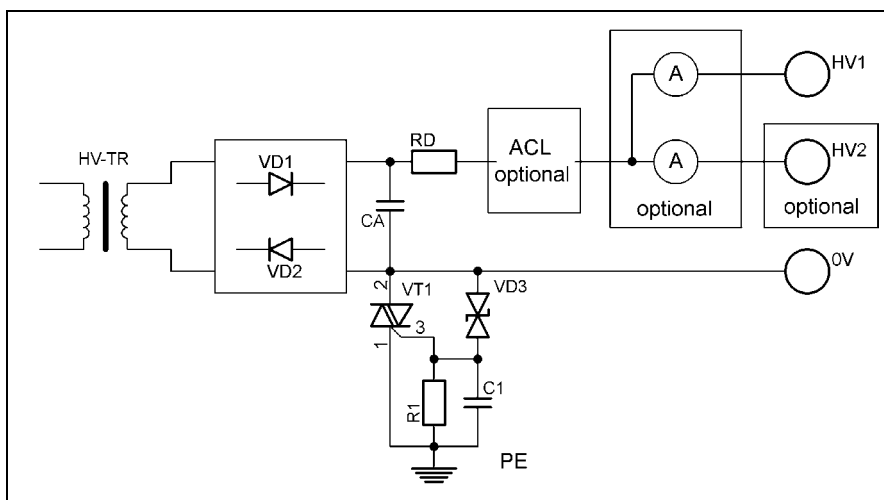


Figure 1: Electrical wiring of the high voltage output

Dimensions

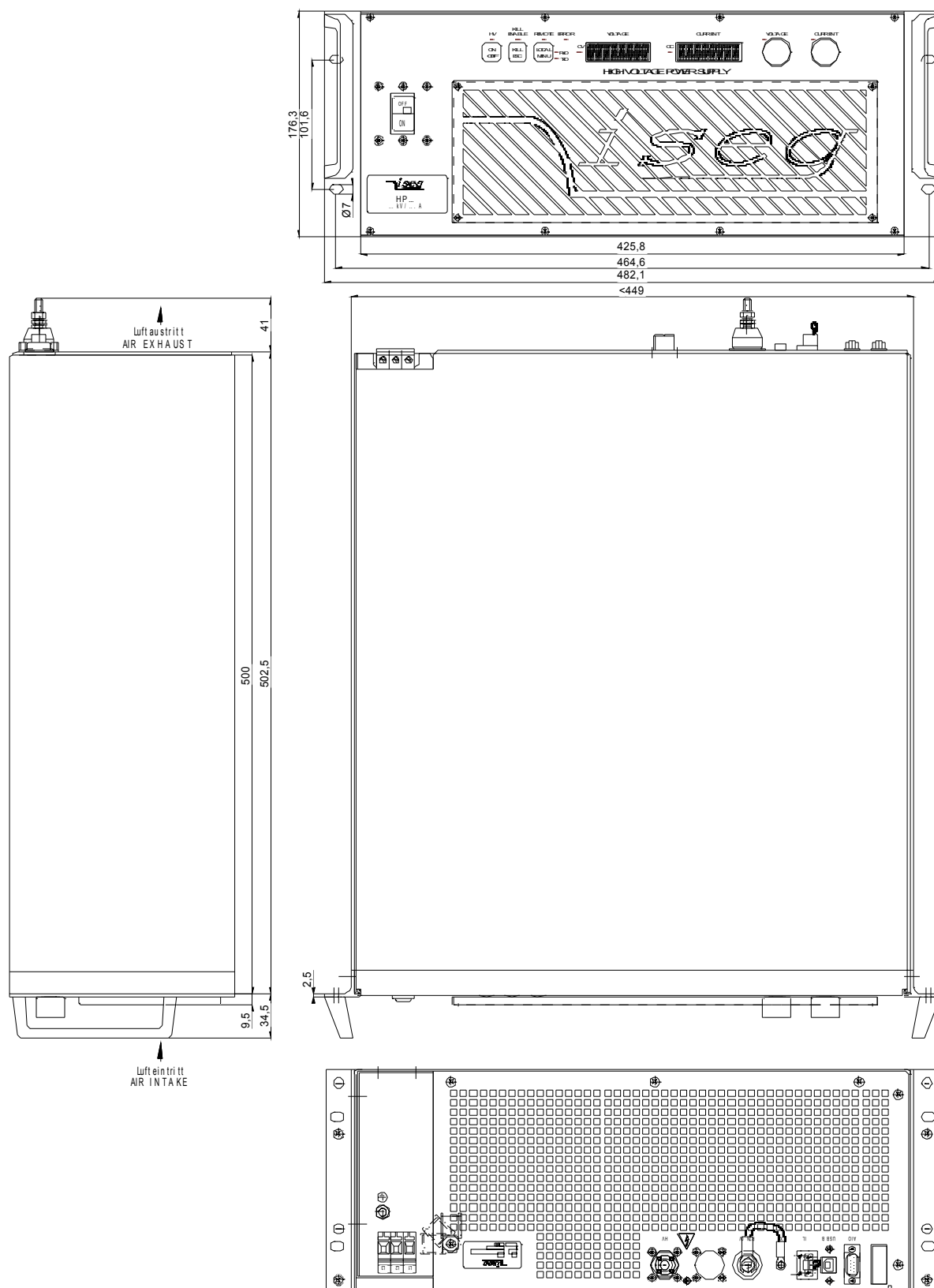


Figure 2: Dimensioned drawing (in mm), standard version of the rear panel