

# Datasheet

## High Voltage Power Supply of the device class HPS, 3 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, 3 kW, 19“										
Output power $P_{nom}$ [kW]	3									
Output voltage $V_{nom}$ [kV]	1	2	3	4	5	6	8			
Output current $I_{nom}$ [mA]	3000	1500	1000	750	600	500	375			
HV-connector	SHV						LEMO PSA.3S.CTA.C62			
Output voltage $V_{nom}$ [kV]	12	15	20	30	40	50	60	80	100	
Output current $I_{nom}$ [mA]	250	200	150	100	75	60	50	38	30	
HV-connector	GES 21 HBT			GES HB40		GES B160		GESB1100		
Efficiency	> 92% ( $V_{in} = 230\text{ V}$ , $P_{nom}$ )									
Ripple and noise	Voltage control: $\Delta v < 0.5\% * V_{nom}^{1)}$ Current control: $\Delta i < 1\% * I_{nom}^{1)}$									
Stability	$\Delta v < 0.1\% * V_{nom}$ (for 8 h with constant conditions, after ½ h warmup)									
Voltage regulation	$\Delta v < 0.1\% * V_{nom}$ ( $\Delta V_{in}$ , $0 \leq I_{OUT} \leq I_{nom}$ )									
Current regulation	$\Delta i < 0.1\% * I_{nom}$ ( $\Delta V_{in}$ , $0 \leq V_{OUT} \leq V_{nom}$ )									
Accuracy	Voltage: < 1% * $V_{nom}$ for one year current: < 1% * $I_{nom}$ 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 <sup>2)</sup>								
	RS232	Optional, via RS232 Interface <sup>2)</sup>								
	CAN	Optional, via CAN Interface <sup>2)</sup>								
	IEEE	Optional, via IEEE Interface <sup>2)</sup>								
	Ethernet	Optional, via Ethernet Interface <sup>2)</sup>								
Supply	$V_{in} = 170\text{ V} - 264\text{ V AC (PFC)}$ $I_{in} < 20\text{ A}$ ( $V_{in} = 170\text{ V}$ , $P_{nom}$ ) Line frequency 47 Hz < $f_1$ < 63 Hz Internally fused with circuit breaker 2 x 20 A with fast characteristic Inrush current internally limited to ca. 20 A									
Cooling	Forced cooling with integrated fans ( $\leq 180\text{ m}^3/\text{h}$ )									
Monitoring	ARC, single phase mains voltage, auxiliary voltage, over voltage, temperature, Interlock									
ARC-Management with adjustable parameters	ARC-Wait, ARC-Number, ARC-Time, ARC-Ramp-Time									

Table 2: Continuation: technical data, device class

Device class HPS, 3 kW, 19"		
Working conditions		
Temperature: 0°C to 50 °C Humidity: 20% to 90%, no condensation		
Working conditions		
Temperature: -25°C to 80 °C Humidity: 20% to 90%, no condensation		
Electromagnetic compatibility	Emission	EN 55011 (curve B)
	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 <sub>nom</sub> ≤ 20 kV: 2U –19" depth: 410 mm, ca. 15 kg 30 kV ≤ V <sub>nom</sub> ≤ 60 kV: 3U –19" depth: 410 mm, ca. 20 kg 80 kV ≤ V <sub>nom</sub> ≤ 100 kV: 4U –19" depth: 550 mm, ca. 35 kg
Option Capacitor charger		Very low output voltage overshoot
HV outputs		Standard 1 HV output <sup>1)</sup>
Electrically isolated return of the high voltage		Potential difference between return conductor and protective ground up to ± 60 V <sup>1)</sup>

<sup>1)</sup> other values on request

<sup>2)</sup> not all interfaces can be combined

### Electrical wiring of the high voltage output

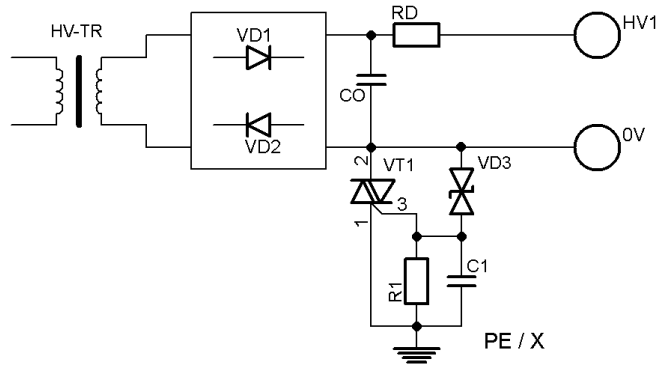


Figure 1: Electrical wiring of the high voltage output

**Dimensions**

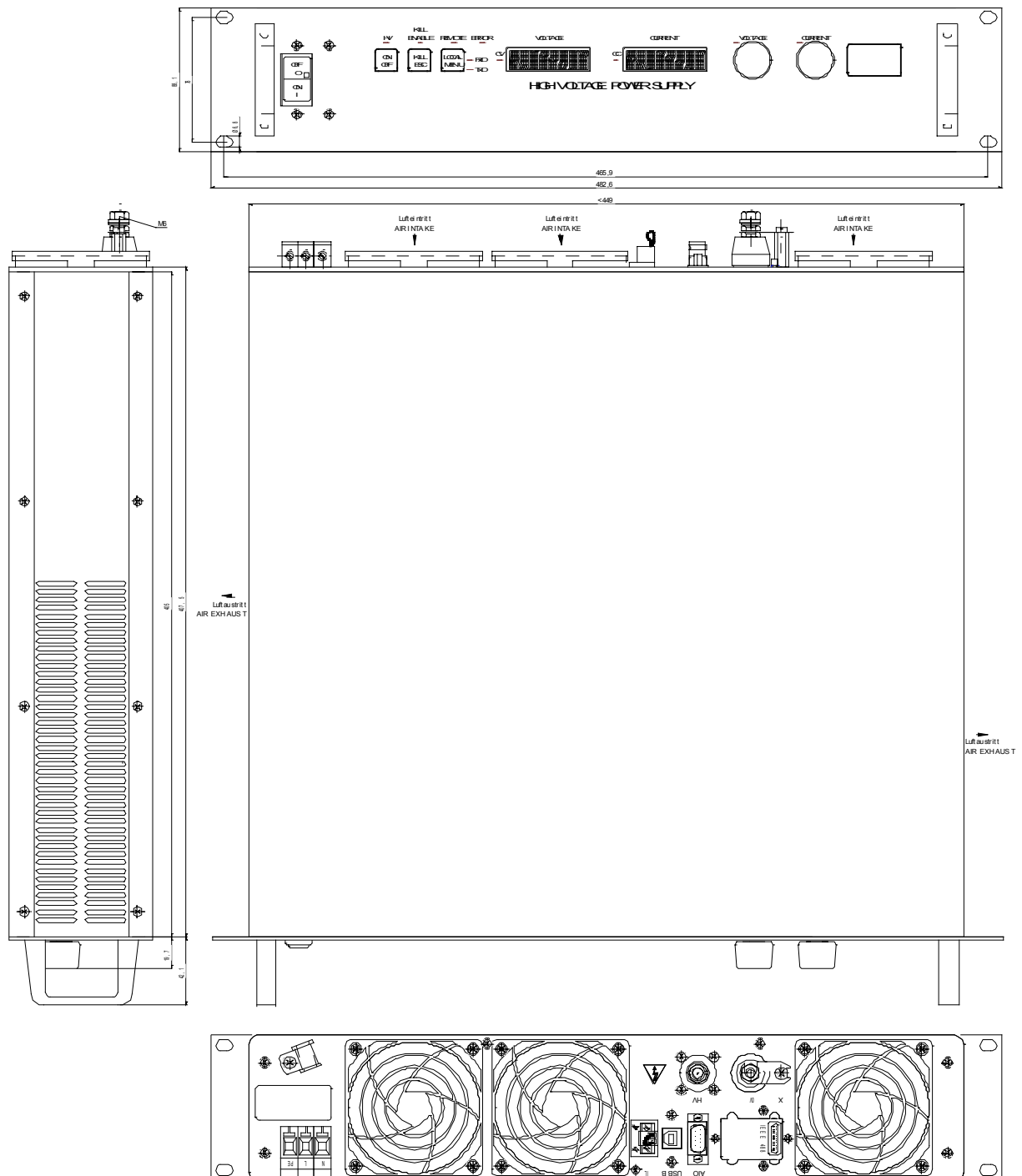
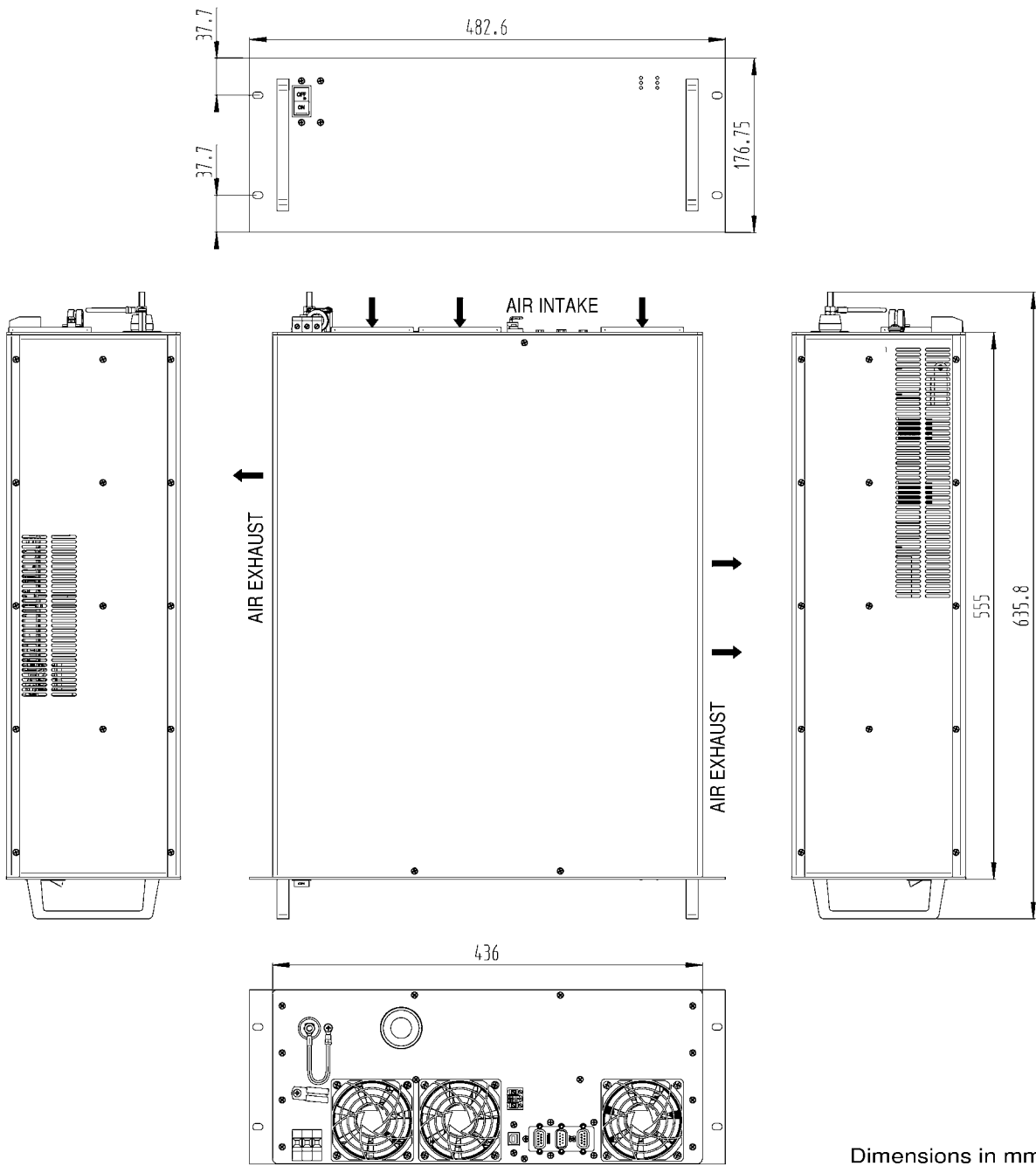


Figure 2: Dimensioned drawing (in mm), height of the device 2U



Dimensions in mm

Figure 3: Dimensioned drawing (in mm), height of the device 4U