

DIGITALLY CONTROLLABLE AC/DC HIGH VOLTAGE POWER SUPPLIES

DIGITAL STEUERBARE AC/DC HOCHSPANNUNGS-NETZGERÄTE

- ▶ 300 W - 10 kW / 1 kV - 100 kV versions
- ▶ 19" rack mountable or compact box version
- ▶ best control characteristics
- ▶ multiple interface options
- ▶ capacitor charger option (optional CLD)
- ▶ ultrafast ARC management (optional ARC/ARCpro)
- ▶ very low ripple and noise, very low EMI
- ▶ parallel operation for power increase

- ▶ 300 W - 10 kW / 1 kV - 100 kV Versionen
- ▶ 19"-Rack- oder Kompaktversionen
- ▶ hervorragende Regelcharakteristik
- ▶ vielfältige Schnittstellen-Optionen
- ▶ Kondensatorlader (optional CLD)
- ▶ ultraschnelles ARC-Management (optional ARC/ARCpro)
- ▶ sehr geringe Restwelligkeit/Rauschen und gute EMV
- ▶ Parallelbetrieb zur Leistungserhöhung



HPS devices are digital controlled AC driven high voltage power supplies with high power density at best output characteristics. The processor controlled supplies can flexibly be adapted to any kind of application by configuring many options. PWM controlled output parameters, small ripple and noise and stored energy, up to 93% efficiency and almost loss free switching of semiconductors make HPS devices the most advanced AC/DC HV power supply for industrial and research applications.

Geräte der HPS-Serie sind digital gesteuerte, netzgespeiste Hochspannungsversorgungen mit hoher Leistungsdichte und bester Leistungscharakteristik. Die prozessorgesteuerte Versorgung kann durch Optionen flexibel an eine Vielzahl von Anwendungen angepasst werden. PWM gesteuerte Ausgangsparameter, geringe Restwelligkeit und gespeicherte Energie, bis zu 93% Wirkungsgrad und fast verlustfreie Schaltung der Leistungshalbleiter machen HPS-Geräte zu den besten Hochspannungsnetzversorgungen für industrielle und Forschungsanwendungen.

SPECIFICATIONS / SPEZIFIKATION

	HPS COMPACT	HPS 300 W	HPS 800 W	HPS 1.5 kW	HPS 3 kW	HPS 6 kW	HPS 10 kW
Power	350 W	300 W	800 W	1,500 W	3,000 W	6,000 W	10,000 W
Polarity	factory fixed, positive or negative						
Ripple and noise [f > 10 Hz]	$< 2 \cdot 10^{-3} \cdot V_{nom}$	$< 1 \cdot 10^{-4} \cdot V_{nom}$ [V _{nom} ≤ 8 kV] $< 5 \cdot 10^{-4} \cdot V_{nom}$ [V _{nom} > 8 kV]		$< 3 \cdot 10^{-3} \cdot V_{nom}^{**}$	$< 5 \cdot 10^{-3} \cdot V_{nom}^{**}$	$< 9 \cdot 10^{-3} \cdot V_{nom}^{**}$	
Stability	0.02 %	0.02 %*		0.05 %*		0.05 %*	
Voltage regulation [$\Delta V_{reg} / \Delta V_{in}$]	0.02 % [V _{reg} ≥ 5 V]	0.01 % [V _{reg} ≥ 5 V]		0.01 % [V _{reg} ≥ 5 V]		0.01 % [V _{reg} ≥ 5 V]	
Temperatur coefficient				$< 2 \cdot 10^{-4} / K$			
Supply voltage	85 - 264 VAC with PFC			170 VAC - 264 VAC with PFC		3 x 400 VAC ± 10%	
Efficiency		up to 85%		up to 93%		up to 93%	
Switching frequency		30 - 70 kHz		80 - 130 kHz	70 - 90 kHz	60 - 80 kHz	
Set / monitor voltage	-	opt. 0 - 5 V		0 - 5 V opt. 0 - 10 V			
Protection	overload, ARC and short circuit protected, INTERLOCK, INHIBIT, overvoltage/overtemp protection						
ARC Management		optional: ARC		ARC optional: ARCpro		ARC optional: ARCpro	
Interfaces	USB, CAN, opt.: IEEE488.2 Ethernet, RS232	USB, CAN, opt.: IEEE488.2 Ethernet, RS232, AIO isolated		USB, AIO isolated, opt: IEEE 488.2, Ethernet, RS232, CAN, SPS (0-10V)			
Filament supply		not available		optional		optional	
Case	metal box	19" rack mountable		19" rack mountable			
Dimensions (L/W/H)	280/254/107 mm	410 mm / 19" / 1U		410-550 mm / 19" / 2-4U		500 mm / 19" / 4U	
* for 8h, after 0.5h warmup ** option VLN: $< 5 \cdot 10^{-4} \cdot V_{nom}$ (not available for all configurations)							

CONFIGURATIONS / KONFIGURATIONEN				
MODEL	V _{nom}	I _{nom}	HEIGHT	HV CONNECTOR
HPS COMPACT				
HPx 10 357	1 kV	350 mA	107 mm	G31
HPx 20 177	2 kV	175 mA	107 mm	G31
HPx 30 127	3 kV	120 mA	107 mm	G31
HPx 50 706	5 kV	70 mA	107 mm	G31
HPx 80 456	8 kV	45 mA	107 mm	G31
HPx 100 356	10 kV	35 mA	107 mm	G31
HPx 150 236	15 kV	23 mA	107 mm	G31
HPx 200 186	20 kV	18 mA	107 mm	G31
HPx 250 146	25 kV	14 mA	107 mm	G31
HPx 300 126	30 kV	12 mA	107 mm	G31
HPx 400 905	40 kV	9 mA	107 mm	E70
HPx 500 705	50 kV	7 mA	107 mm	E70
HPx 600 605	60 kV	6 mA	107 mm	E70
HPx 700 505	70 kV	5 mA	107 mm	E70
HPS 19" - 300 W				
HPx 10 307	1 kV	300 mA	1U	SHV
HPx 20 157	2 kV	150 mA	1U	SHV
HPx 30 107	3 kV	100 mA	1U	SHV
HPx 40 756	4 kV	75 mA	1U	SHV
HPx 60 506	6 kV	50 mA	1U	SHV
HPx 80 356	8 kV	35 mA	1U	SHV
HPx 120 256	12 kV	25 mA	1U	L16 G21
HPx 150 206	15 kV	20 mA	1U	L16 G21
HPx 200 156	20 kV	15 mA	1U	L30 G21
HPx 300 106	30 kV	10 mA	1U	L30
HPS 19" - 800 W				
HPx 10 807	1 kV	800 mA	1U	SHV
HPx 20 407	2 kV	400 mA	1U	SHV
HPx 30 257	3 kV	250 mA	1U	SHV
HPx 40 207	4 kV	200 mA	1U	SHV
HPx 60 137	6 kV	130 mA	1U	SHV
HPx 80 107	8 kV	100 mA	1U	SHV
HPx 120 656	12 kV	65 mA	1U	L16 G21
HPx 150 506	15 kV	50 mA	1U	L16 G21
HPS 19" - 1.5 kW				
HPx 10 158 152	1 kV	1.5 A	2U	SHV
HPx 20 757 152	2 kV	750 mA	2U	SHV
HPx 30 507 152	3 kV	500 mA	2U	SHV
HPx 40 387 152	4 kV	380 mA	2U	SHV
HPx 80 207 152	8 kV	190 mA	2U	L10
HPx 100 157 152	10 kV	150 mA	2U	L10
HPx 120 137 152	12 kV	125 mA	2U	G21

ORDER & OPTIONS / BESTELLINFORMATIONEN		
OPTION	ORDER INFO	EXAMPLE
Polarity	positive: x = p , negative: x = n	HP p 10 357
Capacitor charger	CLD	
ARC management	ARC (300 - 800 W) ARCpro (1.5 - 10 kW)	
Interface options	Ethernet: ETH IEEE 488: IEE RS232: RS2	
HPS 300 W / 800 W only options		
AIO isolated	AIO (0-5 V)	
Rear HV connector (SHV only)	HVR	
Note: other product configurations and customizing on request		

CONFIGURATIONS / KONFIGURATIONEN						
MODEL	V _{nom}	I _{nom}	HEIGHT/DEPTH		HV CONNECTOR	
HPx 150 107 152	15 kV	100 mA	2U	410 mm	G21	
HPx 200 756 152	20 kV	75 mA	2U	410 mm	G21	
HPx 300 506 152	30 kV	50 mA	3U	410 mm	G40	
HPx 400 386 152	40 kV	38 mA	3U	410 mm	G21	
HPx 500 306 152	50 kV	30 mA	3U	500 mm	G60	
HPx 600 256 152	60 kV	25 mA	3U	500 mm	G60	
HPx 800 206 152	80 kV	20 mA	4U	550 mm	G100	
HPx A00 156 152	100 kV	15 mA	4U	550 mm	G100	
HPS 19" - 3 kW						
HPx 10 308 302	1 kV	3 A	2U	410 mm	SHV	
HPx 20 158 302	2 kV	1.5 A	2U	410 mm	SHV	
HPx 30 108 302	3 kV	1 A	2U	410 mm	SHV	
HPx 40 757 302	4 kV	750 mA	2U	410 mm	SHV	
HPx 80 387 302	8 kV	375 mA	2U	410 mm	L10	
HPx 120 257 302	12 kV	250 mA	2U	410 mm	G21	
HPx 150 207 302	15 kV	200 mA	2U	410 mm	G21	
HPx 200 157 302	20 kV	150 mA	2U	410 mm	G21	
HPx 300 107 302	30 kV	100 mA	3U	410 mm	G40	
HPx 400 756 302	40 kV	75 mA	3U	410 mm	G40	
HPx 500 606 302	50 kV	60 mA	3U	500 mm	G60	
HPx 600 506 302	60 kV	50 mA	3U	500 mm	G60	
HPx 800 386 302	80 kV	38 mA	4U	550 mm	G100	
HPx A00 306 302	100 kV	30 mA	4U	550 mm	G100	
HPS 19" - 6 kW						
HPx 10 608 602	1 kV	6 A	4U	500 mm	G11	
HPx 20 308 602	2 kV	3 A	4U	500 mm	L10	
HPx 30 208 602	3 kV	2 A	4U	500 mm	L10	
HPx 40 158 602	4 kV	1.5 A	4U	500 mm	L10	
HPx 50 128 602	5 kV	1.2 A	4U	500 mm	L10	
HPx 60 108 602	6 kV	1 A	4U	500 mm	L10	
HPx 80 757 602	8 kV	750 mA	4U	500 mm	L10	
HPx 100 607 602	10 kV	600 mA	4U	500 mm	L10	
HPx 200 307 602	20 kV	300 mA	4U	500 mm	G21	
HPS 19" - 10 kW						
HPx 10 109 103	1 kV	10 A	4U	500 mm	G11	
HPx 20 508 103	2 kV	5 A	4U	500 mm	L10	
HPx 30 348 103	3 kV	3.4 A	4U	500 mm	L10	
HPx 40 258 103	4 kV	2.5 A	4U	500 mm	L10	
HPx 50 208 103	5 kV	2 A	4U	500 mm	L10	
HPx 60 178 103	6 kV	1.7 A	4U	500 mm	L10	
HPx 80 138 103	8 kV	1.3 A	4U	500 mm	L10	
HPx 100 108 103	10 kV	1 A	4U	500 mm	L10	
HPx 200 507 103	20 kV	500 mA	4U	500 mm	G21	

HPS 1.5 kW / 3 kW / 6 kW / 10 kW only options	
Front panel operation with LCD	FP
Interface options	CAN SPS
Very low noise: $< 5 \cdot 10^{-4} \cdot V_{nom}$ (*not available for all configurations)	VLN
ARC current limitation	ACL
Two HV output connectors	2HC
Integrated filament supply	FCS
Integrated magnet supply	MCS
NEW Higher voltage stability: $< 1 \cdot 10^{-4} \cdot V_{nom}$ (*not available for all configurations)	HVS
Extended operating area	EOA