HPS

DIGITALLY CONTROLLABLE AC/DC HIGH VOLTAGE POWER SUPPLIES

- 300 W - 10 kW / 1kV - 100 kV versions
- 19" rack mountable
- Best control characteristics
- Multiple interface options
- Capacitor charger option (CLD)
- ARC management
- Very low ripple and noise, very low EMI
- Parallel operation for power increase

AIO DIO CLD CUSTOM

HPS devices are digitally 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 85% efficiency and almost loss free switching of semiconductors makes HPS devices the most advanced AC/DC HV power supply for industrial and research applications.

SPECIFICATIONS

	HPS 300 W	HPS 800 W
Power	300 W	800 W
Polarity	factory fixed, positive or negative	factory fixed, positive or negative
Efficiency	up to 80%	up to 85%
Ripple and noise [f >10 Hz]	$< 1 \bullet 10^{-4} \bullet V_{nom}$ [$V_{nom} \leq 8$ kV] $< 5 \bullet 10^{-4} \bullet V_{nom}$ [$V_{nom} > 8$ kV]	$< 1 \bullet 10^{-4} \bullet V_{nom}$ [$V_{nom} \leq 8$ kV] $< 5 \bullet 10^{-4} \bullet V_{nom}$ [$V_{nom} > 8$ kV]
Stability	0.02 % V_{nom} *	0.02 % V_{nom} *
Voltage regulation [$\Delta V_{out} / \Delta V_{in}$]	0.01 % [$V_{out} \geq 5$ V]	0.01 % [$V_{out} \geq 5$ V]
Temperatur coefficient	< 200 ppm / K	< 200 ppm / K
Supply voltage	85 - 264 VAC with PFC	85 - 264 VAC with PFC
Switching frequency	30 - 70 kHz	30 - 70 kHz
Set / monitor voltage	optional 0 - 5 V	optional 0 - 5 V
Protection	overload, ARC and short circuit, INTERLOCK, INHIBIT, overvoltage/overtemp	overload, ARC and short circuit, INTERLOCK, INHIBIT, overvoltage/overtemp
ARC management	ARC	ARC
Filament supply	not available	not available
Interfaces	USB, CAN, IEEE488.2 ** Ethernet **, RS232 **, AIO isolated **	USB, CAN, IEEE488.2 ** Ethernet **, RS232 **, AIO isolated **
Case	19" rack mountable	19" rack mountable
Dimensions (L/W/H)	410 mm / 19"/ 1U	410 mm / 19"/ 1U

*) for 8h, after 0.5h warmup **) optional

CONFIGURATIONS

MODEL	V_{nom}	I_{nom}	HV CONNECTOR
HPS 19" - 300 W			
HPx 10 307	1 kV	300 mA	SHV
HPx 20 157	2 kV	150 mA	SHV
HPx 30 107	3 kV	100 mA	SHV
HPx 40 756	4 kV	75 mA	SHV
HPx 60 506	6 kV	50 mA	SHV
HPx 80 356	8 kV	35 mA	SHV
HPx 120 256	12 kV	25 mA	L16 | G21
HPx 150 206	15 kV	20 mA	L16 | G21
HPx 200 156	20 kV	15 mA	L30 | G21
HPx 300 106	30 kV	10 mA	L30
HPS 19" - 800 W			
HPx 10 807	1 kV	800 mA	SHV
HPx 20 407	2 kV	400 mA	SHV
HPx 30 257	3 kV	250 mA	SHV
HPx 40 207	4 kV	200 mA	SHV
HPx 60 137	6 kV	130 mA	SHV
HPx 80 107	8 kV	100 mA	SHV
HPx 120 656	12 kV	65 mA	L16 | G21
HPx 150 506	15 kV	50 mA	L16 | G21

OPTIONS & ORDER INFO

OPTION	ORDER INFO	EXAMPLE
Polarity	positive: **x = p**, negative: **x = n**	HP**p** 10 307
Capacitor charger	**CLD**	
Interface options	Ethernet: **ETH** | IEEE 488: **IEE** | RS232: **RS2**	

OPTION	ORDER INFO
AIO isolated	**AIO** (0-5 V)
Rear HV connector (SHV only)	**HVR**

Note: other product configurations and customizing on request

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- 19" rack mountable
- Best control characteristics
- Multiple interface options
- Capacitor charger option (CLD)
- ARC management (ultrafast ARCpro optional)
- Very low ripple and noise, very low EMI
- Parallel operation for power increase

AIO DIO CLD ARC PRO CUSTOM

HPS devices are digitally 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 makes HPS devices the most advanced AC/DC HV power supply for industrial and research applications.

SPECIFICATIONS

	HPS 1.5 kW	HPS 3 kW	HPS 6 kW	HPS 10 kW
Power	1,500 W	3,000 W	6,000 W	10,000 W
Polarity	factory fixed positive or negative	factory fixed positive or negative	factory fixed positive or negative	factory fixed, positive or negative
Efficiency	up to 93%	up to 93%	up to 93%	up to 93%
Ripple and noise [f >10 Hz]	$< 3 \bullet 10^{-3} \bullet V_{nom}$ **	$< 5 \bullet 10^{-3} \bullet V_{nom}$ **	$< 9 \bullet 10^{-3} \bullet V_{nom}$ **	$< 9 \bullet 10^{-3} \bullet V_{nom}$ **
Stability	0.05 % • V_{nom} *	0.05 % • V_{nom} *	0.05 % • V_{nom} *	0.05 % • V_{nom} *
Voltage regulation [ΔV_{out} / ΔV_{in}]	0.01 % [$V_{out} \geq 5$ V]	0.01 % [$V_{out} \geq 5$ V]	0.01 % [$V_{out} \geq 5$ V]	0.01 % [$V_{out} \geq 5$ V]
Temperatur coefficient	$< 2 \bullet 10^{-4}$ / K	$< 2 \bullet 10^{-4}$ / K	$< 2 \bullet 10^{-4}$ / K	$< 2 \bullet 10^{-4}$ / K
Supply voltage	190 - 264 VAC with PFC	170 - 264 VAC with PFC	3 x 400 VAC ± 10%	3 x 400 VAC ± 10%
Switching frequency	80 - 130 kHz	70 - 90 kHz	60 - 80 kHz	60 - 80 kHz
Set / monitor voltage	0 - 5 V | opt. 0 - 10 V	0 - 5 V | opt. 0 - 10 V	0 - 5 V | opt. 0 - 10 V	0 - 5 V | opt. 0 - 10 V
Protection INTERLOCK, INHIBIT,	overload, ARC and short circuit, INTERLOCK, INHIBIT, overvoltage/overtemp	overload, ARC and short circuit, INTERLOCK, INHIBIT, overvoltage/overtemp	overload, ARC and short circuit, INTERLOCK, INHIBIT, overvoltage/overtemp	overload, ARC and short circuit, overvoltage/overtemp
ARC Management	ARC | optional: ARCpro	ARC | optional: ARCpro	ARC | optional: ARCpro	ARC | optional: ARCpro
Filament supply	optional	optional	optional	optional
Interfaces RS232, CAN, SPS (0-10V)	USB, AIO isolated optional: IEEE 488.2, Ethernet, RS232, CAN, SPS (0-10V)	USB, AIO isolated optional: IEEE 488.2, Ethernet, RS232, CAN, SPS (0-10V)	USB, AIO isolated optional: IEEE 488.2, Ethernet, RS232, CAN, SPS (0-10V)	USB, AIO isolated optional: IEEE 488.2, Ethernet,
Case	19" rack mountable	19" rack mountable	19" rack mountable	19" rack mountable
Dimensions (L/W/H)	410-550 mm / 19"/ 2-4U	410-550 mm / 19"/ 2-4U	410-550 mm / 19"/ 2-4U	500 mm / 19"/ 4U

*) for 8h, after 0.5h warmup **) option VLN: $< 5 \bullet 10^{-4} \bullet V_{nom}$ (not available for all configurations)

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CONFIGURATIONS

MODEL	V_{nom}	I_{nom}	HEIGHT/DEPTH		HV CONNECTOR
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 60 257 152	6 kV	250 mA	2U		L11
HPx 80 197 152	8 kV	190 mA	2U		L11
HPx 100 157 152	10 kV	150 mA	2U		L11
HPx 120 137 152	12 kV	125 mA	2U		G21
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	G40
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 60 507 302	6 kV	500 mA	2U	410 mm	L11
HPx 80 387 302	8 kV	375 mA	2U	410 mm	L11
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	L11
HPx 30 208 602	3 kV	2 A	4U	500 mm	L11
HPx 40 158 602	4 kV	1.5 A	4U	500 mm	L11
HPx 50 128 602	5 kV	1.2 A	4U	500 mm	L11
HPx 60 108 602	6 kV	1 A	4U	500 mm	L11
HPx 80 757 602	8 kV	750 mA	4U	500 mm	L11
HPx 100 607 602	10 kV	600 mA	4U	500 mm	L11
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	L11
HPx 30 348 103	3 kV	3.4 A	4U	500 mm	L11
HPx 40 258 103	4 kV	2.5 A	4U	500 mm	L11
HPx 50 208 103	5 kV	2 A	4U	500 mm	L11
HPx 60 178 103	6 kV	1.7 A	4U	500 mm	L11
HPx 80 138 103	8 kV	1.3 A	4U	500 mm	L11
HPx 100 108 103	10 kV	1 A	4U	500 mm	L11
HPx 200 507 103	20 kV	500 mA	4U	500 mm	G21

OPTIONS & ORDER INFO

OPTION	ORDER INFO	EXAMPLE
Polarity	positive: **x = p**, negative: **x = n**	HP**p** 10 158 152
Capacitor charger	**CLD**	
Front panel operation with LCD	**FP**	
Interface options	controller area network: **CAN** | industry analog I/O: **SPS** | EtherCAT: **ETC** | Ethernet: **ETH** | IEEE 488: **IEE** | RS232: **RS2**	
Very low noise: $< 5 \bullet 10^{-4} \bullet V_{nom}$ (*not available for all configurations)	**VLN**	
ARC management pro (ultrafast)	**ARCpro**	
ARC current limitation	**ACL**	
Two HV output connectors	**2HC**	
Integrated filament supply	**FCS**	
Higher voltage stability: $< 1 \bullet 10^{-4} \bullet V_{nom}$ (*not available for all configurations)	**HVS**	
Wide range input 400 - 480V +/- 10% (6 and 10kW only)	**WR4**	
Extended operating area	**EOA**	