



# HIGH DENSITY LOW COST HOT SWAP POWER SUPPLIES FROM KEPKO

Two 1200/1500 Watt and five 600 Watt high-power models join the Kepco HSF-group of plug-in, redundant-capable, hot-swappable power supplies. Offered in 12 Volt and higher output models, using efficient high frequency forward conversion with power factor correction, they operate from nominal 100V a-c or 240V a-c power mains without switching. The power rating of the two 1200/1500 Watt models depends on the model (24V or 48V) and the

a-c input mains voltage. Output power ranges from just under 900W for the 48V model running on 85-132V a-c, to just over 1500W for the 48V model running on 170-265V a-c mains. The 600 Watt models offer full power operation from 85-264V a-c input.

These Kepco HSF models plug into a standard 3U x 19" housing, model RA 19-4C, to facilitate hot swapping in a fault-tolerant redundant power

system. The rack housing has space for four modules allowing users to configure various redundant systems: two 1+1 redundant systems of up to 1500 watts each, or a single 3+1 redundant system for up to 4500 watts, or a single parallel combination producing up to 6,000 watts of d-c power. Built-in current balancing and OR-ing diodes allow all these configurations.



**NEW**

**HSF 600W MODEL TABLE**

MODEL	OUTPUT Volts	ADJUSTMENT RANGE <sup>(1)</sup> Volts	EXTERNAL PROGRAMMING RANGE <sup>(2)</sup> Volts	OVP SETTING Volts	OUTPUT CURRENT Amps	CURRENT LIMIT <sup>(3)</sup> Amps	RIPPLE/NOISE mV p-p
HSF 12-53	12	0-13.8	0-14.4	16.8-19	53	55.6-68.9	180/220
HSF 15-43	15	0-17.4	0-18.0	21-24	43	45.1-55.9	180/220
HSF 24-27	24	0-28.2	0-28.8	33.6-38.4	27	28.3-35.1	220/320
HSF 28-23	28	0-33.0	0-33.6	39.2-44	23	24.1-29.8	220/320
HSF 48-13	48	0-52.2	0-52.8	57.6-60	13	13.7-16.9	220/320

(1) Front panel trimpot. (2) 0-6V External voltage source (0-5.5V for 48 Volt model). (3) Square type. After cause is removed, output voltage restored automatically.

**HSF 1200W /1500W MODEL TABLE**

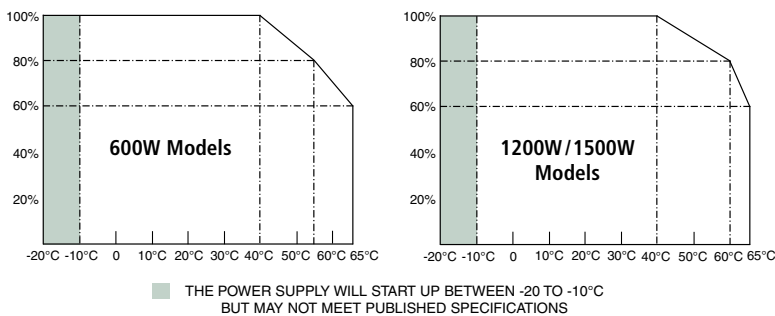
MODEL	OUTPUT Volts	ADJUSTMENT RANGE Volts	OVP SETTING Volts	OUTPUT CURRENT Amps	OUTPUT CURRENT Amps	OUTPUT POWER Watts	OUTPUT POWER Watts	CURRENT LIMIT Amps	RIPPLE/NOISE mV p-p
Condition, a-c input				85-132V a-c	170-265V a-c	85-132V a-c	170-265V a-c		
HSF 24-50	24	16.8-30.5	32-35	37.5	50	900	1200	55-65	250/350
HSF 48-32	48	33.6-54.0	56-60	18.7	32	897.6	1536	33.6-36.8	350/450

## HSF 600W /1200W /1500W GENERAL SPECIFICATIONS

SPECIFICATION		600W	1200W/1500W	CONDITION
Temperature	Operating	-10 to +40°C		See the power rating plot for oper. at reduced power up to 65°C, Fig 1
	Start Up	-20 to -10°C		
	Storage	-30 to +75°C		
Humidity	Operating/Storage	10 to 95% RH		Non-condensing
Safety		UL: UL60950-1; 1st Edition CSA: C22.2 No. 60950-1-03; 1st Edition TUV: EN60950-1; 2001	UL: UL60950-1; 3rd Edition CSA: C22.2 No. 60950-00; 1st Edition TUV: EN60950-1; 2000	Ambient temp 50°C maximum
Conducted Noise		FCC Class B; VCCI Class B EN55011-B EN55022-B		
Radiated Noise		FCC Class B; VCCI Class B EN55011-B EN55022-B		
Input Harmonics	Current	EN61000-3-2		
Immunity		EN50082-2		
ESD Immunity		EN61000-4-2 level 4		Normal operation
Radiation Field Immunity		EN61000-4-3 level 3		Normal operation
Fast Transient/Burst Immunity		EN61000-4-4 level 3		Normal operation
Surge Immunity		EN61000-4-5 level 4		No damage
Conducted Noise Immunity		EN61000-4-6 level 3		Normal operation
Magnetic Field Immunity		EN61000-4-8 level 4		Normal operation
Voltage Dips/Short Interruption Immunity		EN61000-4-11		Normal operation
Withstand Voltage	Input to output	3.0KV a-c for 1 minute		Cutout current 20 mA (1)
	Input to ground	2.0KV a-c for 1 minute		Cutout current 20 mA (1)
	Output to ground	500V a-c for 1 minute		Cutout current 100 mA (1)
Dimensions HxWxD	mm	132.5 x 108.9 x 482.6		
	inches	5.2" x 4.228" x 16.86"		
Weight		4.1 Kg, 9.0 lbs.		
Cooling		Forced air flow, fan		
Mounting		Plug-in rack housing		Model: RA19-4C

(1) Temperature: 15°C to 35°C and humidity: 10% to 85% RH.

**FIGURE 1**  
Output Power vs. Ambient Temperature



## HSF 600W /1200W /1500W INPUT CHARACTERISTICS

SPECIFICATION		600W	1200W/1500W	CONDITION
Nominal Input Voltage		100-120V a-c, 200-240V a-c		0~100% load, -10 to +40°C
Input Voltage Range		85~264V a-c 110-370V d-c		Rated load
Input Frequency Range		47~63Hz		Rated load
Input Current	max	8.4A rms	12A rms	100-120V a-c
	max	4.2A rms (8A for 24V model)	10A rms (8A for 24V model)	200-240V a-c
Surge Current	typ	15A 30A first surge	15A 20A first surge	100V a-c, 100% load, 25°C
	typ	30A 60A first surge	30A 20A first surge	240V a-c, 100% load, 25°C
Leakage Current		0.45 mA typ 0.75 mA max	0.30 mA typ 0.75 mA max	at 120V a-c 60 Hz EN60950
		0.60 mA typ 0.75 mA max		at 240V a-c 60 Hz EN60950
Power Factor	typ	0.99		100V a-c, rated output
	typ	0.95		240V a-c, rated output
Switching Frequency	nom	140 KHz		
Input Fuse Value		250V, 15A	250V, 25A	

## HSF 600W /1200W /1500W OUTPUT CHARACTERISTICS

SPECIFICATION		600W	1200W/1500W	CONDITION
Source Effect	typ	±0.1%		85-132V a-c or 190-264V a-c
	max	±0.2%		
Load Effect	typ	±0.3%	±1.5%	0% to 100% load changes
	max	±0.6%	±2.0%	
Temperature Effect	typ	±0.5%		-10 to +40°C
	max	±1.0%		
Combined Effect	typ	±0.9%		Includes source, load and temperature
	max	±1.8%		
Time Effect (drift)	typ	0.2%		0.5-8 hr. max load, 25°C
	max	0.5%		
Transient Recovery Characteristic		±4%		50% to rated output current Transient time >50µsec
Recovery Time max		1ms		
Start Up Time		280 msec typ 350 msec max	300 msec typ 450 msec max	100V a-c
		100 msec typ 150 msec max	250 msec typ 400 msec max	
Hold Up Time	typ	30ms	10ms	100V a-c
	min	20ms	7ms	
	typ	40ms	10ms	200V a-c
	min	20ms	7ms	
Efficiency	100V a-c	80% min.		100V a-c
	200V a-c	84% min.		200V a-c

