

HPU1K5 Series



- Industrial and Medical Safety Approvals
- Variable Fan Speed To Reduce Audible Noise
- -20 °C to +70 °C Operation
- AC OK, DC OK, Inhibit, Enable
- Fan Fail & Overtemperature Signals
- Active Current Share
- 3 Year Warranty

Specification

Input

Input Voltage	• 85-264 VAC, see derating curve
Input Frequency	• 47-63 Hz
Input Current	• 13 A/6.5 A typical at 115/230 VAC
Inrush Current	• 35 A maximum at 264 VAC
Power Factor	• >0.9, compliant with EN61000-3-2 class A
Earth Leakage Current	• 1.1 mA max 264 VAC 60Hz
Input Protection	• Internal T20 A/250 VAC fuse in both live and neutral

Output

Output Voltage	• See model table
Output Voltage Trim	• Via potentiometer or external voltage, see model tables
Initial Set Accuracy	• $\pm 1\%$ of nominal with 50% load
Minimum Load	• No minimum load required
Line Regulation	• $\pm 0.5\%$ maximum
Load Regulation	• V1: $\pm 0.5\%$, V2: $\pm 5\%$
Start Up Delay	• 1 s typical
Over/Undershoot	• 0.5% typical
Transient Response	• 4% deviation, recovery to within 2% in 500 μ s for 50-75-50% load change
Ripple & Noise	• 24-48 V models: 1% max pk-pk 12 V models: 2% max pk-pk V Standby: 3% max pk-pk, 20 MHz bandwidth
Overvoltage Protection	• 115-140% of V1 nominal, recycle input AC to reset
Overtemperature Protection	• Protects the unit against overtemperature. Auto restart
Overcurrent Protection	• 110 - 140% V1, V Standby power limited
Short Circuit Protection	• Continuous, trip and restart (hiccup mode)
Temperature Coefficient	• 0.02%/°C (after 20 minute warm up)
Remote Sense	• Compensates for 0.5V total drop
Current Share	• Share upto 8 units maximum, units share current within 10% of each other at full load.

General

Efficiency	• 90% typical
Isolation	• 4000 VAC Input to Output, 1500 VAC Input to Ground, 500 VDC Output to Ground
Switching Frequency	• 70 kHz (PFC), 130 kHz (main converter) typical
Power Density	• 18 W/in ³
Signals	• AC OK, DC OK, Inhibit, Enable, Fault (see Signals page)
MTBF	• 470 kHrs to Telecordia SR-332 at 25 °C, GB

Environmental

Operating Temperature	• -20 °C to +70 °C, derate linearly from +50 °C at 2.5 %/°C to 50% load at +70 °C
Cooling	• Internal load dependant variable speed fans
Operating Humidity	• 95% RH, non-condensing
Storage Temperature	• -40 °C to +85 °C
Operating Altitude	• 3000 m
Shock	• ± 3 shocks in each axis (total 18 shocks) 30 g 11 ms (half sine). Compliant with EN60068-2-27.
Vibration	• 2 g 10-500 Hz 10 sweeps. Compliant with EN60068-2-6.

EMC & Safety

Emissions	• EN55022 class A conducted & radiated
Immunity	• Compliant with EN61204-3:2000 high severity levels
Harmonic Currents	• EN61000-3-2 class A
Voltage Flicker	• EN61000-3-3
ESD Immunity	• EN61000-4-2, level 3, Perf Criteria A
Radiated Immunity	• EN61000-4-3, level 3 Perf Criteria A
EFT/Burst	• EN61000-4-4, installation class 3, Perf Criteria A
Surge	• EN61000-4-5, level 3 Perf Criteria A
Conducted Immunity	• EN61000-4-6, level 3, Perf Criteria A
Dips & Interruptions	• EN61000-4-11, 30% 10 ms, 60% 100 ms, 100% 5000 ms, Perf Criteria A, B, B, EN60601-1-2, 30% 500 ms, 60% 100 ms, 100% 10 ms, 100% 5000 ms, Perf Criteria A, A, B - 230 VAC. Consult longform datasheet for 115 V operation.
Safety Approvals	• See safety approvals

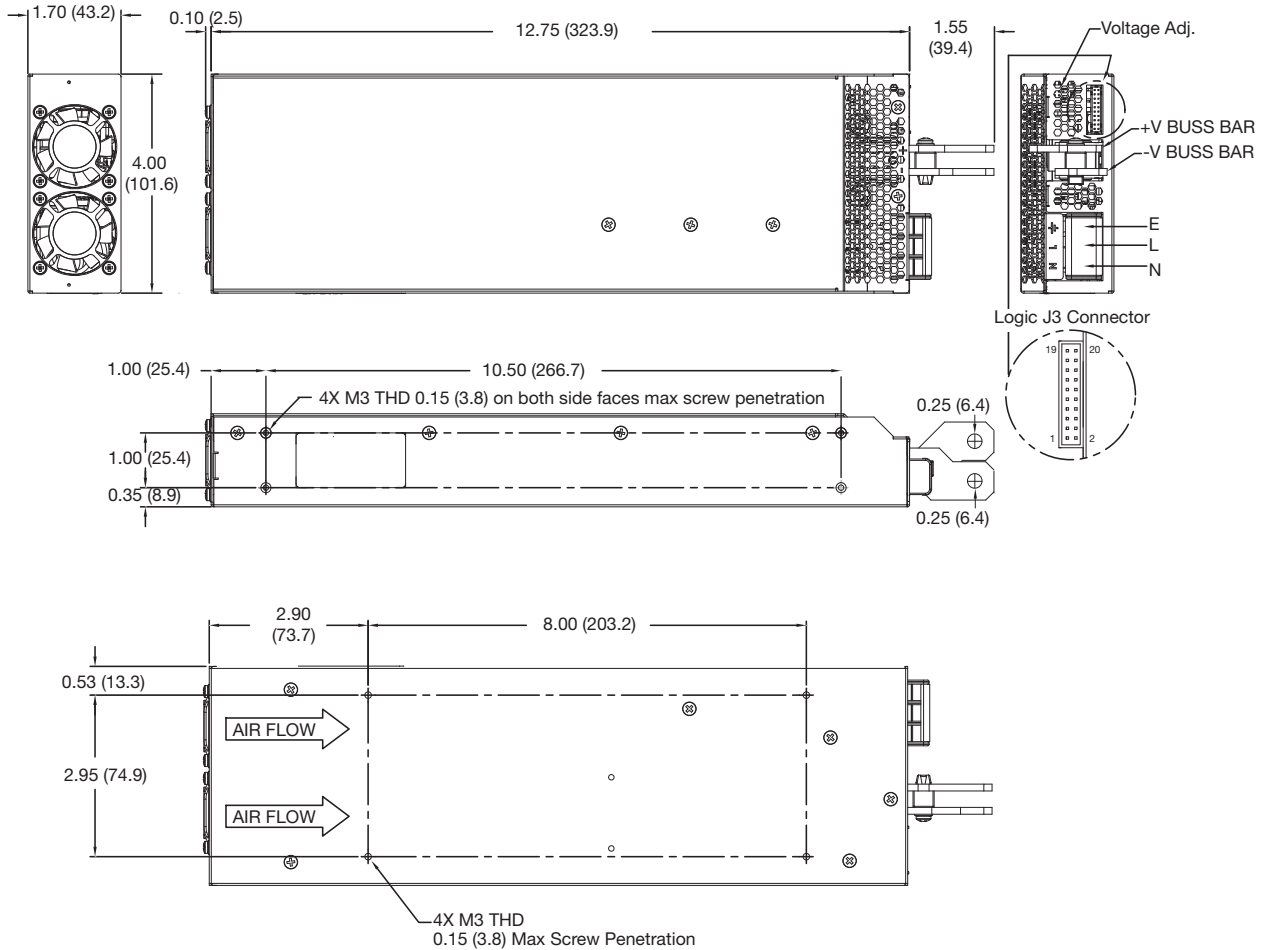
Models and Ratings

Output Power ⁽¹⁾	Output Voltage V1	Voltage Adj V1	Max Output Current V1		Standby Supply V2	Model Number
			<180 VAC	>180 VAC		
1200 W	12.0 VDC	11-14 V	100 A	100 A	5 V/1 A	HPU1K5PS12
1500 W	24.0 VDC	22-28 V	50 A	63 A	5 V/1 A	HPU1K5PS24
1500 W	48.0 VDC	45-52 V	25 A	31 A	5 V/1 A	HPU1K5PS48

Notes

1. See derating curves.

Mechanical Details



Safety Approvals

IEC60950-1 CB Report, CSA-C22.2, No. 60950-1-05, UL60950-1, TUV EN60950-1, IEC60601-1 CB Report, CSA-C22.2 No. 601.1-M90, UL60601-1, TUV EN60601-1

Logic Connector: J3, JST, PN 520B-PHDSS (LF) SN)					
Pin	Function	Pin	Function	Pin	Function
1	+ Sense	8	NC	15	DC OK
2	+ Sense	9	Inhibit	16	NC
3	- Sense	10	NC	17	Signal GND
4	- Sense	11	Fault	18	NC
5	Current Share	12	NC	19	5 V Standby Rtn (V2)
6	Current Share	13	AC OK	20	5 V Standby (V2)
7	V Program	14	NC		

Mates with JST PN PHDR-20V5, Crimp contacts JST PN 5PHD-00IT-P0.5

Notes

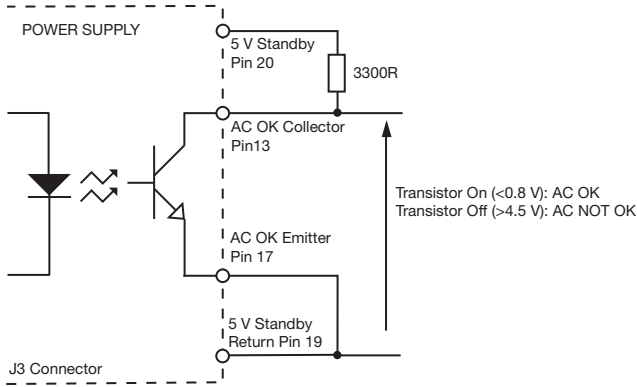
1. All dimensions are in inches (mm). 2. Weight 5.2 lb (2.35 kg)



AC OK/Power Fail

AC OK is an isolated signal providing a minimum of 5 ms warning of loss of output regulation. The signal is fully isolated and the collector and emitter must be connected externally.

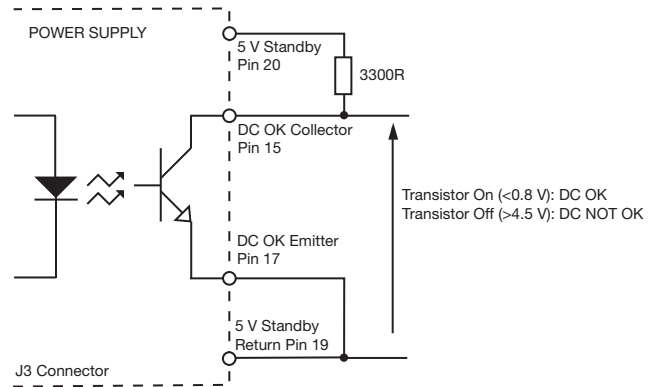
Maximum sink current 2 mA, maximum voltage 20 V.



DC OK

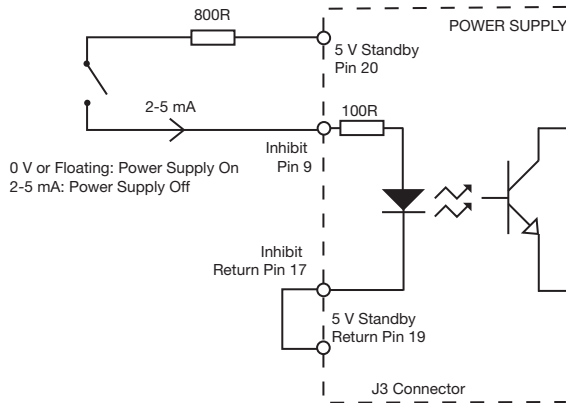
DC OK is an isolated signal providing warning that the output voltage has fallen below 90% of nominal. The signal is fully isolated and the collector and emitter must be connected externally.

Maximum sink current 2 mA, maximum voltage 20 V.



Inhibit

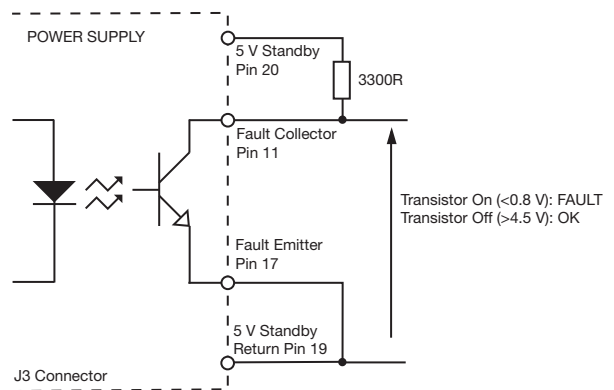
Inhibit is an isolated control signal which can turn the power supply and fans off by supplying 2 to 5mA into the pin.



Fault

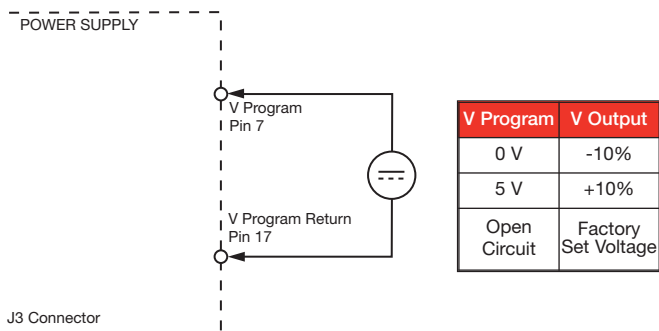
Fault is an isolated signal providing warning of output voltage below 90% of nominal, fan fault or overtemperature. The signal is fully isolated and the collector and emitter must be connected externally.

Maximum sink current 2 mA, maximum voltage 20 V.



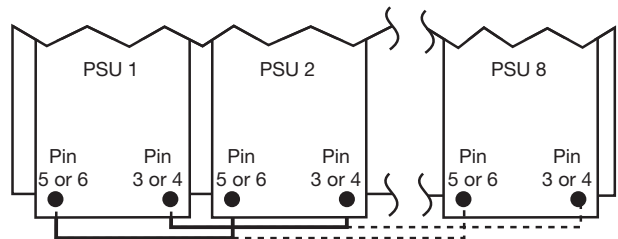
V Program

V Program allows remote voltage adjustment within the range ±10%

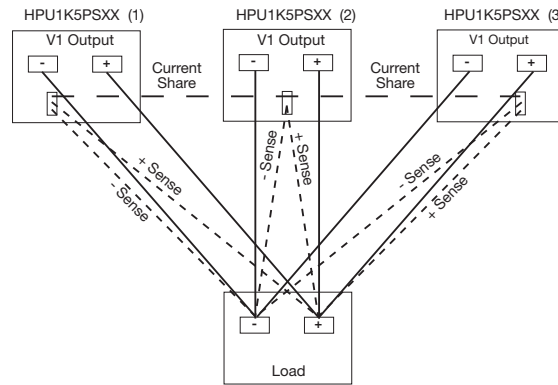


Current Share

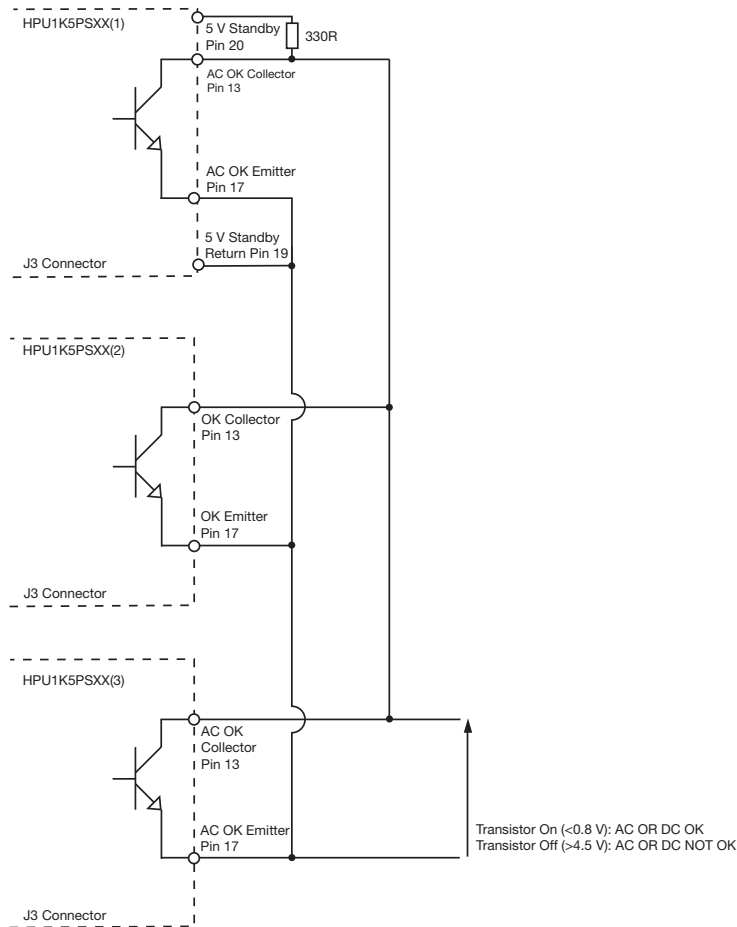
Connecting pins 5 or 6 and 3 or 4 of like voltage units (8 maximum) will force the current to share between the outputs. Units share current within 10% of each other at full load. Derate output to 90% of total combined load.



Parallel Load & Current Share Connections

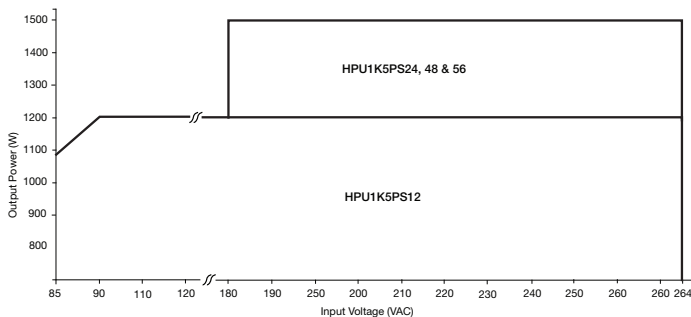


Parallel AC OK Connection (DC OK follows same format)



Derating Curves

Input Derating Curve



Thermal Derating Curve

