

Model: BPA-KFS1200

High Peak Power Series for Industrial Application



Highlight

- Cost-effective
- Support up to 3800W peak power
- 1200W max continuous output power
- 4.28"x10.95"x1.61" compact size
- 20°C-70°C operation temperature range
- 40°C power up capability
- Support voltage trimming
- Build-in active PFC
- Low leakage current
- Intelligent fan speed control
- DC_OK analog indication signal
- Remote sense, Remote ON/OFF control
- Active current sharing support
- 5000m operation altitude
- 5V/2A standby optional
- Support semi-custom design
- CANBus Communication



Typical Application

- Industrial automation production line
- Robot and Motor control

Product Overview

The **BPA-KFS1200** is a highly reliable, compact, 1200W high peak power, AC to DC, single output power supply module. With a full range input of 90-264VAC, this power supply module achieves the highest performance and efficiency by incorporating digital control technology. The BPA-KFS1200 family also includes CANBus interface to monitor and control all essential functions of the power supply module.

Custom controls available.

Key Specification

Model	BPA-KFS1200T48	BPA-KFS1200T60	BPA-KFS1200T72	BPA-KFS1200T85	BPA-KFS1200T100	BPA-KFS1200T120	BPA-KFS1200T150	BPA-KFS1200T200
Output voltage	48V	60V	72V	85V	100V	120V	150V	200V
Rated Current	0-25A	0-20A	0-16.7A	0-14.2A	0-12A	0-10A	0-8A	0-6A
Peak Output Current (max 5s input voltage≥220VAC)	79A	63A	52.8A	44.7A	38A	31.7A	25.3A	19A
Rated Power	1200W							
Peak Power (max 5s input voltage≥220VAC)	3800W							
Dimension	4.28"x10.95"x1.61" 或 108.8mmx278.1mmx41mm							
Weight								
EMC	CLASS B Conducted and CLASS A Radiated Emissions.							

Ordering Model Name

<u>BPA-K</u>	<u>F</u>	<u>S</u>	<u>1200</u>	<u>I</u>	<u>48</u>	<u>□□</u>
Series Name	Package Type	Outputs	Rated Power	Connector Type	Output Voltage	Control Code
	F: Force air cooling enclosed	S: Single output	1200W	T: Screw terminal		Note below

Note:
AA: Control code as default, long output copper bar with two screw holes
SA: Short output copper bar with single screw hole
For any custom design and model name, please consult with BluTek Power, Inc.

Phone: (973) 594-1800
Salesteam@BluTekPower.com

Model: BPA-KFS1200

High Peak Power Series for Industrial Application



Input Specification

Function	Minimum	Typical	Maximum	Condition
Rated Input Voltage	100Vac		240Vac	
Input Voltage Range	90Vac		264Vac	
Input Frequency	47Hz	50 / 60Hz	63Hz	
Input Current			15A	@Rated input voltage range
Power Factor	0.99			With max rated output power
Efficiency			94%	230Vac, exclude fan power
Inrush Current			40A	240Vac
Input surge voltage			300Vac	last for 1second

Output Specification

Function	Minimum	Typical	Maximum	Condition
Output Voltage Trim Range	42V	48V	53.5V	48V Model
	54V	60V	66V	60V Model
	65V	72V	79V	72V Model
	80V	85V	90V	85V Model
	90V	100V	110V	100V Model
	110V	120V	132V	120V Model
	132V	150V	150V	150V Model
	190V	200V	200V	200V Model
Output Power	0W		1200W	
Initial Tolerance			±0.5%	Trim in factory
Total Regulation			3%	Include line and load regulation
Output Ripple			1%	Peak-Peak value, measure at 5cm from PSU with 0.1uF Ceramic and 47uF electrolytic capacitor, 20MHz BW
Dynamic Response			5%	with 50% load step, min from 5% load
Capacitive Load				No special requirement
Power up time			2s	
Rise time			50ms	without cap load
Hold up time	12ms			230Vac/50Hz input @ 80% load

Protection Specification

Function	Minimum	Typical	Maximum	Condition
Input under voltage		80Vac		Auto-restart after fault is removed
Over current protection (OCP)	>125% rated current 5.5s, protect with auto-restart mode. Auto-restart time: 20s≥150Vac >108% rated current 5.5s, protect with auto-restart mode. Auto-restart time: 5s<150Vac			
Short circuit protection (SCP)				Auto-restart after fault is removed
Over voltage protection (OVP)	105%		115%	Latch off
Over temperature protection (OTP)				Latch off

*Protection mode latch or auto-restart can be customized, contact BluTek Power, Inc. for more details.

Standby Output Specification

Function	Minimum	Typical	Maximum	Condition
Output voltage	4.75V	5V	5.25V	0 – 2A Load
Over current protection (OCP)	2.5A			Auto-restart after fault is removed
Short circuit protection (SCP)				Auto-restart after fault is removed

Phone: (973) 594-1800
Salesteam@BluTekPower.com

Model: BPA-KFS1200

High Peak Power Series for Industrial Application



Reliability

Function	Minimum	Typical	Maximum	Condition
MTBF	500Khrs			According to Telecordia SR-332. 115Vac 25°C ambient with rated load
Life	5 years			Rated nominal conditions

EMC

Conducted Emissions	EN 55011 / EN 55032,Class B
Radiated Emissions	EN 55011 / EN 55032,Class A
Note: BPA-PFS3000T is a enclosed type PSU as a component intended to be assembled and built inside the system cabinet, PSU normally is to mounted connecting to an earthed metal plate, all the EMC tests are performed with the PSU and resistive loads plated on a metal plate to simulate the system application. The final system must re-evaluate to confirm it can still meet the EMC directives.	
Harmonic Current Emissions	IEC 61000-3-2 Meet Class A limit
Voltage Flicker	IEC 61000-3-3
Electrostatic Discharge	IEC 61000-4-2 Level 4 (Air Discharge: 15 kV,Contact Discharge: 8 kV) Criteria A
Radiated Field	IEC 61000-4-3 Criteria A
Electrical Fast Transient / Burst	IEC 61000-4-4 Level 3 (2 kV),Criteria A
Surge	IEC 61000-4-5 Level 3 (Common Mode 2kV, Differential Mode 1kV), Criteria A
CS	IEC 61000-4-6 Level 2 (150 kHz-80 MHz, 3 Vrms, 6 Vrms at ISM bands and Amateur radio bands), Criteria A
Power Frequency Magnetic Fields	IEC 61000-4-8 Criteria A - Magnetic field strength 30 A/m
Voltage Dips	IEC 61000-4-11 30% 10 ms Criteria A 60% 100 ms Criteria B 100% 5000 ms Criteria B

Criteria A: Normal operation within spec limit
Criteria B: Out of regulation or restart to normal operation after test

Safety Regulations

ITE Safety*		IEC 62368-1 UL 62368-1+CAN/CSA 62368-1 GB 4943.1-2011, GB 9254-2008, GB 17625.1-2012
CE*		EMC Directive 2014/30/EU and Low Voltage Directive 2014/35/EU
UKCA*		In conformance with Electrical Equipment (Safety) Regulations 2016, and Electromagnetic Compatibility Regulations 2016,
Dielectric Voltage	Input to/Output	3000Vac
	Input to/Ground	2000Vac
	Output to/Ground	500Vdc

*Compliance only, contact BluTek Power, Inc. for detailed safety certifications

Phone: (973) 594-1800
Salesteam@BluTekPower.com



Environmental

Function	Min	Typical	Max	Condition
Operation Temperature	-20℃		70℃	See power derating curve Fig.2
Operation Humidity	10%		90%	Non-condensing
Storage Temperature	-40℃		70℃	
Storage Humidity	10%RH		90%RH	Non-condensing
Operation Altitude			5000m or 16,405 feet	
Fan Acoustic Noise			45dB	80% Load, 1m distance
Shock			196m/s2	With Package
Vibration			19.6m/s2	10-55Hz (1 min sweep). 1 Hour for each axis. With package

Leakage Current

Function	Min	Typical	Max	Condition
Input-PE Leakage			500uA	264Vac/50Hz Normal Condition
			1mA	264Vac/50Hz Single Fault Condition
Output-PE Leakage			100uA	264Vac/50Hz Normal Condition
			500uA	264Vac/50Hz Single Fault Condition

Output Power De-rating Curve

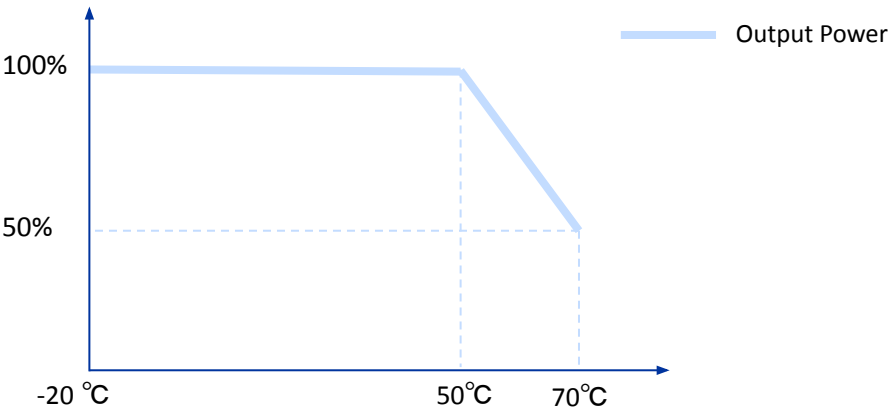


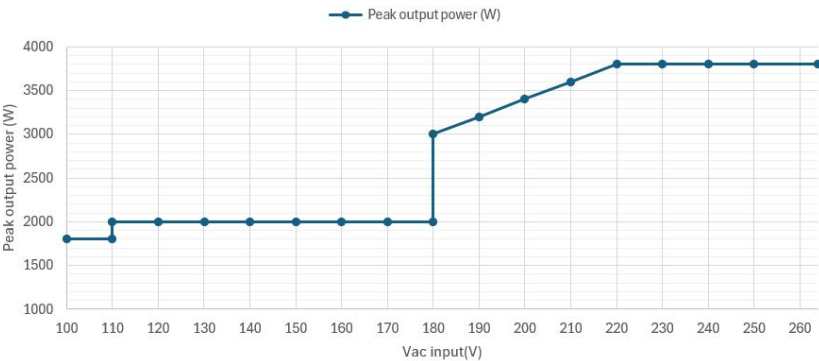
Fig.1 Power Derating Curve vs. Input Voltage

Peak Power Derating Curve

When input voltage is 100Vac, the max peak power is 1800W, when the input voltage is in between 110Vac~180Vac, the max peak power is 2000W.

When input voltage is in between 180Vac~220Vac, the peak power capability increases from 3000W to 3800W, when the input voltage is above 220Vac, the max peak power is 3800W.

The max peak power duty is 50%, average power from the PSU is 1200W. $Duty = \frac{t_{on}}{T} (t_{on} \leq 5s)$

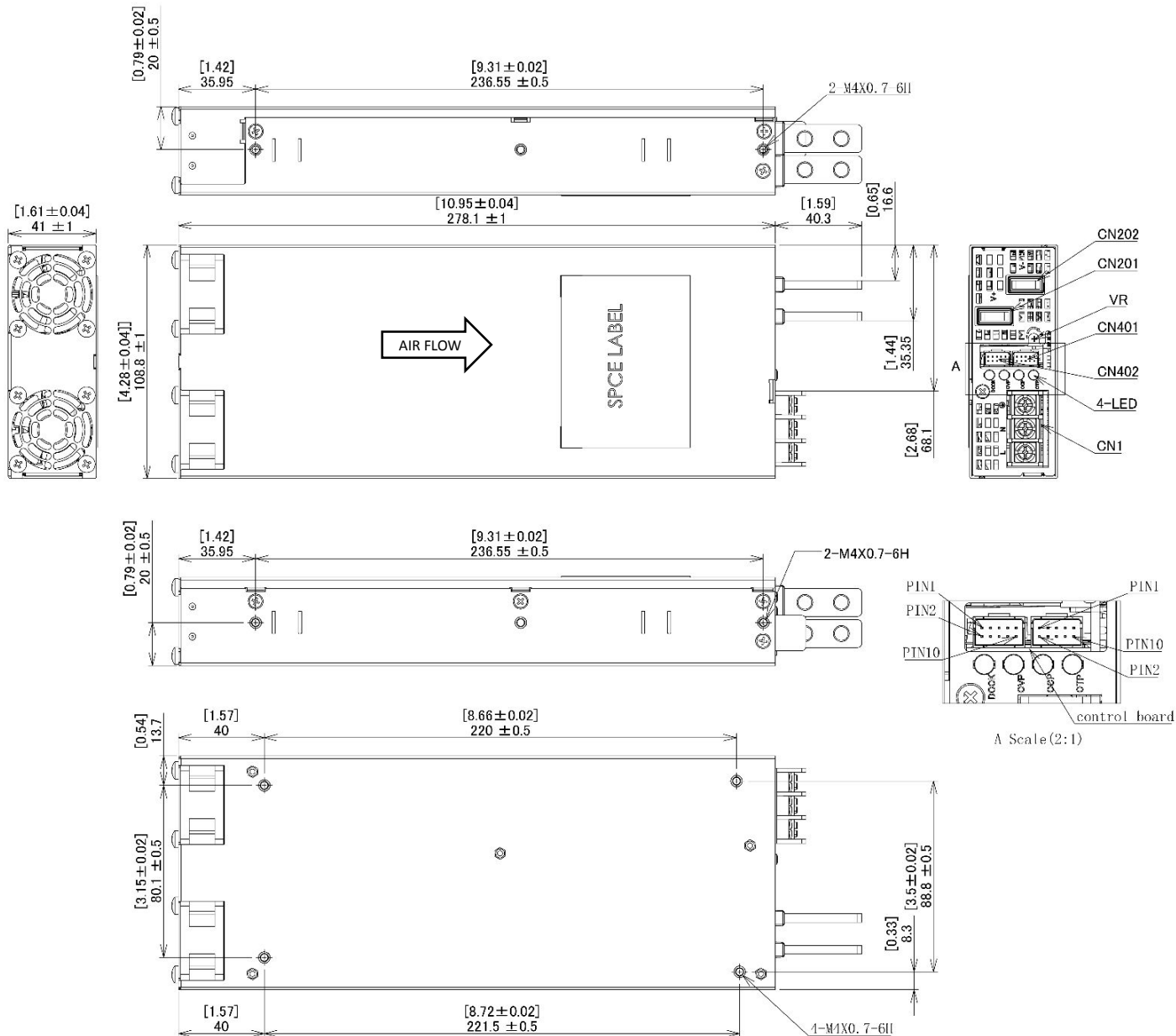


Model: BPA-KFS1200

High Peak Power Series for Industrial Application



Mechanical Drawing (standard version)



Notes:

1. Base plate mounting, M4 thread holes, maximum penetration 3.0 mm (0.12 inch) from outside face of chassis, 10 kgf.cm (8.8 inch.lbs) Max torque.
2. Side mounting, M4 thread holes, maximum penetration 4.0 mm (0.16 inch) from outside face of chassis, 10 kgf.cm (8.8 inch.lbs) Max torque.
3. CN1 is AC input terminal block and with M4 screw in three positions, wire gauge is 10~18 AWG, 10 kgf.cm (8.8 inch.lbs) Max torque.
4. CN201/CN202 is DC output terminal block and with M6 screw in two positions, 35 kgf.cm (30.8 inch.lbs) Max torque.
5. CN401/CN402 is control or signal connection.
6. VR: clockwise is to increase the output voltage, anti-clockwise is to reduce the output voltage.

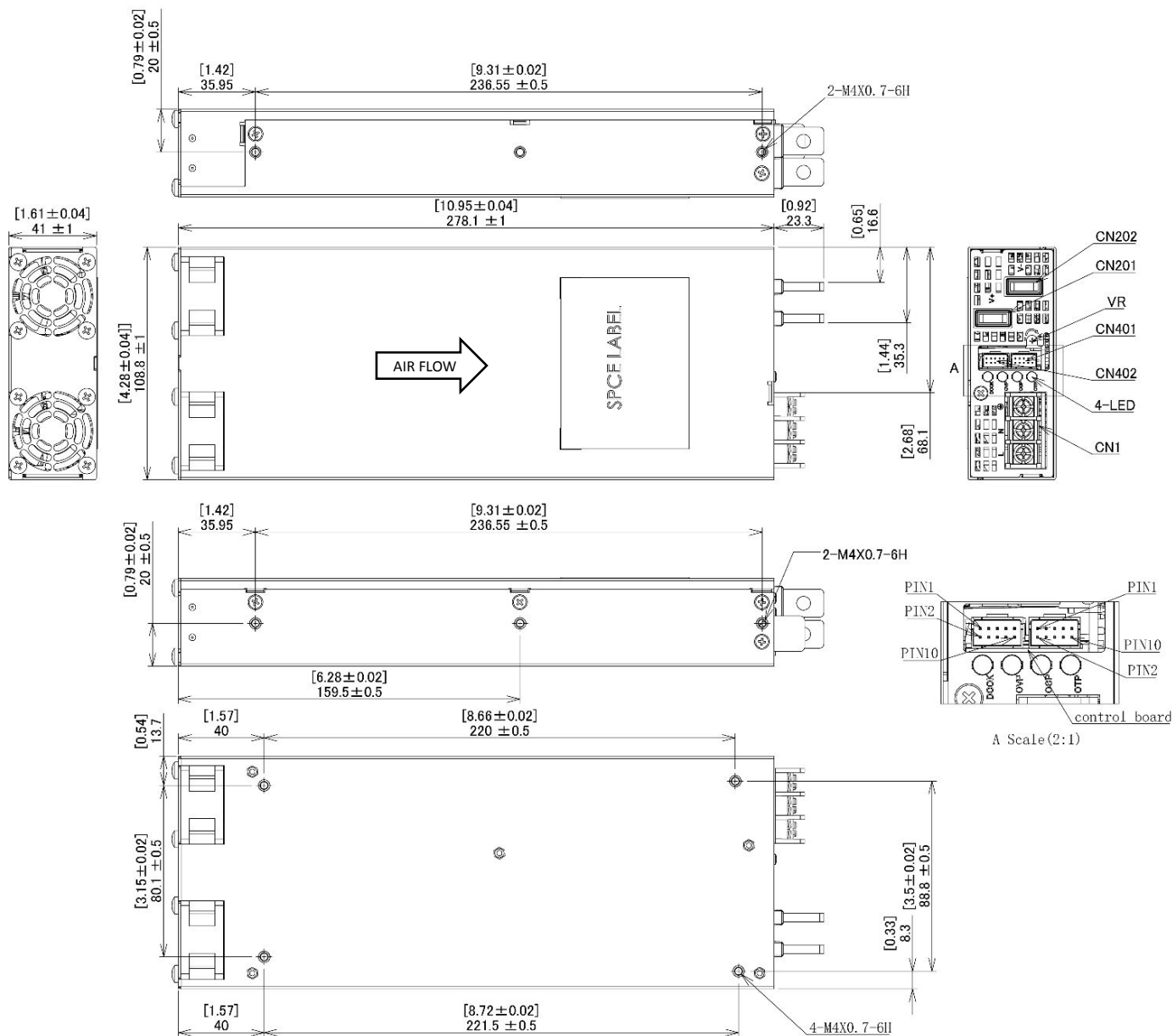
Phone: (973) 594-1800
Salesteam@BluTekPower.com

Model: BPA-KFS1200

High Peak Power Series for Industrial Application



Mechanical Drawing (short bar version)



Notes:

1. Base plate mounting, M4 thread holes, maximum penetration 3.0 mm (0.12 inch) from outside face of chassis, 10 kgf.cm (8.8 inch.lbs) Max torque.
2. Side mounting, M4 thread holes, maximum penetration 4.0 mm (0.16 inch) from outside face of chassis, 10kgf.cm (8.8 inch.lbs) Max torque.
3. CN1 is AC input terminal block and with M4 screw in three positions, wire gauge is 10~18 AWG, 10 kgf.cm (8.8 inch.lbs) Max torque.
4. CN201/CN202 is DC output terminal block and with M5 screw in two positions, 35kgf.cm(30.8inch.lbs) Max torque.
5. CN401/CN402 is control or signal connection.
6. VR: clockwise is to increase the output voltage, anti-clockwise is to reduce the output voltage.

Phone: (973) 594-1800
Salesteam@BluTekPower.com

Model: BPA-KFS1200

High Peak Power Series for Industrial Application



Connector and Pin Assignment

Position	Connector / Connection	
Input Connector CN1	M4 screw type terminal connector	
	Enclosure Mark	Designation
	L	Line
	N	Neutral
		Earth Ground

Position	Connector / Connection	
Main Output Connector CN201/CN202	Output terminal blocks, with plastic spacer	
	Enclosure Mark	Designation
	Vo+	Output positive
	Vo-	Output return

Position	Connector / Connection	
Control Connector CN401	Mating with CJT connector A2008H-2X5P or equivalent	
	Pin#	Description
	1	Current share
	2	Output return
	3	Remote sense+
	4	Remote sense-
	5	Reserve No Connection
	6	Reserve No Connection
	7	Standby_5V
	8	Standby_5V
	9	Standby_5V return
	10	Standby_5V return

Position	Connector / Connection	
Control Connector CN402	Mating with CJT connector A2008H-2X5P or equivalent	
	Pin#	Description
	1	DC_OK-
	2	DC_OK+
	3	Remote ON/OFF-
	4	Remote ON/OFF+
	5	Reserve No Connection
	6	Reserve No Connection
	7	CANL or SDA*
	8	CANH or SCL*
	9	CAN 5V+
	10	CAN 5V Return

*Cable signal cables defines to be 3m in length the longest, consult BluTek Power, Inc. if longer than 3m cables are needed,

*PMBUS communication (SDA/SCL) custom design is optional, contact BluTek Power, Inc. for details.

Phone: (973) 594-1800
Salesteam@BluTekPower.com

Model: BPA-KFS1200

High Peak Power Series for Industrial Application



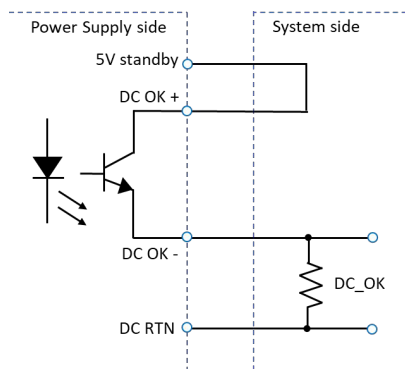
Voltage Trimming

The power supply provides a potentiometer for user to adjust the output voltage. Switch the potentiometer clockwise to increase the output voltage, switch the potentiometer counterclockwise to decrease the output voltage. Please reference to Output Specification for the output voltage range which user shall trim the voltage within.

When the output is adjusted below nominal value, the maximum output current is the same as the nominal output, when the output is adjusted above nominal value, the output power cannot exceed the nominal maximum power (the maximum output current used should be reduced accordingly).

DC_OK Signal

DC_OK Signal is designed to indicate the main DC output status. When DC output is present, DC_OK Signal (Shown in below figure) generated will be high. When DC output is off, the internal transistor will be turned off. When AC input is off, there will be a minimum of 5 milliseconds between the time the DC_OK internal transistor turns off, and the time when the output reaches 90% of its rated value.

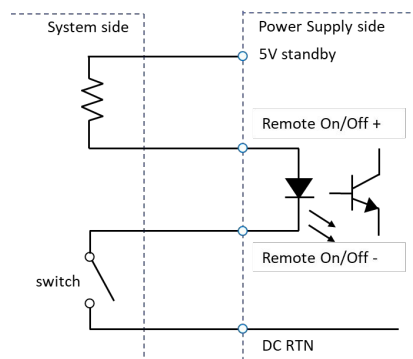


Remote Sense

Remote sense feature can be used to compensate for the extra voltage drop on output wires that are connected from the main output terminals, to the load. With wires connected from the remote sense pins, at the same locations as the wires from the main output, the remote sense function can compensate up to 500mV voltage drop.

Remote ON/OFF

Remote ON/OFF input can be used to turn off or turn on the power supply main output. The output ON/OFF can be controlled by conducting an isolated diode located within the power supply. When the main output is disabled, the +5 V Standby output will continue to operate. System can use a switch to conduct through this diode (suggested pull up resistor to 5 V standby with 1 Kohm resistor) to disable the main out. The signal can be floated (no connection to the signal), in order to enable the main output.



CAN / I²C Communication

CAN bus or Isolated I2C communication comply with PMBus protocol. Please contact BluTek Power, Inc. for detail communication specification.

Current Sharing

BPA-KFS1200 series supports current sharing function. Please contact BluTek Power, Inc. for details.

Phone: (973) 594-1800
Salesteam@BluTekPower.com