



Industrial Power Supply

A-500FKG Series

Datasheet

A-500FKG-XP

- ◇ Product Category: 500Watts Industrial Power Supply
- ◇ Version No.: R1.0
- ◇ Date Issued: August 20th, 2024

CHUANGLIAN

Product Features

- Input Voltage: 90-264VAC/120-370VDC
- Forced air cooling by built-in DC fan
- LED power indicator light
- $PF \geq 0.95$
- With the function of output remote voltage compensation and output ON/OFF control
- Multiple Protection: SCP, OVP, OCP, OTP
- Output voltage adjustment by potentiometer
- Operating Temperature: $-30^{\circ}\text{C} \sim +70^{\circ}\text{C}$
- 3 Years warranty



RoHS

Product Description

The A-500FKG-X series is a 500 watts air-cooled metal enclosed industrial power supply. Adopting wide AC&DC input voltage, the entire series provides an output voltage line of 12V, 15V, 24V, 27V, 36V, 48V and 55V for option. It can be adapted to different load application and meet various industrial application requirements. Besides, the EMC and safety regulations comply with the IEC/EN/UL62368 standards. High conversion efficiency, compact housing design, good heat dissipation, and all-round protection guarantee the high reliability and stability of this power supply.

AC/DC 500W Switching Power Supply

A-500FKG Series

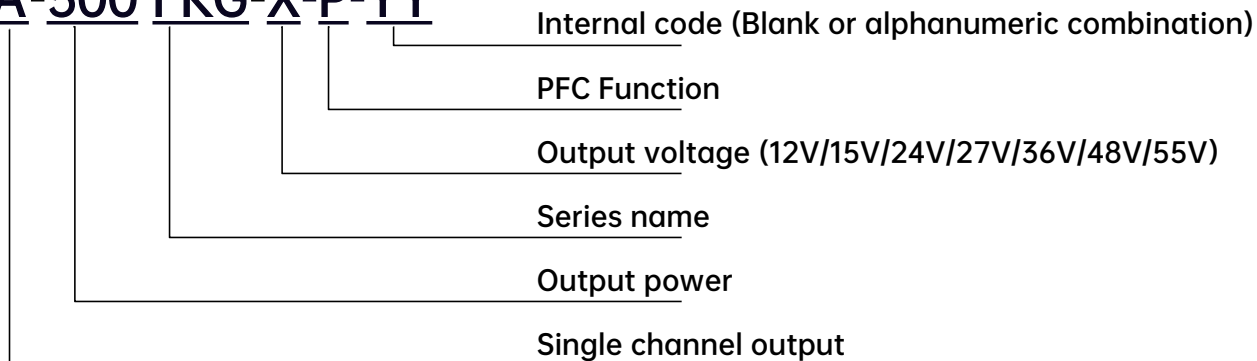


Applications

Industrial control system, Mechanical and electrical equipment, Electronic instruments and equipment, Industrial automation machinery, Semiconductor device (IT equipment is excluded), Smart home etc.

Model Encoding

A-500 FKG-X-P-YY



Model List:

Model	Output Power (W)	Output Voltage (V _{dc})	Adjustable output voltage ^[3] (V _{dc})	Output Current (A)	Ripple and noise (mV) ^[2]	Efficiency @230VAC (Typ.) ^[1]	Maximum capacitive load(uF)
A-500FKG-12P	500.4	12	10.8-13.2	0-41.7	200	90%	30000
A-500FKG-15P	501	15	13.5-16.5	0-33.4	200	90%	15000
A-500FKG-24P	504	24	21.6-26.4	0-21	250	92%	20000
A-500FKG-27P*	502.2	27	24.3-29.7	0-18.6	200	92%	18000
A-500FKG-36P	496.8	36	32.4-39.6	0-13.8	320	92%	18000
A-500FKG-48P	504	48	45.6-50.4	0-10.5	320	93%	4000
A-500FKG-55P	500.5	55	52.2-57.8	0-9.1	320	93%	4000

Note: [1] All parameters not specially mentioned are measured at rated input voltage, full load and 25°C ambient temperature.

[2] Ripple & noise are measured at 20MHz of oscilloscope bandwidth(oscilloscope probe cap and ground clamp are removed)by using a 20±2cm twisted pair-wire terminated with a 47uF electrolytic capacitor and a 0.1uF high frequency capacitor that are connected in parallel at the output end.

[3] Under any steady operating condition, the total output power shall not exceed the rated output power. When the output voltage is raised, the total output power cannot exceed the rated output power. When the output voltage is turned down, the output current cannot exceed the rated output current.

※ For the product models under development, please contact our sales team or distributor for more information.

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⊙ Input Specification:

Parameter		Min.	Typ.	Max.	Notes
Input AC Voltage		90 V _{ac}		264 V _{ac}	
Rated Input AC Voltage		100 V _{ac}		240 V _{ac}	
Input DC Voltage		120 V _{dc}		370 V _{dc}	
Input Frequency		47 Hz		63 Hz	
Maximum Input Current				5.7 A	115Vac, full load
				2.7 A	230Vac, full load
Power Factor			0.95		
Leakage Current	Input-PE			3.5 mA	240Vac/50Hz
	Input-Output			0.25 mA	240Vac/50Hz
Surge Current			25 A		115Vac, Cold start
			50 A		230Vac, Cold start

⊙ Output Specifications:

Parameter	Min.	Typ.	Max.	Notes
Output Voltage Tolerance	-2%		+2%	A-500FKG-12P A-500FKG-15P
	-1%		+1%	Other models
Line Regulation	-0.5%		+0.5%	All models
Load Regulation	-2%		+2%	A-500FKG-12P A-500FKG-15P
	-1%		+1%	Other models
Setup Time			1000ms	115Vac/230Vac, full load
Rise Time			100ms	115Vac/230Vac, full load
Hold up Time	8ms			115Vac/230Vac, full load

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◎ Efficiency:

Parameter	Min.	Typ.	Max.	Notes
Efficiency@115 V_{ac}				
A-500FKG-12P	88%	89%		Ambient temp. 25±5°C, full load
A-500FKG-15P	88%	89%		
A-500FKG-24P	90%	91%		
A-500FKG-27P	90%	91%		
A-500FKG-36P	90%	91%		
A-500FKG-48P	91%	92%		
A-500FKG-55P	91%	92%		
Efficiency@230 V_{ac}				
A-500FKG-12P	89%	90%		Ambient temp. 25±5°C, full load
A-500FKG-15P	89%	90%		
A-500FKG-24P	91%	92%		
A-500FKG-27P	91%	92%		
A-500FKG-36P	91%	92%		
A-500FKG-48P	92%	93%		
A-500FKG-55P	92%	93%		

◎ Function overview:

Function	Description
Cooling Mode	RTH2≥50°C ±10°C Fan on; RTH2≤40°C±10°C Fan off(RTH2:Internal temperature detection element)
Remote Compensation	S+/S-; S+ and S- are connected to the positive and negative ends of the load respectively, and the maximum line voltage drop can be compensated to 0.2V(optional)
Output ON/OFF Control	C+/C-;0-1V power supply turned on,4-10V power supply turned off(optional)

◎ Protection:

Parameter	Min.	Typ.	Max.	Notes
Over Load	110%		150%	Hiccup mode, recovers automatically after fault condition is removed.
Over Voltage	110%Vo		145%Vo	Power output off when OVP, recovers automatically after fault condition is removed.
Over Temperature		70°C		Power output off when OTP, recovers automatically after fault condition is removed.
Short Circuit	Hiccup mode when output side has short circuit fault, recovers automatically after fault condition is removed.			

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◎ Safety & EMC:

Safety Category	Country/Territory	Item	Standards
UL/CUL	USA/Canada	Safety Standard	UL 62368-1
			CAN/CSA C22.2 No. 62368-1:19
CE	Europe		EN 62368-1
CB	CB Countries		IEC 62368-1
CCC	China		GB 4943.1

EMI Category	Country/Territory	Item	Standards/Criteria	
FCC	USA/Canada	Conducted Emission	FCC part 15(ANSI C63.4)	Class B
		Radiated Emission	FCC part 15(ANSI C63.4)	Class B
CE	Europe	Conducted Emission	EN 55032	Class B
		Radiated Emission	EN 55032	Class B
		Harmonic Current	EN 61000-3-2	Class A
		Voltage Flicker	EN 61000-3-3	
CCC	China	Conducted Emission	GB/T 9254.1	Class B
		Radiated Emission	GB/T 9254.1	Class B
		Harmonic Current	EN 61000-3-2	Class A

EMS Category	Country/Territory	Item	Standards/Criteria			
CE	Europe	Electro-static Discharge	EN 61000-4-2	Air 8 kV / Contact 4 kV	Criteria B	
		Radiated Susceptibility	EN 61000-4-3	80MHz-1GHz 10V/m	Criteria B	
		Electrical Fast Transient	EN 61000-4-4	±2KV	Criteria B	
		Surge Immunity	EN 61000-4-5	CM±2KV/DM ±1KV	Criteria B	
		Conducted Emission Immunity	EN 61000-4-6	10Vr.m.s	Criteria B	
		Power Frequency Magnetic Field Immunity	EN 61000-4-8	30A/m, continuous	Criteria B	
		Voltage Dips, Drops and Interruptions Immunity	EN 61000-4-11	Drop 100%, 0.5 cycle		Criteria B
				Drop 100%,250 cycles		Criteria B
				Drop 30%,25 cycles		Criteria B
				Interrupt 100%, 250 cycles		Criteria C

Note:

The power supply is considered as a component which will be installed into a final equipment. All the EMC tests are be executed by mounting the unit on a metal plate with size 400mm*400mm*3mm. The final equipment must be re-confirmed that it still meets EMC directives.

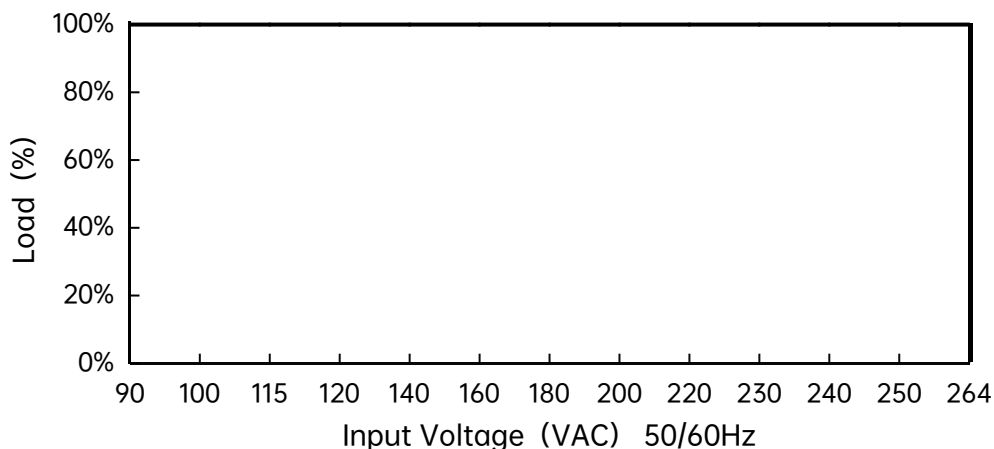
◎ General Specifications:

Parameter		Min.	Typ.	Max.	Notes
Dielectric Strength [4]	Input-Output	3000 V _{ac}			Last for 60s, leakage current < 10mA
	Input-PE	1800 V _{ac}			
	Output-PE	500 V _{ac}			
Insulation Resistance	Input-Output	100MΩ			Test Voltage: 500V _{dc}
	Input-PE	100MΩ			
	Output-PE	100MΩ			
Working Temp.		-30°C		+70°C	Refer to "Derating Curve"
Working Humidity		20%RH		95%RH	Non-condensing
Storage Temp.		-40°C		+85°C	
Storage Humidity		10%RH		95%RH	Non-condensing
Temp. Coefficient		-0.03%/°C		0.03%/°C	0~50°C
Mean Time Between Failure (MTBF)		200000 hours			Ambient temp. 25°C, MIL-HDBK-217F
Dimension		230*127*40.5mm			L*W*H
Net Weight			970g		
Packing		14PCS/15Kg/Carton, Carton Dimension: 345(L)*245(L)*280(H)mm			

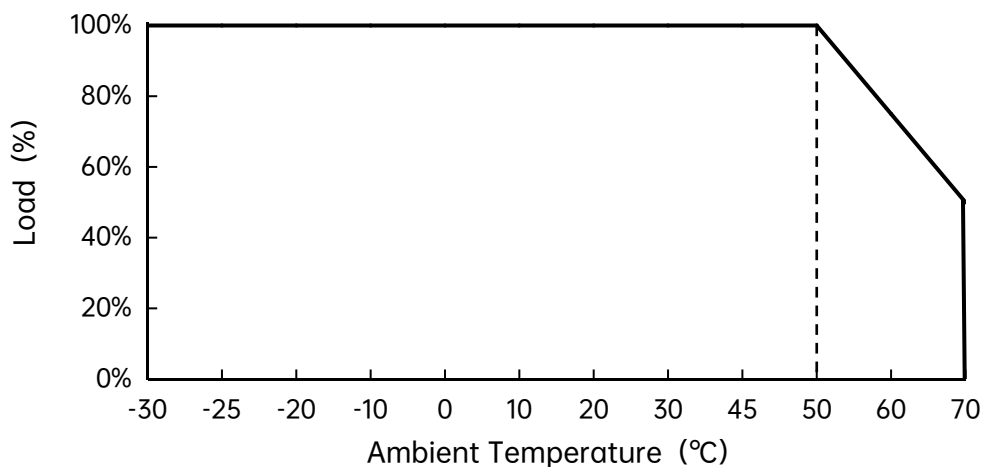
Note: [4] The minimum withstand voltage is 3000Vac, if a higher test standard is needed, please contact our sales representative or FAE.

◎ Performance Curve:

Static Characteristics



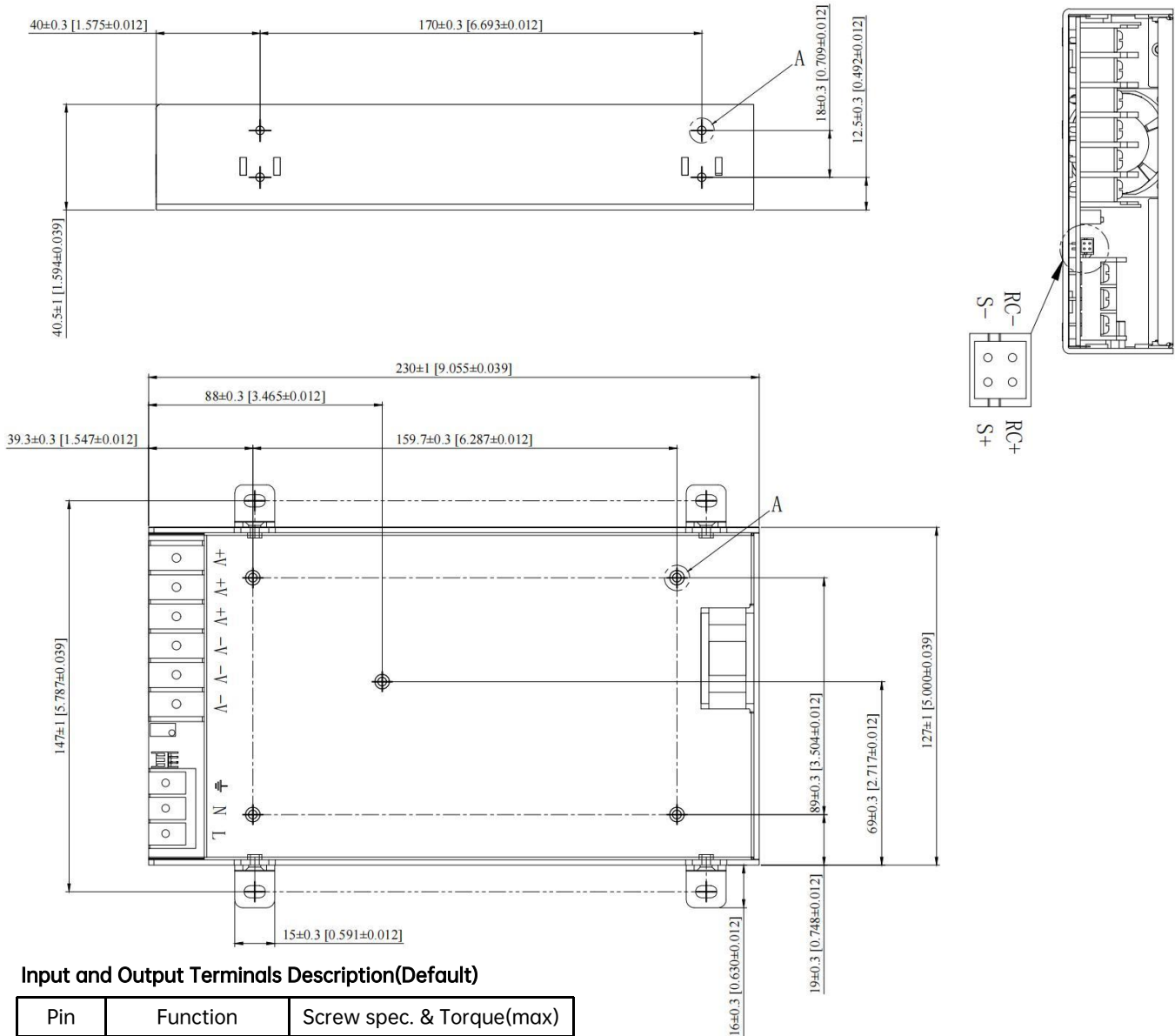
Derating Curve



Note:

1. If more detailed test data during application is needed, please contact our technical team to obtain application notes of related products.
2. This product is suitable for use in natural air convection environment, if used in a closed environment, please consult our technical support personnel.

◎ Mechanical Specification:



Input and Output Terminals Description(Default)

Pin	Function	Screw spec. & Torque(max)
L	AC LINE	Screw: M4*7 Torque: 12Kgf.cn(1.2N.m)
N	AC NETURAL	
⊕	EARTH	
V-	DC output -	Screw: M4*7 Torque: 12Kgf.cn(1.2N.m)
V-	DC output -	
V-	DC output -	
V+	DC output +	
V+	DC output +	
V+	DC output +	

9-M4 mounting hole

Screw: M4
Torque(max): 8Kgf.cn(0.8N.m)

Penetration Depth L (max):

4mm

Note:

Unit: mm[inch];

General tolerances: $\pm 0.5[\pm 0.020]$