



A-1000FKK-XP

- ◇ Product Category: 500Watts Industrial Power Supply
- ◇ Version No.: R3.0
- ◇ Date Issued: July 7th, 2024

CHUANGLIAN

★ Product Features

- Input Voltage: 90-264VAC/120-370VDC
- Built-in active PFC function
- Efficiency up to 93%
- Forced air cooling by built-in DC fan
- Up to 4 units in parallel
- With the function of output remote voltage compensation and output ON/OFF control
- Multiple Protection: SCP, OVP, OCP, OTP, Input undervoltage
- Output voltage adjustment by potentiometer
- Operating Temperature: -30°C~+70°C
- 3 Years warranty



RoHS

💬 Product Description

The A-1000FKK-xP series is a 1000 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 1000W Switching Power Supply

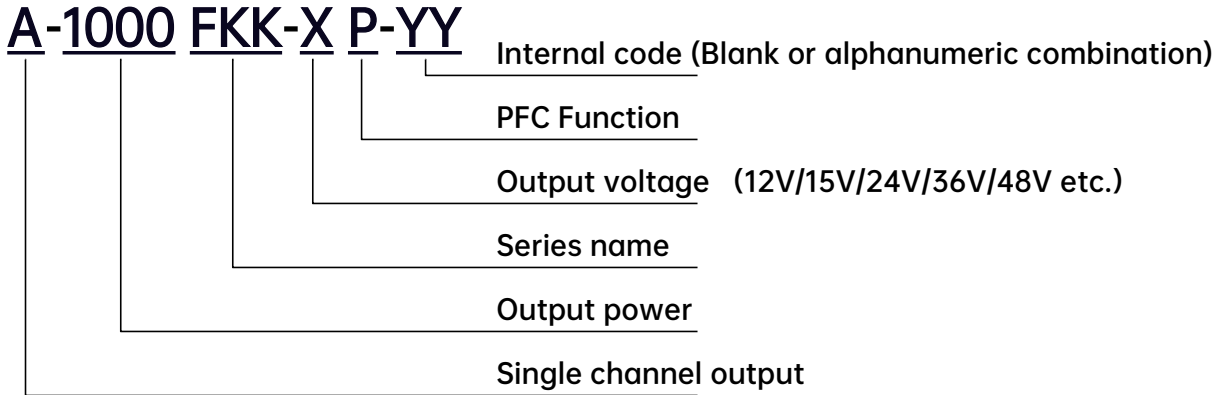
A-1000FKK Series



Applications

Industrial control system, Mechanical and electrical equipment, Electronic instruments and equipment, Industrial automation machinery, Semiconductor device, etc.

Model Encoding



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-1000FKK-12P	960	12	10.8-13.2	0-80	200	90%	40000
	10	5	/	0-2	150		2000
A-1000FKK-15P*	960	15	13.5-16.5	0-64	200	90%	20000
	10	5	/	0-2	150		2000
A-1000FKK-24P	998	24	21.6-26.4	0-41.6	200	92%	20000
	10	5	/	0-2	150		2000
A-1000FKK-27P*	999	27	24.3-29.7	0-37	200	92%	18000
	10	5	/	0-2	150		2000
A-1000FKK-36P	1008	36	32.4-37.8	0-28	200	93%	18000
	10	5	/	0-2	150		2000
A-1000FKK-48P	1008	48	45.6-50.4	0-21	300	93%	15000
	10	5	/	0-2	150		2000
A-1000FKK-55P	1001	55	52.2-57.7	0-18.2A	300	93%	15000
	10	5	/	0-2	150		2000

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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.

◎ 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			12 A	115Vac, full load
			6 A	230Vac, full load
Power Factor		0.99		115Vac, full load
		0.95		230Vac, full load
Leakage Current			2 mA	240Vac/50Hz
Surge Current		25 A		115Vac, Cold start
		40 A		230Vac, Cold start

◎ Output Specifications:

Parameter	Min.	Typ.	Max.	Notes
Output Voltage Tolerance	-2%		+2%	All models
	-2%		+2%	5V auxiliary source
Line Regulation	-0.5%		+0.5%	All models
	-0.5%		+0.5%	5V auxiliary source
Load Regulation	-2%		+2%	All models
	-8%		+8%	5V auxiliary source
Accuracy of current sharing ^[4]	-5%		+5%	When used in parallel, each unit carries more than 50% rated load
Setup Time			3000ms	115Vac/230Vac, full load
Rise Time			50ms	115Vac/230Vac, full load
Hold up Time	10ms			115Vac/230Vac, full load

Note: **[4]** Calculation formula of flow sharing accuracy= $(I_{o_max}-I_{o_min}) / I_{o_max} * 100\%$

I_{o_max} : The maximum output current value in a parallel power supply,

I_{o_min} : The minimum output current value in a parallel power supply.

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◎ Efficiency:

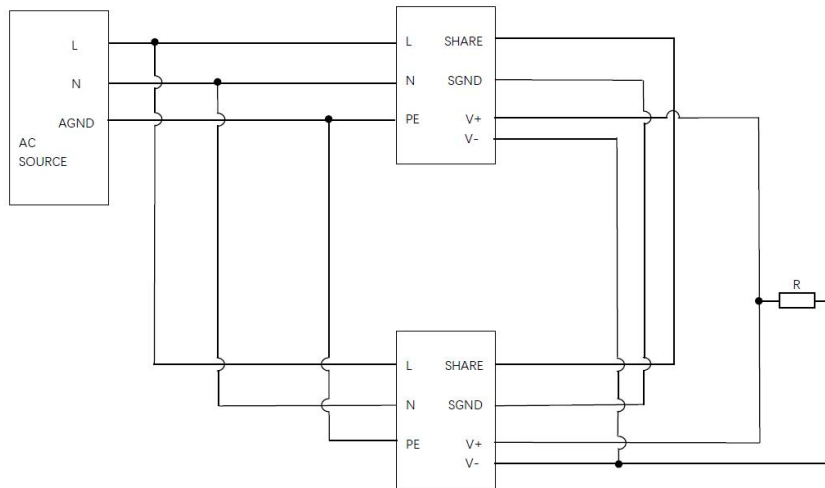
Parameter	Min.	Typ.	Max.	Notes
Efficiency@115 V_{ac}				
A-1000FKK-12P	88%	89%		Ambient temp. 25±5°C, full load
A-1000FKK-15P	88%	89%		
A-1000FKK-24P	90%	91%		
A-1000FKK-27P	90%	91%		
A-1000FKK-36P	91%	92%		
A-1000FKK-48P	91%	92%		
A-1000FKK-55P	91%	92%		
Efficiency@230 V_{ac}				
A-1000FKK-12P	89%	90%		Ambient temp. 25±5°C, full load
A-1000FKK-15P	89%	90%		
A-1000FKK-24P	91%	92%		
A-1000FKK-27P	91%	92%		
A-1000FKK-36P	92%	93%		
A-1000FKK-48P	92%	93%		
A-1000FKK-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)
Current sharing function	This function supports a maximum of four parallel working, and can parallel current sharing. For detailed application description, please contact FAE to obtain the A-1000FKK Power Supply Application Manual.
Remote compensation	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.
Output ON/OFF control	RC+/RC-, contact FAE to obtain the A-1000FKK Power Supply Application Manual. The factory Settings are logical B by default. Logic A: 0-0.6V input or short circuit or open circuit, power on; 1-10V input, power off. Logic B: 0-0.6V input or short circuit, power on; 1-10V input or open circuit, power off.

◎ Current sharing function:

A-1000FKK series products have active current sharing function and support up to 4 parallel devices to provide higher output power. The parallel connection diagram is as follows:



Note:

1. Cables of the same specifications and length must be used between the output end of each power supply in parallel and the final load R to ensure balanced distribution.
2. If the final load R exceeds the overcurrent point of a single power supply, ensure that the electrical connection conditions between the AC source and each power supply are the same to prevent the power supply from starting and entering the protection mode successively.
3. This method is now commonly used to build a power extension, that is, N power supplies in parallel, supporting the maximum load current $N \cdot I_{omax}$, where I_{omax} is the rated output current of each power supply. Maximum four power supplies can be used in parallel for current balancing.
4. When the current balancing function is used, the load on the system cannot directly exceed the rated load of a single product during the first time power-on.
5. If any power supply in parallel fails, the other power supplies will not be affected.
6. In practical application, the current of each power supply may not reach a complete balance.

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◎ Protection:

Parameter		Min.	Typ.	Max.	Notes
Input undervoltage protection	Protection voltage	70V _{ac}	80V _{ac}	90V _{ac}	When the input voltage reaches the protection voltage, the output is turned off.
	Recovery voltage	75V _{ac}	85V _{ac}	95V _{ac}	When the input voltage reaches the recovery voltage, the power supply automatically restarts.
Output Overvoltage Protection		110%V _o		140%V _o	When the fault is rectified, the output automatically recovers to normal.
Over Load		110%		150%	Hiccup mode, when the fault is rectified, the output automatically returns to normal.
Over Temperature (Ambient temp.)			80°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.			

◎ 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	GB/T 17625.1 Class A

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EMS Category	Country/Territory	Item	Standards/Criteria			
CE	Europe	Electro-static Discharge	EN 61000-4-2	Air 8 kV / Contact 4 kV	Criteria A	
		Radiated Susceptibility	EN 61000-4-3	80MHz-1GHz 10V/m	Criteria B	
		Electrical Fast Transient	EN 61000-4-4	±2KV	Criteria A	
		Surge Immunity	EN 61000-4-5	CM±4KV/DM ±2KV	Criteria B	
		Conducted Emission Immunity	EN 61000-4-6	10Vr.m.s	Criteria A	
		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.

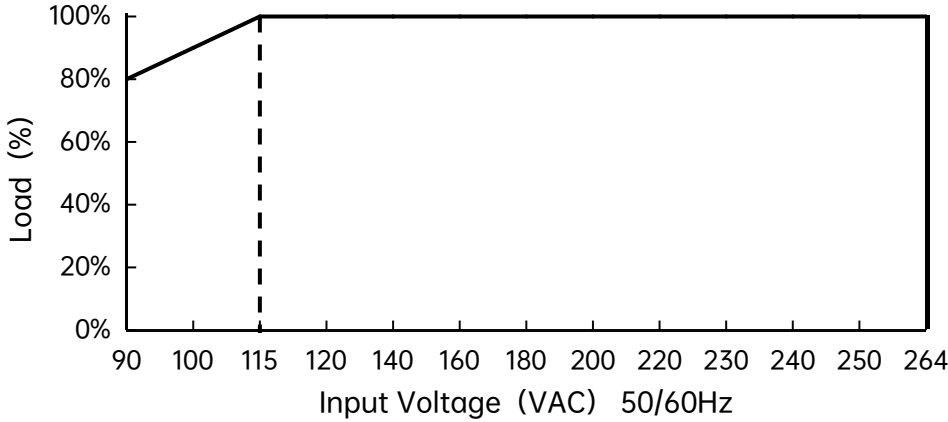
General Specifications

Parameter		Min.	Typ.	Max	Notes
Dielectric Strength [4]	Input-Output	4000 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		90%RH	Non-condensing
Storage Temp.		-40°C		+85°C	
Storage Humidity		10%RH		95%RH	Non-condensing
Temp. Coefficient		-0.02%/°C		0.02%/°C	0~50°C
Mean Time Between Failure (MTBF)		250000 hours			Ambient temp. 25°C, MIL-217F HDBK-
Dimension	230*127*40.5mm				L*W*H
Net Weight			1200g		
Packing	9PCS/12Kg/Carton, Carton Dimension: 352(L)*255(W)*200(H)mm				

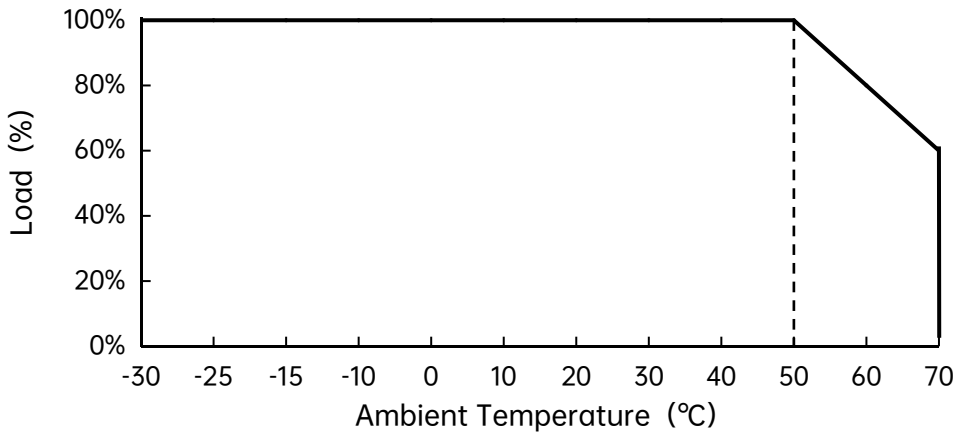
Note: [4] The minium withstand voltage is 4000Vac, if a higher test standard is needed, please contact our sales representative or FAE.

◎ Performance Curve:

Static Characteristics



Derating Curve



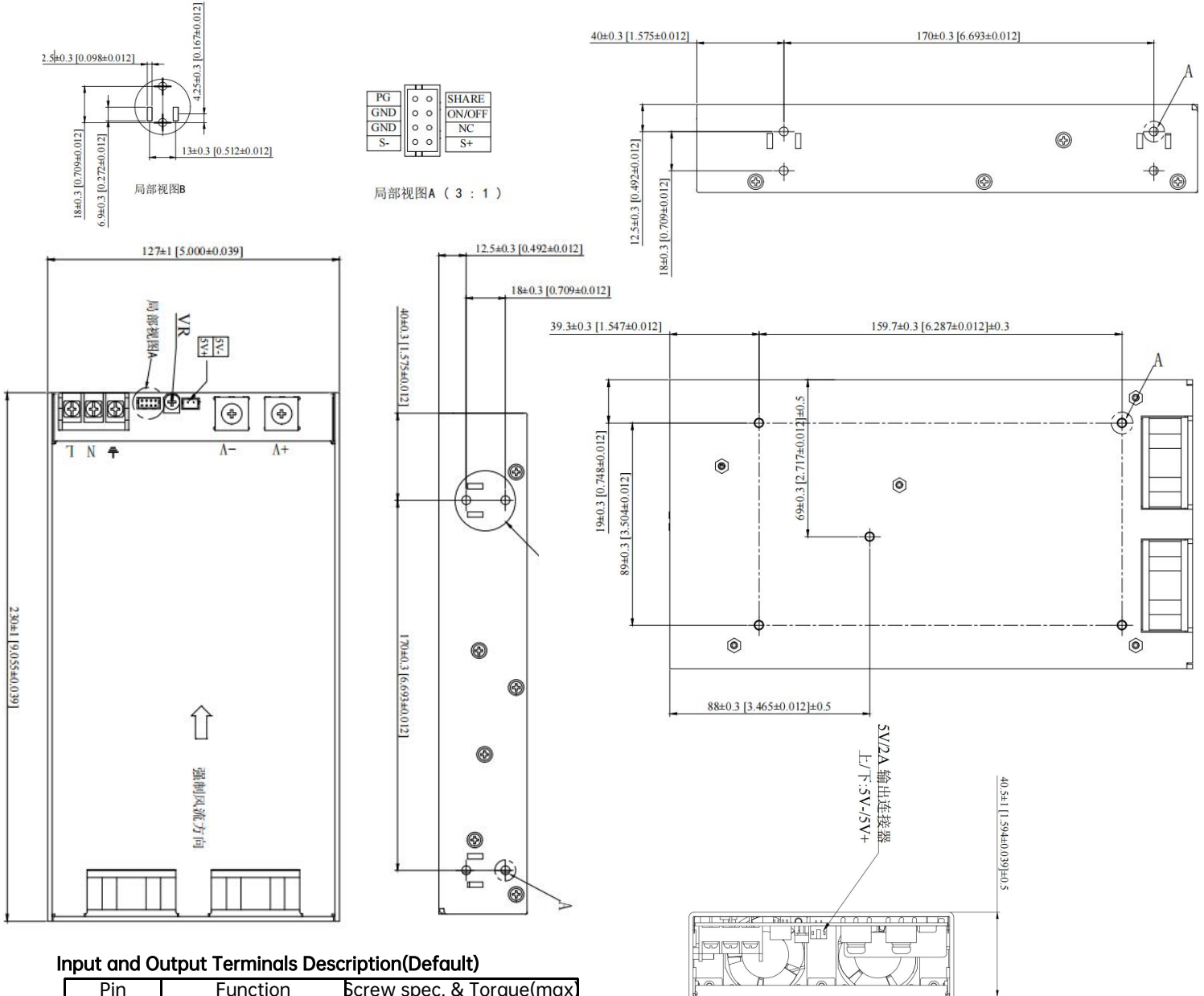
Note:

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.

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◎ Mechanical Specification:



Input and Output Terminals Description(Default)

Pin	Function	Screw spec. & Torque(max)
L	AC LINE	Screw: M4×7 Torque: 10 Kgf·cn(1.0 N·m)
N	AC NETURAL	
⊕	EARTH	
V-	DC output -	Screw: M4×7 Torque:10 Kgf·cn(1.0 N·m)
V+	DC output +	
S+	Output ON/OFF control signal+	
S-	Output ON/OFF control signal-	
NC	NC	
GND	GND	
ON/OFF	ON/OFF control	
SHARE	Share control	
PG	Power Good	

13-M4 mounting hole

Screw: M4
Torque(max): 8Kgf·cn(0.8N·m)
Penetration Depth L (max): 3mm

Note:
Unit: mm[inch],
General tolerances: ±0.5[±0.020]