ADF120-2B-xx Series

DESCRIPTIONS

120W, AC-DC DIN-Rail Power Supply



RoHS

UL61010-1 EN62368-1 BS EN62368-1

FEATURES

- Universal 85 - 264VAC or 120 - 370 VDC Input voltage
- Accepts AC or DC input (dual-use of same terminal)
- Operating ambient temperature range: -40℃ to +70℃
- High efficiency up to 94%, high reliability
- DC OK function
- Active PFC
- 150% peak load output for 3 seconds
- DC ON output status indicator LED
- Output short circuit, over-current, over-voltage, over-temperature protection
- Operating altitude up to 5000m
- OVC II
- Indoor use
- Safety according to IEC/UL/BS EN 62368

APPLICATIONS

- Industrial control
- Electricity
- Security

Selection Guide

Certification	Part No.*	Output Power (W)	Nominal Output Voltage and Current (Vo/Io)	Output Voltage Adjustable Range (V)	Efficiency at 230VAC (%) Typ.	Max. Capacitive Load (μF)
EN/BS EN	ADF120-2B-12	120	12V/10A	11.8-14.0	93.5	80000
EN/BS EN	ADF120-2B-24		24V/5A	23.5-28.0	94	50000
EN/BS EN/UL	ADF120-2B-48		48V/2.5A	47.0-53.0		30000
EN/BS EN	ADF120-2B-55	121	55V/2.2A	52.0-56.0		

Note:*The product picture is for reference only, for details, please refer to the actual product

Specifications

Product Specifications	Item	Operating Conditions		Min.	Typ.	Max.	Unit
Input Specifications	Input Voltage Range	AC input		85	--	264	VAC
		DC input		120	--	370	VDC
	Input Frequency	AC input		47	--	63	Hz
	Input Current	115VAC		--	--	1.5	A
		230VAC		--	--	0.75	
	Inrush Current	115VAC	Cold start	--	15	--	
		230VAC		--	30	--	
	Leakage Current	240VAC		< 1mA			
	Power Factor	115VAC		--	0.98	--	--
		230VAC		--	0.94	--	
	Start-up Delay Time	230VAC		--	300	1000	ms
	Hot Plug			Unavailable			
Output Specifications	Output Voltage Accuracy	Full load range		--	±1	--	%
	Line Regulation	Rated load		--	±0.5	--	
	Load Regulation	0% - 100% load		--	±1	--	
	Ripple & Noise*	20MHz bandwidth (peak-peak value)	12V/24V	--	--	100	mV
			48V/55V	--	--	200	
	Stand-by Power Consumption			--	2	--	W
	Hold-up Time			--	20	--	ms
	DC OK Signal	Resistive load		30VDC/1A Max.			
	Short Circuit Protection	Recovery time < 10s after the short circuit disappear.		Hiccup mode, constant current works 1s, turn off 10s, continuous, self-recovery			
	Over-current Protection	230VAC, rated load	Normal temperature, high temperature	105% - 200% Io, self-recovery			
			Low temperature	≥105% full load after derating, self-recovery			

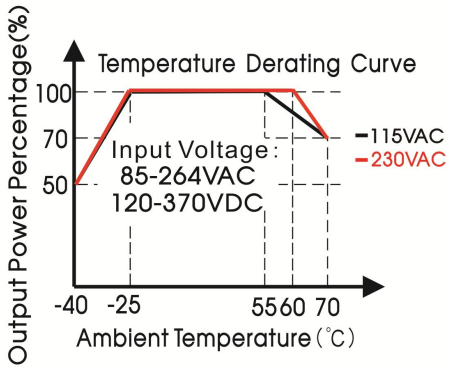
Output Specifications	Over-voltage Protection		12V		≤18V (Hiccup, self-recovery after the abnormality is removed)			
			24V		≤35V (Hiccup, self-recovery after the abnormality is removed)			
			48V		≤60V (Hiccup, self-recovery after the abnormality is removed)			
			55V		≤63V (Hiccup, self-recovery after the abnormality is removed)			
	Over-temperature Protection		230VAC, 70% load	Over-temperature protection start	--	90	--	℃
				Over-temperature protection release	60	--	--	
General Specifications	Isolation Test	Input - ⏚	Electric strength test for 1min., leakage current <15mA		1500	--	--	VAC
		Input - output			3000	--	--	
		Output - ⏚			500	--	--	
	Insulation Resistance	Input - ⏚	At 500VDC		50	--	--	MΩ
		Input - output			50	--	--	
		Output - ⏚			50	--	--	
	Operating Temperature				-40	--	+70	℃
	Storage Temperature				-40	--	+85	
	Operating Humidity		Non-condensing		--	--	95	%RH
	Storage Humidity				20	--	95	
	Switching Frequency				--	100	--	KHz
	Power Derating		Operating temperature derating	-40℃ to -25℃	3.34	--	--	%/℃
				+55℃ to +70℃	85VAC-164VAC	2.0	--	--
				+60℃ to +70℃	165VAC-264VAC	3.0	--	--
			Input voltage derating		85VAC-100VAC	0.67	--	--	%/VAC
	Safety Class					CLASS I		
	MTBF		MIL-HDBK-217F@25℃			> 300,000 h		
Mechanical Specifications	Case Material		Metal (AL5052, SPCC, SGCC)					
	Dimensions		110.00 x 32.00 x 124.00 mm					
	Weight		490g±10% (Typ.)					
	Cooling Method		Free air convection					

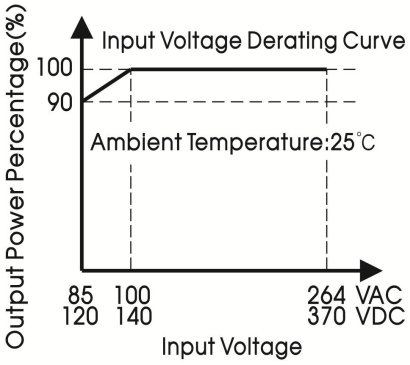
Note: 1.*The "Tip and barrel method" is used for ripple and noise test, output parallel 47uF electrolytic capacitor and 0.1uF ceramic capacitor;
2.*DC OK Signal: When the output voltage is normal, the relay is connected. When the output voltage is abnormal (<90%Vo), the relay is disconnected.

Electromagnetic Compatibility (EMC)

Electromagnetic Compatibility (EMC)	EMI	CE	CISPR32/EN55032 CLASS B	
		RE	CISPR32/EN55032 CLASS B	
		Harmonic current	IEC/EN61000-3-2 CLASS A and CLASS D	
	EMS	ESD	IEC/EN 61000-4-2 Contact ±6KV/Air ±8KV	perf. Criteria A
		RS	IEC/EN 61000-4-3 10V/m	perf. Criteria A
		EFT	IEC/EN 61000-4-4 ±4KV	perf. Criteria A
		Surge	IEC/EN 61000-4-5 line to line ±2KV/line to ground ±4KV	perf. Criteria A
		CS	IEC/EN61000-4-6 10 Vr.m.s	perf. Criteria A
		Voltage dips, short interruptions and voltage variations immunity	IEC/EN61000-4-11 0%, 70%	perf. Criteria B

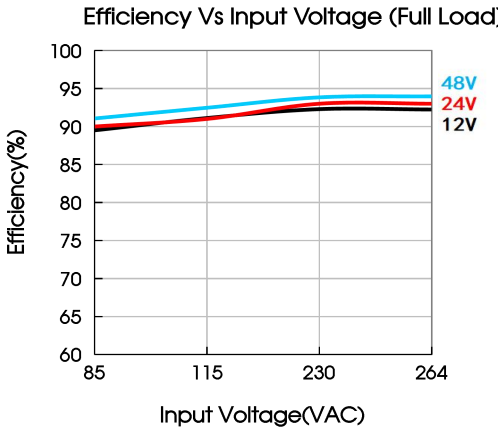
Characteristic Curve

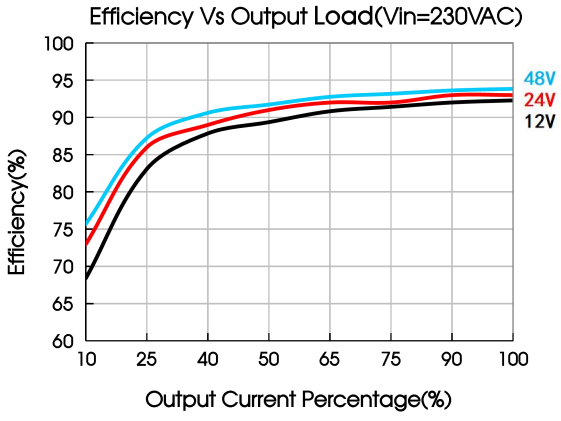




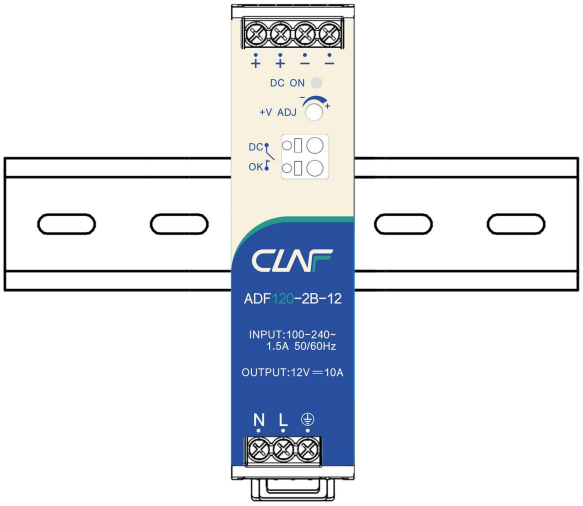
Note: 1. With an AC input voltage between 85 -100VAC and a DC input between 120-140VDC the output power must be derated as per the temperature derating curves;

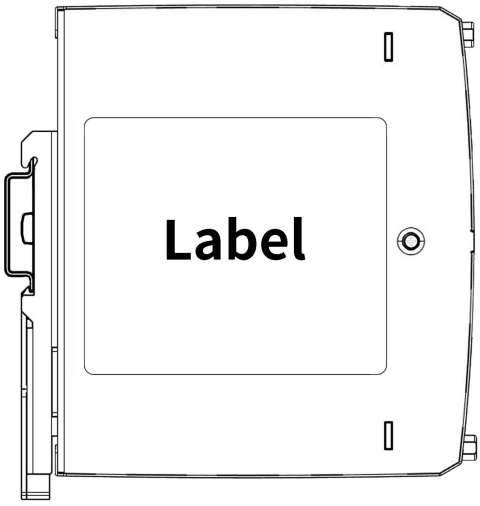
2. This product is suitable for applications using natural air cooling.





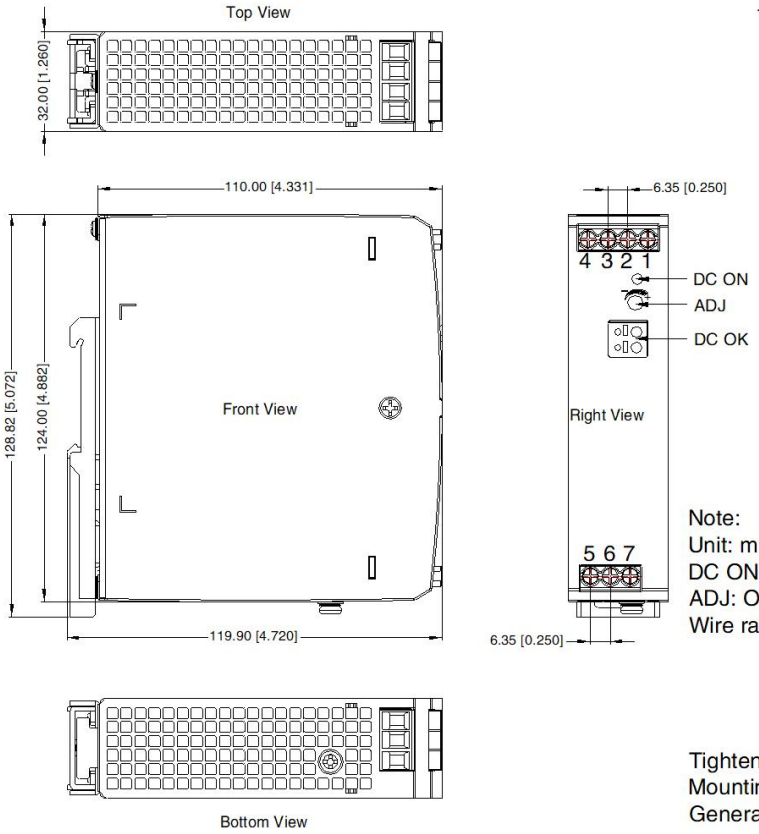
Installation Diagram





Note: Keep the following installation clearances: 20mm on top, 20mm on the bottom, 5mm on the left and right sides are recommended when the device is loaded permanently with more than 50% of the rated power. Increase this clearance to 15mm in case the adjacent device is a heat source (e.g. another power supply).

Dimensions and Recommended



THIRD ANGLE PROJECTION

Pin–Out	
Pin	Function
1	–Vo
2	–Vo
3	+Vo
4	+Vo
5	AC(N)
6	AC(L)
7	⏚

Note:
Unit: mm[inch]
DC ON: Output status indicator LED
ADJ: Output adjustable resistor
Wire range: Input: 26–10AWG(12–10AWG for pin7)
Output: 12V: 16–10AWG
24V: 20–10AWG
48V、55V: 22–10AWG
DC OK: 24–16AWG
Tightening torque: 0.79 ± 0.079 N·m
Mounting rail: TS35, rail needs to connect safety ground
General tolerances: ± 1.00[± 0.039]

WARNING Risk of electrical shock, fire, personal injury or death:

AVERTISSEMENT AVERTISSEMENT Risque de choc électrique, d'incendie, de blessures corporelles ou de décès :

1. Do not use the power supply without proper grounding (Protective Earth). Use the terminal on the input block for earth connection and not one of the screws on the housing;
N'utilisez pas l'alimentation électrique sans mise à la terre appropriée (Terre protectrice). Utilisez le terminal sur le bloc d'entrée pour la connexion terrestre et non pas une des vis sur le boîtier;
2. Turn power off before working on the device, protect against inadvertent re-powering;
Éteignez l'alimentation avant de travailler sur l'appareil, protégez-vous contre la réénergisation accidentelle;
3. Make sure that the wiring is correct by following all local and national codes;
Assurez-vous que le câblage est correct en suivant tous les codes locaux et nationaux;
4. Do not modify or repair the unit;
Ne modifiez pas ou ne réparez pas l'appareil;
5. Do not open the unit as high voltages are present inside;
Ne modifiez pas ou ne réparez pas l'appareil;
6. Use caution to prevent any foreign objects from entering the housing;
Faire preuve de prudence pour empêcher les objets étrangers d'entrer dans le logement;
7. Do not use in wet locations or in areas where moisture or condensation can be expected;
Faire preuve de prudence pour empêcher les objets étrangers d'entrer dans le logement;
8. Do not touch during power-on, and immediately after power-off, hot surfaces may cause burns;
Ne touchez pas pendant l'alimentation et, immédiatement après l'alimentation, les surfaces chaudes peuvent causer des brûlures.
9. For ambient temperature ≤60℃, use ≥90℃ - copper wire only; for ambient temperature >60℃ to 85℃, use ≥105℃ - copper wire only; use only wires with a minimum dielectric strength of 300V (input) and 60V (output);
Température ambiante ≤60℃, utiliser ≥90℃ - seulement fils de cuivre; Température ambiante >60℃ et 85℃, utiliser ≥105℃ - seulement fils de cuivre; Uniquement pour l'ulilisation de fils de cuivre d'une résisitance d'isolation minimale de 300V (d'entrée) et 60V (de sortie).

Note:

1. Unless otherwise specified, parameters in this datasheet were measured under the conditions of Ta=25℃, humidity<75% RH with nominal input voltage and rated output load;
2. The room temperature derating of 5℃/1000m is needed for operating altitude greater than 2000m;
3. In order to improve the efficiency at high input voltage, there will be audible noise generated, but it does not affect product performance and reliability;
4. Products are related to laws and regulations: see "Features" and "EMC";
5. The out case needs to be connected to the earth (⏚) of system when the terminal equipment in operating, see "Dimensions and Recommended Layout" ;
6. The output voltage can be adjusted by the output adjustable resistance ADJ, turn it up clockwise;
7. The units are Open Type Power Supplies, which need to be mounted in a fire, mechanically and electrically safe enclosure;
8. If the equipment is used in a manner not specified by manufacture, the protection provided by the equipment may be impaired.
9. The image certification marks are for reference only; please refer to the selection table for actual specifications. Certification is based on the physical mark or packaging label.