DESCRIPTIONS 120W, AC/DC Converter



RoHS

CE Report EN62368-1

UKCA Report BS EN62368-1

FEATURES

- Universal 85 - 264VAC or 120 - 370 VDC Input voltage (Rated input: 100-240VAC)
- Accepts AC or DC input (dual-use of same terminal)
- Operating ambient temperature range: -40℃ to +85℃
- High efficiency, high reliability
- DC OK function
- DC ON output status indicator LED
- Active PFC
- Output short circuit, over-current, over-voltage, over-temperature protection
- ATEX, IECEx increased safety type explosion-proof certification approved
- Operating altitude up to 5000m
- OVC II
- Indoor use

APPLICATIONS

- Industrial control
- Machinery

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-EX	120	12V/10A	11.8-14.0	92	80,000
	ADF120-2B-24-EX		24V/5A	23.5-28.0	93	50,000
	ADF120-2B-48-EX		48V/2.5A	47.0-53.0	93.5	30,000

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

Specifications

Specifications	Item	Operating Conditions		Min.	Typ.	Max.	Unit
Input Specifications	Input Voltage Range	Rated input (Certified voltage)		100	--	240	VAC
		AC input		85	--	264	
		DC input		120	--	370	VDC
	Input Frequency	Rated AC input		50	--	60	Hz
		AC input		47	--	63	
	Input Current	Rated Input		--	--	1.5	A
		115VAC		--	--	1.5	
		230VAC		--	--	0.75	
	Inrush Current	115VAC	Cold start	--	10	15	
		230VAC		--	20	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)		--	50	100	mV
	Minimum Load			0	--	--	%
	Stand-by Power Consumption			--	1.2	2	W
	Hold-up Time			15	--	--	ms
	DC OK Signal	Resistive load		30VDC/1A Max.			
	Short Circuit Protection	Recovery time < 10s after the short circuit disappear		Constant current hiccup mode (constant current mode works 1s and stop 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			
	Over-voltage Protection	12V		≤18V (Hiccup, self-recovery after the abnormality is removed)			
		24V		≤35V (Hiccup, self-recovery after the abnormality is removed)			

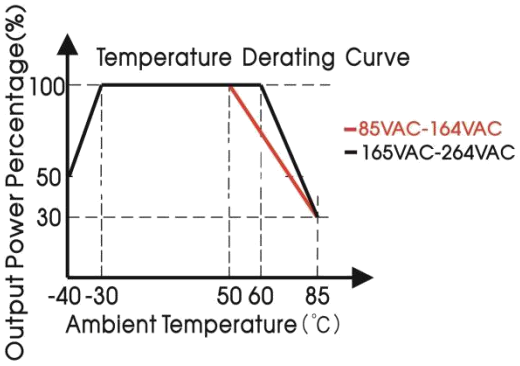
			48V		≤60V (Hiccup, self-recovery after the abnormality is removed)			
	Over-temperature Protection		230VAC, 30% load	Over-temperature protection start	--	--	105	℃
				Over-temperature protection release	60	--	--	
General Specifications	Isolation Test	Input - ⏚	Electric strength test for 1min., leakage current <15mA		1500	--	--	VAC
		Input -output			3000	--	--	
		Output - ⏚			500	--	--	
	Insulation Resistance	Input - ⏚	At 500VDC		100	--	--	MΩ
		Input - output			100	--	--	
		Output - ⏚			100	--	--	
	Operating Temperature				-40	--	+85	℃
	Storage Temperature							
	Operating Humidity		Non-condensing		20	--	90	%RH
	Storage Humidity				--	--	95	
	Switching Frequency				--	100	--	KHz
	Power Derating		Operating temperature derating	-40℃ to -30℃	5	--	--	%/℃
				+50℃ to +85℃	85 VAC-164VAC	2	--	--
				+60℃ to +85℃	165VAC-264VAC	2.8	--	--
			Input voltage derating		85VAC-100VAC	1.67	--	--	%/VAC
	Safety Class					CLASS I		
	MTBF		MIL-HDBK-217F@25℃			> 300,000 h		
Mechanical Specifications	Case Material		Metal (AL5052, SPCC, SGCC) and Plastic (PA66)					
	Dimensions		110.00 x 32.00 x 124.00 mm					
	Weight		500g (Typ.)					
	Cooling Method		Free air convection					

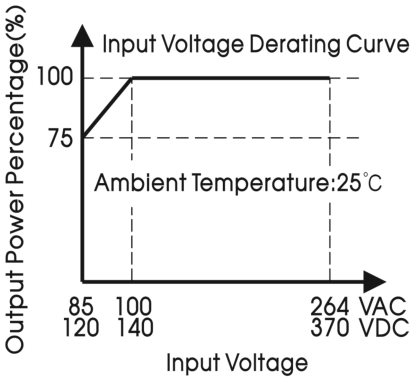
Note: *The "Tip and barrel method" is used for ripple and noise test, output parallel 47uF electrolytic capacitor and 0.1uF

Electromagnetic Compatibility (EMC)

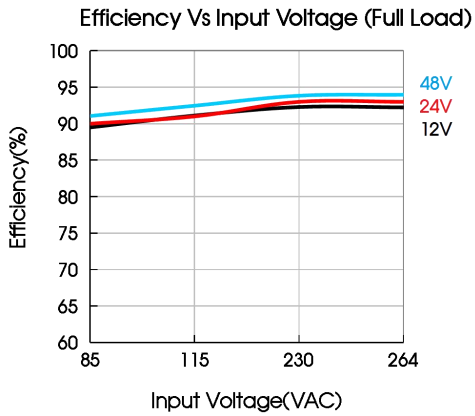
Electromagnetic Compatibility	EMI	CE	CISPR32/EN55032 CLASS B	
		RE	CISPR32/EN55032 CLASS B	
		Harmonic current	IEC/EN61000-3-2 CLASS A	
	EMS	ESD	IEC/EN 61000-4-2 Contact ±6KV/Air ±8KV	perf. Criteria A
		RS	IEC/EN 61000-4-3 10V/m	perf. Criteria A
		EFT	IEC/EN 61000-4-4 ±4KV	perf. Criteria A
		Surge	IEC/EN 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

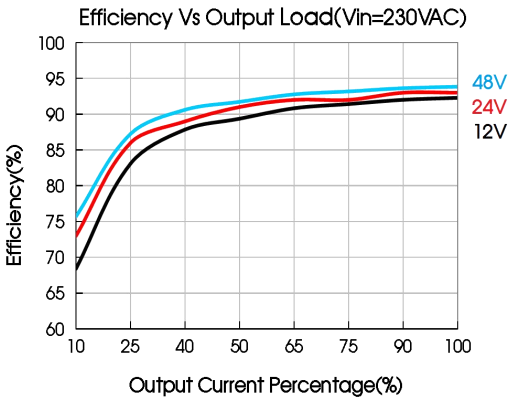
Characteristic Curve





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;





Explosion Proof Information

The power supply is equipment intended for use in explosive atmospheres classified as Zone 2, EPL Gc.The equipment is protected by type of protection Ex 'ec' and the relay inside is protected by type of protection Ex 'nC' sealed device. It's a well performance AC-DC module with one-phase input and single output. It has functions such as output over-current protection, output over-voltage protection, output short circuit protection, over-temperature protection and so on, with well combined regulation and high efficiency. When input voltage is between 85VAC - 164VAC, and ambient temperature is between +50℃ to +85℃, power derating off 2.0%/K is required; when input voltage is between 165VAC - 264VAC, and ambient temperature is between +60℃ to +85℃, power derating off 2.8%/K is required.

ATEX contents

1. Satisfied standard

This product complies with the EU Explosion proof certification ATEX directive 2014/34/EU.

EN IEC 60079-0:2018	Equipment - General requirements
EN IEC 60079-7:2015/A1:2018	Equipment protection by increased safety "e"
EN IEC 60079-15:2019	Equipment protection by type of protection "n"

2.Specific conditions for safe use while the equipment services in explosive gas atmosphere:

① The equipment shall only be used in an area of at least pollution degree 2, as defined in EN 60664-1. See Annex H.2 of EN 60079-7;

② The device shall be installed in a secure environment with a minimum protection level of IP 54 in accordance with EN 60079-0, see Annex H.2 of 60079-7;

③ Transient protection should be designed at a level that does not exceed 140% of the maximum voltage value of the equipment supply

④ The equipment has to be installed according to EN 60079-14;

⑤ Output power derating conditions must be considered according to instruction manual for installations within the power derating range.

IECEx contents

1. Satisfied standard

IEC 60079-0:2017	Equipment - General requirements
IEC 60079-7:2015+AMD1:2017 CSV	Equipment protection by increased safety "e"
IEC 60079-15:2017	Equipment protection by type of protection "n"

2. Specific conditions of use while the equipment services in explosive gas atmosphere:

① The equipment shall only be used in an area of at least pollution degree 2, as defined in EN 60664-1. See Annex H.2 of EN 60079-7;

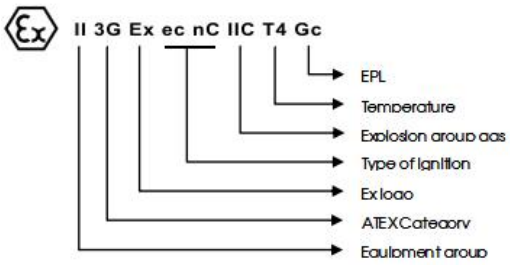
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③ Transient protection should be designed at a level that does not exceed 140% of the maximum voltage value of the equipment supply

④ The equipment has to be installed according to EN 60079-14;

⑤ Output power derating conditions must be considered according to instruction manual for installations within the power derating range.

Ex marking description:



Environmental contents: RoHS

Safety contents:

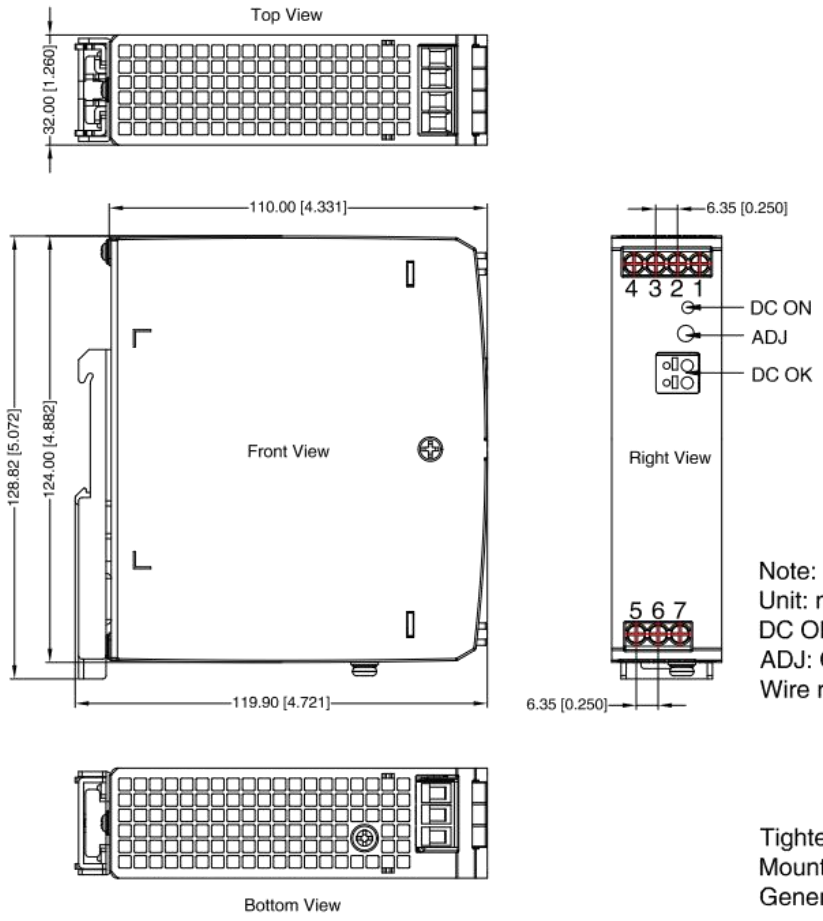
Note:

1.This device is designed for convection cooling and does not require an external fan. Do not obstruct airflow and do not cover ventilation grid (e.g. cable conduits) by more than 30%;

2.Prior to starting installation, ensure that no explosive gas mixtures are present; no live lines, connectors or plugs may be connected or disconnected if an ex-plosive gas mixture is present;

3. A visual inspection of the power supply device is to be performed once per year.

Dimensions and Recommended



THIRD ANGLE PROJECTION

Pin–Out	
Pin	Mark
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: 22–10AWG
DC OK: 24–16AWG
Tightening torque: Max 0.79N・m
Mounting rail: TS35, rail needs to connect safety ground
General tolerances: ± 1.00[± 0.039]

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.The out case needs to be connected to PE (⏚) of system when the terminal equipment in operating;

5.The output voltage can be adjusted by the ADJ, clockwise to increase.

6.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.