ADF480-2B-xx Series

DESCRIPTIONS

480W, AC/DC DIN-Rail Power Supply

RoHS

CE Report EN62368-1

UKCA Report BS EN 62368-1

FEATURES

- Universal 85- 264VAC or 120- 370VDC Input voltage
- Accepts AC or DC input (dual-use of same terminal)
- Operating ambient temperature range: -40℃ to +70℃
- The efficiency is up to 94.5%
- High I/O isolation test voltage up to 3000VAC
- DC OK function
- Active PFC, PF > 0.99
- Low ripple & noise
- Output short circuit, over-current, over-voltage, over-temperature protection, input undervoltage protection
- DIN rail TS-35/7.5 or 15 mountable
- Ultra slim design with 48mm width
- Withstand 305VAC input voltage 5S
- Safety according to IEC/UL62368, EN61558

APPLICATIONS

- Industrial Control
- Machine
- Wind Power
- DCS
- Charging Post
- Energy Storage
- Intelligent Farming

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	ADF480-2B-24	480	24V/20A	24-28	94.5	20000
	ADF480-2B-48		48V/10A	48-55		10000

Note:1. *Use suffix "QQ" for double-faced conformal coating;

2. *Under any conditions, the total power of the product should not exceed the 480W rated power, and the output current cannot exceed the rated output current.

3. *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	Rated input (Certified voltage)		100	--	240	VAC
		AC input		85	--	264	
		DC input		120	--	370	VDC
	Input Voltage Frequency			47	--	63	Hz
	Input Current	115VAC		--	--	5.5	A
		230VAC		--	--	2.5	
	Inrush Current	115VAC	Cold start	--	--	35	
		230VAC		--	--	35	
	Power Factor	115VAC		0.99	--	--	--
		230VAC		0.99	--	--	
	Leakage Current	240VAC		< 0.8mA			
	Hot Plug			Unavailable			
	Input Under-voltage Protection	Protection start (Input voltage drops from high to low)		--	60	--	VAC
		Protection release (Input voltage rises from low to high)		--	75	--	
Output Specifications	Output Voltage Accuracy	Full load range		--	±1.0	--	%
	Line Regulation	Rated load		--	±0.5	--	
	Load Regulation	0% - 100% load		--	±1.0	--	
	Ripple & Noise*	20MHz bandwidth (peak-to-peak value)	24V	--	--	50	mV
			48V	--	--	70	
	Temperature Coefficient			--	±0.03	--	%/℃
	Minimum Load			0	--	--	%
	Hold-up Time			16	22	--	ms
	DC OK Signal			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		150% Io (Typ.), the output turned off after working continuously for 1s, self-recovery			

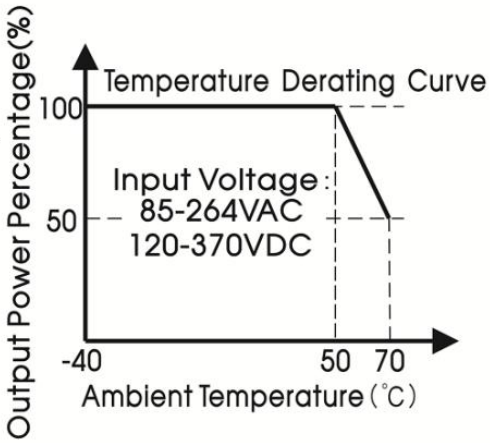
	Over-voltage Protection		24V		29-35V (Output voltage hiccup)			
			48V		56-60V (Output voltage hiccup)			
	Over-temperature Protection*		230VAC, 100% Io	Over-temperature protection start	--	--	90	℃
				Over-temperature protection release	60	--	--	
General Specifications	Isolation Test	Input - ⏚	Electric strength test for 1min., leakage current <10mA		2000	--	--	VAC
		Input - output			3000	--	--	
		Output - ⏚			500	--	--	
	Insulation Resistance	Input - ⏚	At 500VDC		100	--	--	MΩ
		Input - output			100	--	--	
		Output - ⏚			100	--	--	
	Operating Temperature				-40	--	+70	℃
	Storage Temperature				-40	--	+85	
	Storage Humidity		Non-condensing		10	--	95	%RH
	Operating Humidity				20	--	90	
	Power Derating		Operating temperature derating	+50℃ to +70℃	2.5	--	--	%/℃
			Input voltage derating	85VAC -100VAC	1.0	--	--	%/VAC
	Safety Class				CLASS I			
	MTBF		MIL-HDBK-217F@25℃		> 300,000 h			
Mechanical Specifications	Case Material		Metal (AL1100, SPCC) and Plastic (PC940)					
	Dimensions		131.50 x 48.00 x 125.00 mm					
	Weight		980g (Typ.)					
	Cooling Method		Free air convection					

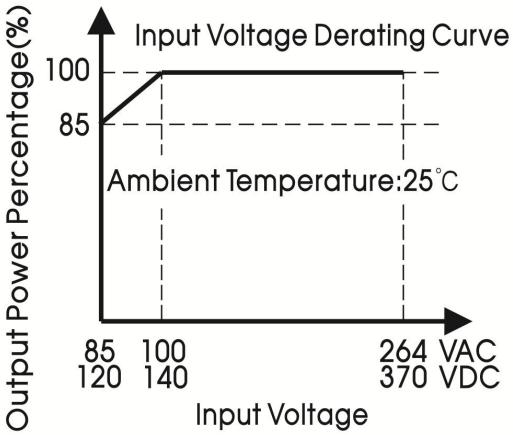
Note: 1. *The "Tip and barrel method" is used for ripple and noise test, output parallel 47uF electrolytic capacitor and 0.1uF ceramic capacitor;
2. *Over-temperature Protection: Output voltage turn off, self-recovery after the temperature drops.

Electromagnetic Compatibility (EMC)

EMC Characterization	Emissions (EMI)	CE	CISPR32/EN55032	CLASS B
		RE	CISPR32/EN55032	CLASS B
		Harmonic current	IEC/EN 61000-3-2	CLASS A and CLASS D
	Immunity (EMS)	ESD	IEC/EN 61000-4-2 Contact ±8KV/Air ±15KV	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 A

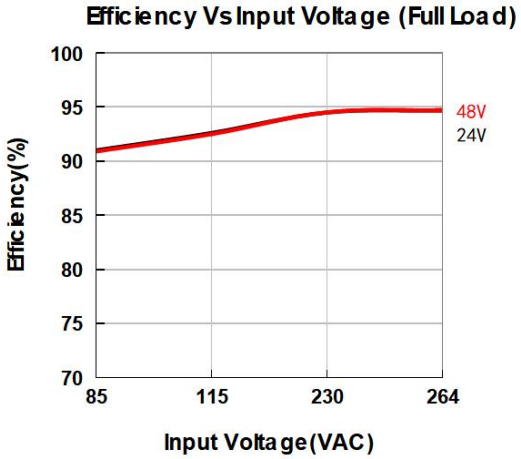
Product Characteristic Curve

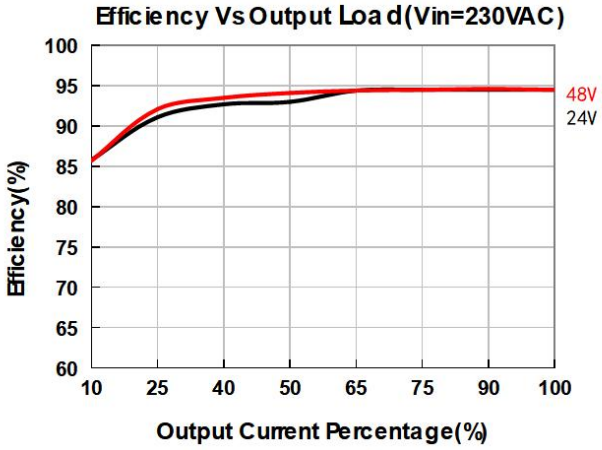




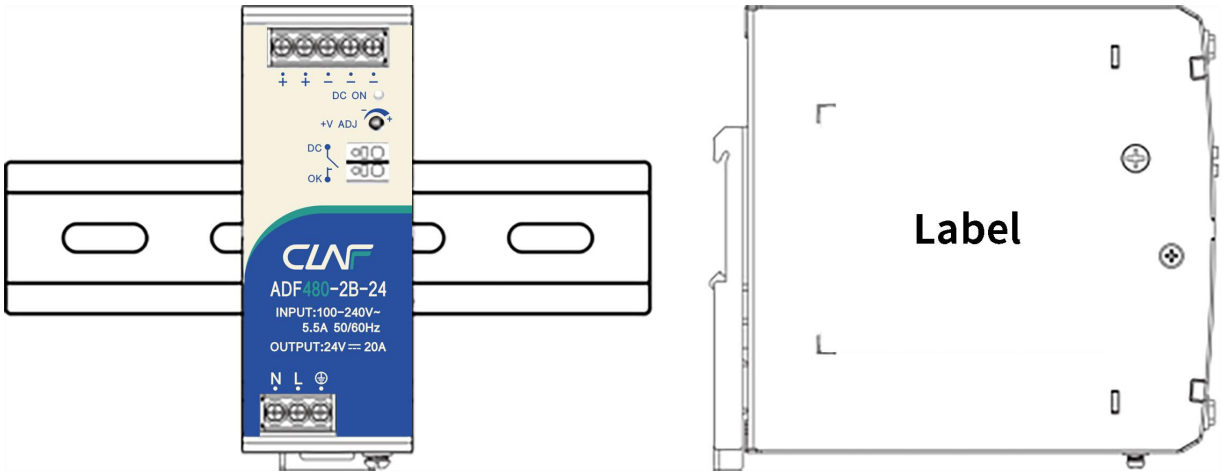
Note: 1. With an AC input voltage between 85 -100VAC and a DC input between 120-140VDC the output power must be derated as per the temperature derating curves;

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



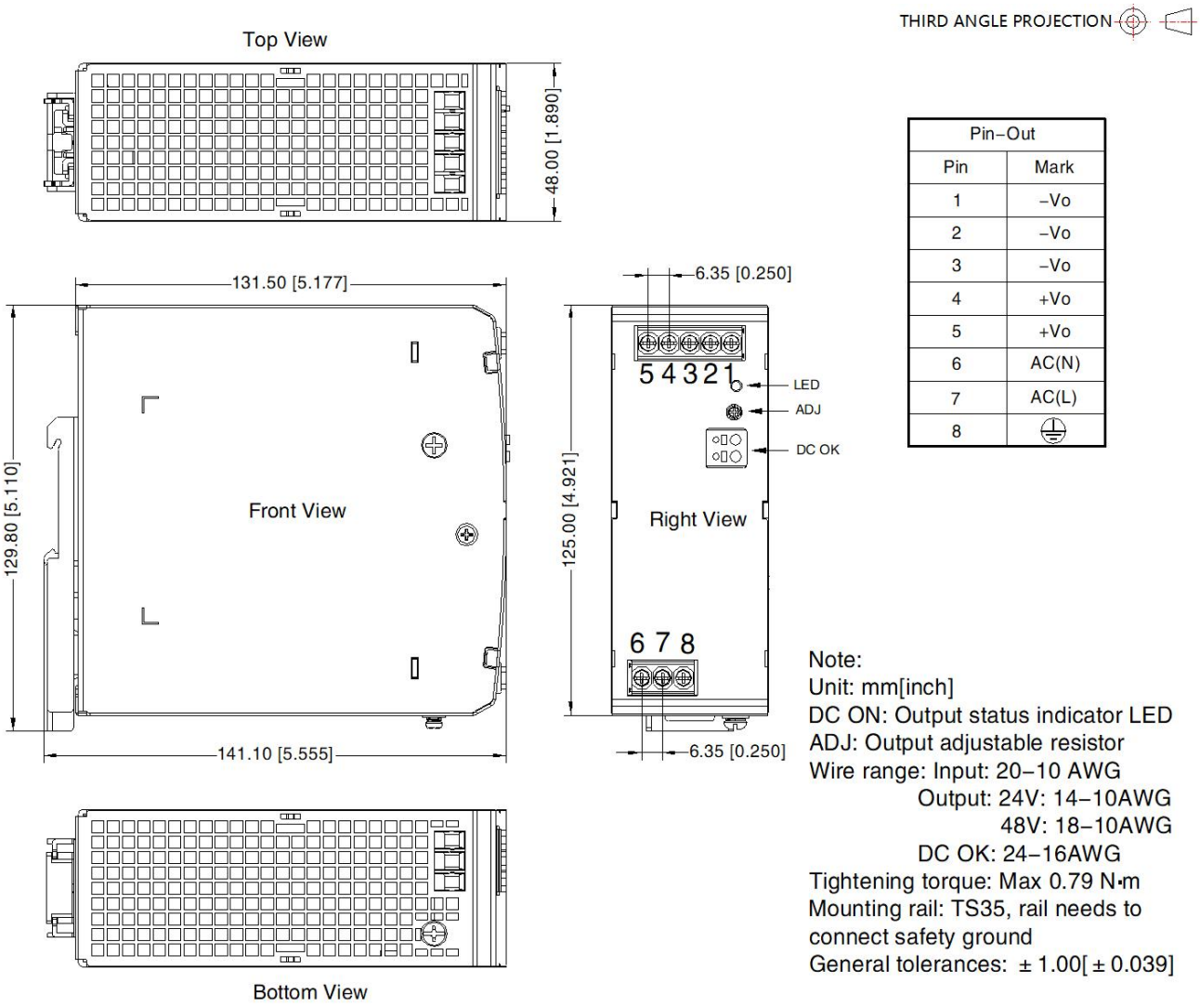


Installation Diagram



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 works above 240W for a long time. Increase this clearance to 15mm in case the adjacent device is a heat source (e.g. another power supply).

Dimensions and Recommended



Pin–Out	
Pin	Mark
1	–Vo
2	–Vo
3	–Vo
4	+Vo
5	+Vo
6	AC(N)
7	AC(L)
8	⏚

Note:
Unit: mm[inch]
DC ON: Output status indicator LED
ADJ: Output adjustable resistor
Wire range: Input: 20–10 AWG
Output: 24V: 14–10AWG
48V: 18–10AWG
DC OK: 24–16AWG
Tightening torque: Max 0.79 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; Do not open the unit as high voltages are present inside;
   Ne modifiez pas ou ne réparez pas l'appareil; Ne modifiez pas ou ne réparez pas l'appareil;
5. 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;
6. 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;
7. 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.
8. For ambient temperature ≤60℃, use ≥90℃ - copper wire only; for ambient temperature >60℃ to 85℃, use ≥105℃ - copper wire only;
   Température ambiante ≤60℃, utiliser ≥90℃ - seulement fils de cuivre; Température ambiante >60℃ et 85℃, utiliser ≥105℃ - seulement fils de cuivre;
9. use only wires with a minimum dielectric strength of 300V (input) and 60V (output);
   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. The out case needs to be connected to the earth (⏚) of system when the terminal equipment in operating.