DESCRIPTIONS AC/DC 480W DIN-Rail Power Supply



RoHS

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 +85℃(Supports full load operation at 60 ℃)
- High efficiency up to 95%, high reliability
- DC OK function(Supports single-machine fault alarms in direct parallel mode)
- 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
- OVCIII @ EN62477 2000m
- Safety according to IEC/UL/BS EN 62368/61010/Semi F-47
- 3 years warranty

APPLICATIONS

- Industrial control

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)
--	ADF480-2B-24V2	480	24V/20A	24-28	95	20000
	ADF480-2B-48V2		48V/10A	48-55		10000

Note: 1.*The product comes with double-sided triple-proof coating;
2.*The total power should not exceed the rated power of 480w at any state state, and the output current should not exceed the rated output current.

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 Frequency				47	--	63	Hz
	Input Current		115VAC		--	--	5	A
			230VAC		--	--	2.5	
	Inrush Current		115VAC	Cold start	--	--	15	
			230VAC		--	--	30	
	Power Factor		115VAC		0.99	--	--	--
			230VAC		0.95	--	--	
	Leakage current to ground		240VAC		< 2mA			
	Hot Plug				Unavailable			
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-peak value)	24V	--	--	100	mV
				48V	--	--	120	
	Temperature drift coefficient				--	±0.03	--	%/℃
	Minimum load				0	--	--	%
	Hold-up Time				16	22	--	ms
	DC OK Signal		When the output voltage is normal, the dry contact of the relay closes; when the output voltage is abnormal, the dry contact of the relay opens.		30VDC/1A Max.			
	Short Circuit Protection		Recovery time < 10s after the short circuit disappear.		Hiccup mode, continuous, self-recover			
	Over-current Protection		230VAC, rated load		≥150% Io, self-recover			
	Over-voltage Protection		24V		≤35V (Out voltage hiccup, self-recover)			
			48V		≤60V (Out voltage hiccup, self-recover)			
	Over-temperature Protection		115Vac, 100% load	Over-temperature protection start	--	--	90	℃
				Over-temperature protection release	60	--	--	
General Specifications	Isolation Test	Input - ⏚	Electric strength test for 1min., leakage current <5mA		2500	--	--	VAC
		Input - output			4000	--	--	
		Output - ⏚			1500	--	--	
	Insulation Resistance	Input - ⏚	Ambient temperature: 25±5℃ Relative humidity: Less than95%, uncondensed Test voltage: 500VDC		100	--	--	MΩ
		Input - output			100	--	--	
		Output - ⏚			100	--	--	
	Operating Temperature				-40	--	+85	℃

	Storage Temperature			-40	--	+85	
	Operating Humidity	Non-condensing		20	--	95	%RH
	Storage Humidity			10	--	90	
	Switching Frequency	PFC	230VAC, rated load	--	65	--	kHz
		DC-DC		--	75	--	
	Power Derating	Operating temperature derating	-40℃ to -30℃	3.35	--	--	%/℃
			+60℃ to +85℃	3	--	--	
		Input voltage derating	85VAC-100VAC	1.33	--	--	%/VAC
	Safety Class			CLASS I			
	MTBF	MIL-HDBK-217F@25℃		> 300,000 h			
	Warranty			3 years			
Mechanical Specifications	Case Material	Metal (AL5052, SPCC)					
	Dimensions	124.00mm x 48.00mm x 127.00mm					
	Weight	900g (Typ.)					
	Cooling Method	Natural air cooling					

Note: 1.*The "Tip and barrel method" is used for ripple and noise test, output parallel 47uF electrolytic capacitor and 0.1uF ceramic capacitor, please refer to Enclosed Switching Power Supply Application Notes for specific information;

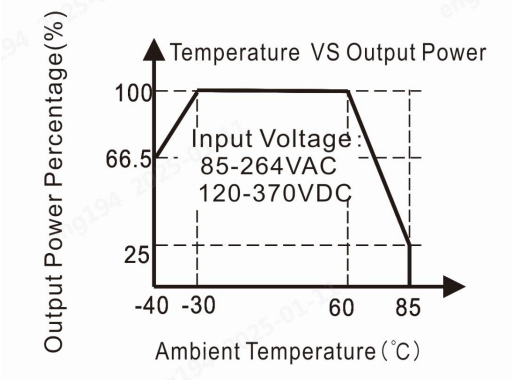
2.*Over-temperature protection: The output voltage is shut off, and the over-temperature anomaly is resolved automatically after recovery;

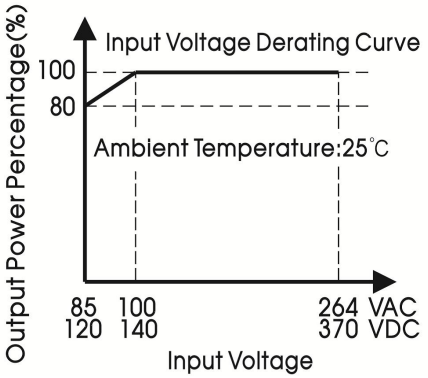
3.*When the input voltage is lower than 150Vac, the over-current protection is 130%, and the output is shut off for 10 seconds before self-recovery.

Electromagnetic Compatibility (EMC)

Electromagnetic Compatibility (EMC)	Emissions (EMI)	CE	CISPR32/EN55032 Class B		
		RE	CISPR32/EN55032 Class B		
		Harmonic current	IEC/EN61000-3-2 CLASS A and CLASS D		
	Immunity (EMS)	ESD	IEC/EN61000-4-2 Contact ±8KV/Air ±15KV		perf. Criteria A
		RS	IEC/EN61000-4-3 80MHz - 1GHz 10V/m 1.4GHz - 2GHz 3V/m 2GHz - 2.7GHz 1V/m		perf. Criteria A
		EFT	IEC/EN61000-4-4 ±4KV		perf. Criteria A
		Surge	IEC/EN61000-4-5 line to line ±2KV/line to ground ±4KV		perf. Criteria A
		CS	IEC/EN61000-4-6 10 Vr.m.s		perf. Criteria A
		MS	IEC/EN61000-4-8 30A/m		perf. Criteria A
		Voltage dips	IEC/EN61000-4-11	0% of 115Vac, 0Vac, 1 cycle	perf. Criteria B
				40% of 115Vac, 46Vac, 10/12 cycle	
				70% of 115Vac, 80.5Vac, 25/30 cycle	
				0% of 230Vac, 0Vac, 1 cycle	
				40% of 230Vac, 92Vac, 10/12 cycle	
				70% of 230Vac, 161Vac, 25/30 cycle	
		Voltage interruption	IEC/EN61000-4-11	0% of 200Vac, 0Vac, 250/300 cycle	
		Semi F-47	80% of 200VAC 160Vac 1000mS 70% of 200VAC 140Vac 500mS 50% of 200VAC 100Vac 200mS		perf. Criteria A

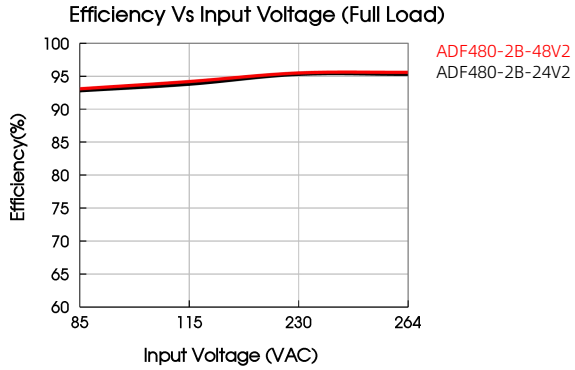
Characteristic Curve

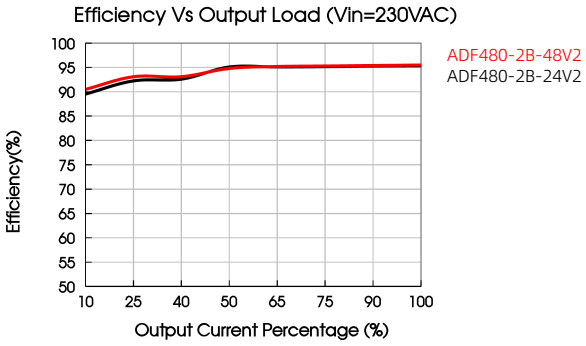




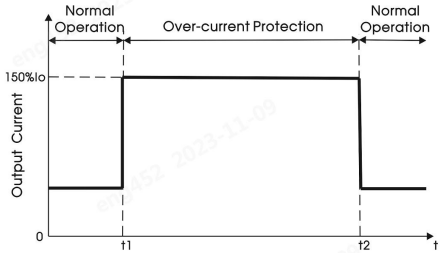
Note: 1. With an AC input voltage between 85 -100VAC and a DC input between 120-140VDC the output power must be derated as per the temperature derating curves;

2. This product is suitable for applications using natural air cooling; for applications in closed environment please consult our FAE.

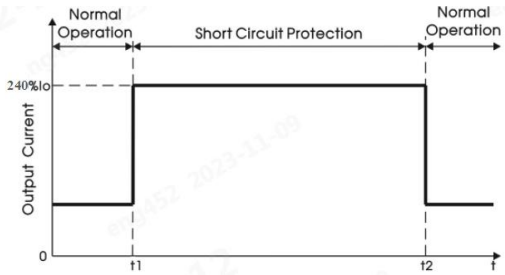




Over-current protection curve (Typ.)



Short circuit protection curve (Typ.)



Remark:

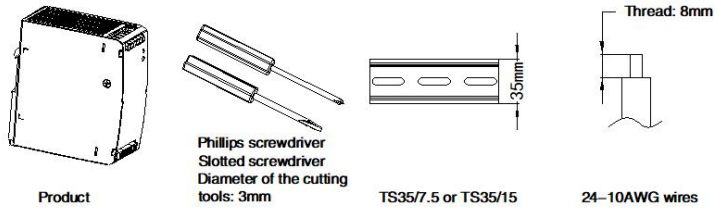
1.AC input 230vac supports 1.5 times the peak power load, and the maintenance of the rated voltage output continues 3s(the duration of t1 to t2 in the figure), exceeds the 3s output;

2.In dynamic power applications, such as peak power to low power dynamic change load, the actual equivalent average output power should not exceed the rated power.

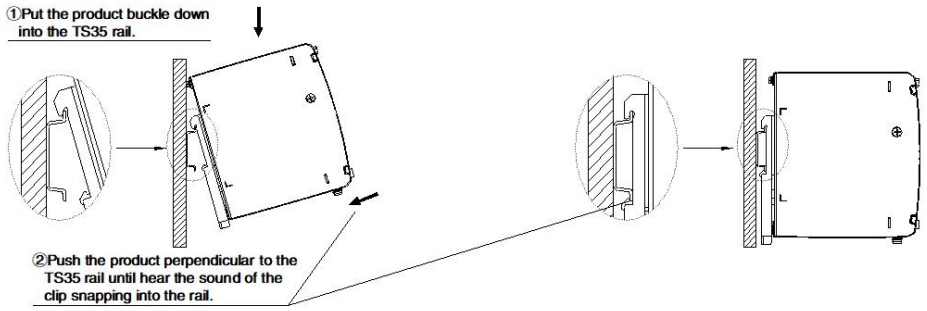
Installation Diagram



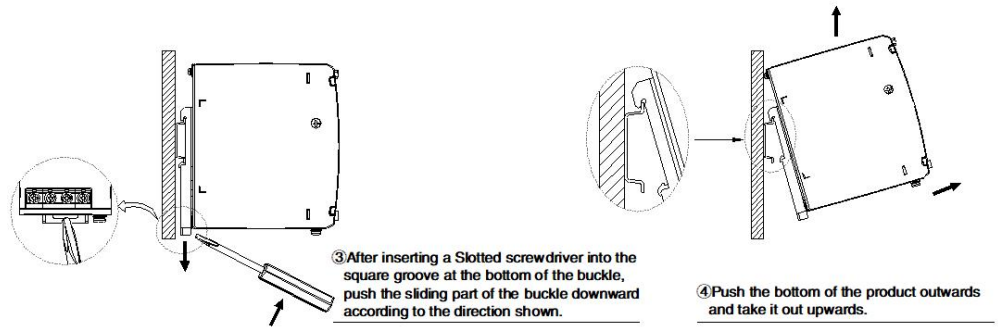
Bill Of Material		
1	Product	1 PCS
2	Phillips screwdriver Slotted screwdriver	1 PCS
3	TS35/7.5 or TS35/15	1 PCS
4	24–10AWG wires	/ PCS
	All above is only for reference, the actual wiring diameter and locking torque refer to the appearance size diagram	



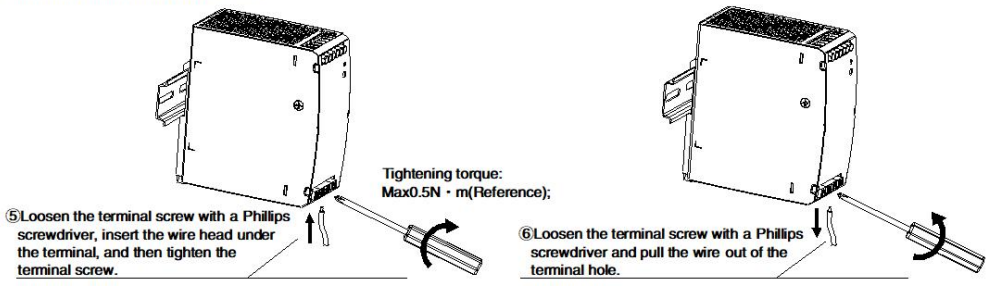
Installation steps ①–②



Disassembly steps ③–④

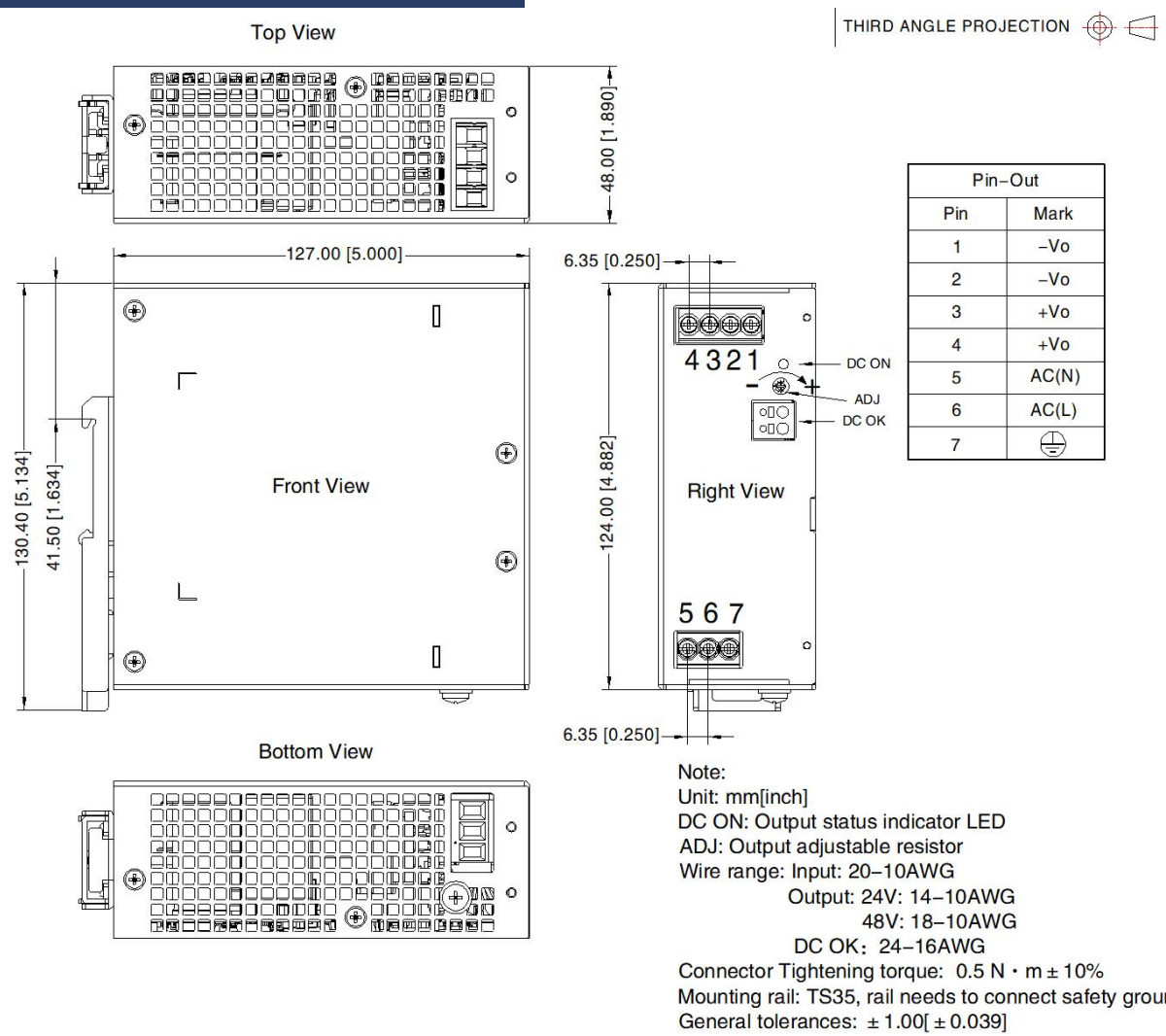


Connecting/Disconnecting Steps ⑤–⑥



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



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: 20–10AWG
Output: 24V: 14–10AWG
48V: 18–10AWG
DC OK：24–16AWG
Connector Tightening torque: 0.5 N・m ± 10%
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 this product in damp locations or areas where moisture or condensation may occur;
   Ne jamais utiliser ce produit dans des endroits humides ou dans des zones susceptibles de présenter de l'humidité ou de la condensation
8. Do not touch when the power is on or immediately after it has been turned off; the hot surface may cause burns.
   Ne touchez pas lorsque l'alimentation est branchée ou immédiatement après l'avoir coupée, la surface chaude peut provoquer 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<95% 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. All index testing methods in this datasheet are based on our company corporate standards;
4. 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;
5. Products are related to laws and regulations: see "Features" and "EMC";
6. The out case needs to be connected to the earth (⏚) of system when the terminal equipment in operating, see "Dimensions and Recommended Layout" ;
7. Our products shall be classified according to ISO14001 and related environmental laws and regulations, and shall be handled by qualified units;
8. The output voltage can be adjusted by the output adjustable resistance ADJ, turn it up clockwise;
9. The power supply is considered a component which will be installed into a terminal equipment. All EMC tests should be confirmed with the final equipment. Please consult our FAE for EMC test operation instructions;