ADMF240-2B-xx Series

DESCRIPTIONS

240W, AC-DC DIN-Rail Power Supply



RoHS

Report Report

EN62368-1 BS EN62368-1

FEATURES

- Universal 85 - 277VAC or 120 - 390VDC Input voltage
- Efficiency up to 95.5%
- Operating ambient temperature range: -40℃ to +85℃
- 150% peak load
- Active PFC, PF > 0.99
- DC OK function
- Double-sided conformal coating, salt-spray proof, explosion-proof
- Operating altitude up to 5000m
- OVC III(design refer to EN62477, 2000m)
- Output short circuit, over-current, over-voltage, over-temperature protection
- Safety according to ATEX, IECEx increased safety type explosion-proof certification
- Meets ANSI/ISA 71.04-2013 G3 corrosion test
- Safety according to IEC/UL62368, UL508

APPLICATIONS

- Industry
- DCS
- Industrial control equipment
- Machine control
- LED
- 5G communication

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	ADMF240-2B-12	192	12V/16A	12.0-14.0	94	100000
	ADMF240-2B-24	240	24V/10A	24.0-28.0	95.5	50000
	ADMF240-2B-48		48V/5A	48.0-53.0		25000

Note:1. *When the output voltage rises, the total power of the product should not exceed the rated power;
2.*Please refer to the derating curve, when the 48V output voltage is adjusted to 53V - 56V;
3.*This product is suitable for indoor use.
4.*The product picture is for reference only, for details, please refer to the actual product.

Specifications

Product Characteristics	Item	Operating Conditions			Min.	Typ.	Max.	Unit
Input Specifications	Input Voltage Range	Rated input (Certified voltage)			100	--	240	VAC
		AC input			85	--	277	
		DC input			120	--	390	VDC
	Maximum Input Voltage	Lasts for 2h without damage			--	--	305	VAC
	Input Voltage Frequency				47	--	63	Hz
	Input Switching Voltage				--	80	--	VAC
	Input Turn-off Voltage				--	60	--	
	Input Current	115VAC			--	--	3	A
		230VAC			--	--	1.5	
	Inrush Current	115VAC		Cold start	--	14	--	
		230VAC			--	26	--	
	Inrush Current Integral (I^2t)	115VAC			--	0.25	--	A^2s
		230VAC			--	0.867	--	
	Power Factor	Rated load	115VAC		--	0.99	--	--
			230VAC	24V/48V	--		--	
				12V	--	0.98	--	
	THD	230VAC, rated load			--	3	--	%
	Start-up Delay Time	115VAC/230VAC, rated load			--	520	--	ms
	Rise Time				--	19	--	
	Input Fuse	Built-in fuse			--	8	--	A
	DC OK Signal	Resistive load			30VDC/1A Max.			
	Hot Plug				Unavailable			
Output Specifications	Output Voltage Accuracy	Full load range			--	±1.0	--	%
	Line Regulation	Rated load			--	±0.25	--	
	Load Regulation	0% - 100% load			--	±0.5	--	

Output Specifications	Power Consumption*	230VAC, rated load	12V	--	11.5	--	W
			24V/48V	--	10.8	--	
	Ripple & Noise*	20MHz bandwidth (peak-to-peak value)	12V/48V	--	--	150	mV
			24V	--	--	100	
	Hold-up Time			--	37	--	ms
	Over-current Protection*	115VAC/230VAC		110	150	--	%
	Short Circuit Protection*	115VAC/230VAC		Hiccup mode, constant current works 1s (Typ.), turn off 10s, continuous, self-recovery			
	Over-voltage Protection	12V		≤18VDC (Hiccup, self-recovery)			
		24V		≤35VDC (Hiccup, self-recovery)			
		48V		≤60VDC (Hiccup, self-recovery)			
	Over-temperature Protection*	230VAC, rated load	Over-temperature protection start	--	--	105	℃
			Over-temperature protection release	60	--	--	
General Specifications	Isolation Test*	Input - ⏚	Electric strength test for 1min., leakage current <5mA (Isolation Test need to remove the screw at the mark shall ⚙ *)	2500	--	--	VAC
		Input - output		4000	--	--	
		Output - ⏚		500	--	--	
		DC OK - output		500	--	--	
	Insulation Resistance	Input - ⏚	At 500VDC	500	--	--	MΩ
		Input - output		500	--	--	
		Output - ⏚		500	--	--	
	Operating Temperature			-40	--	+85	℃
	Storage Temperature			-40	--	+85	
	Operating Humidity	Non-condensing		5	--	95	%RH
	Storage Humidity			5	--	90	
	Switching Frequency*	PFC		40	--	130	kHz
		DC-DC		50	--	130	
		Auxiliary source		--	65	--	
	Power Derating	Operating temperature derating	-40℃ to -25℃	3.34	--	--	%/℃
			+60℃ to +70℃	3.75	--	--	
			+70℃ to +85℃	3.17	--	--	
		Input voltage derating	85VAC - 100VAC	1	--	--	%/VAC
		Output voltage derating	48V 53VDC-56VDC	6.67	--	--	%/VDC
	Leakage Current	240VAC	Input - output	< 0.5mA			
			Input - ⏚	< 0.88mA			
	Safety Class			CLASS I			

Environmental Characteristics	MTBF	MIL-HDBK-217F@25℃	980,000 h
		MIL-HDBK-217F@40℃	878,000 h
	Pollution degree		2
	Warranty	Ambient temperature: <40℃	5 years
	High and Low Voltage Crossing	Test with UPS	NB/T 31111-2017
	High and Low Temperature Working	+85℃, -40℃	GB2423.1, IEC60068-2-1
	Sinusoidal Vibration	10 - 500Hz, 2g, three directions of X, Y, Z axis	GB2423.10, IEC60068-2-6
	Salt Mist	+35℃, 5%NACL, 48h	GB2423.17, IEC60068-2-11
	Alternating Hot and Humid	+25℃, 95%RH - +60℃, 95%RH	GB2423.4, IEC60068-2-30
	Low Temperature Storage	-40℃	GB2423.1, IEC60068-2-1
	High Temperature Storage	+85℃	GB2423.2, IEC60068-2-2
	High Temperature Aging	+60℃	GB2423.2, IEC60068-2-2
	Normal Temperature Aging	+25℃	GB2423.1, IEC60068-2-1
	Temperature Shock	-40℃ to +85℃	GB2423.22, IEC60068-2-14
	Temperature Cycle	-25℃ to +60℃	GB2423.22, IEC60068-2-14
	Hot and Humid	+85℃, 85%RH	GB2423.50, IEC60068-2-67
	High Temperature Elevation	+60℃, 54KPa	GB2423.26, IEC60068-2-41
	Low Temperature Elevation	-25℃, 54KPa	GB2423.25, IEC60068-2-40
	Constant Humid and Hot	+40℃, 95%RH	GB2423.3, IEC60068-2-78
	Random Vibration	5 - 10Hz, ASD 0.3 - 10g²/Hz, three directions of X, Y, Z axis	GB/T 4798.2-2008, IEC60721-3-2
	Sinusoidal Vibration Response	10 - 150Hz, 1g, three directions of X, Y, Z axis	GB/T 11287-2000, IEC60255-21-1
	Sinusoidal Vibration Endurance Test		
	Sinusoidal Impulse Response	15g, pulse duration 11ms, three times in each direction of X, Y, Z axis	GB/T 114537-1993, IEC60255-21-2
	Sinusoidal Impact Endurance Test		
	Packaging Drop	1m, one corner, three edges and six sides	GB2423.8, IEC68-2-32
Mechanical Specifications	Case Material	Metal (AL5052, SUS304)	
	Dimensions	124.00mm × 121.00mm × 48.00mm	
	Weight	870g (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: Put the product into a high temperature box. After the ambient temperature stabilizes, increase the temperature slightly (3℃ to 5℃), and the load remains unchanged. After the product reaches thermal equilibrium, increase the temperature until the product triggers over-temperature protection;
3.*Power consumption curve, over-current protection mode and short circuit protection mode see product characteristic curve.
4. *The gas discharge tube built into the device effectively protects the power supply against damage by asymmetric disturbance variables (eg EN

61000-4-5). Each power supply continuous withstand voltage test will cause extremely high load to the power supply. Therefore, unnecessary loading or damage to the power supply due to excessive test voltage should be avoided. If necessary, disconnect the gas discharge tube built into the device to use a higher test voltage. After successful completion of the test, reconnect the gas discharge tube. Please refer to the "LIMF240-23Bxx Installation and Application Manual" for specific operation methods;

5. *The power supply has three converters with three different switching frequencies. Auxiliary source frequency is nearly constant, other switching frequencies depend on input voltage and load.

Electromagnetic Compatibility (EMC)

Electromagnetic Compatibility (EMC)	Emissions (EMI)	CE (Input port)	CISPR32 EN55032	150K - 30MHz	CLASS B
		CE (Output port)	CISPR32 EN55032	150K - 30MHz	CLASS A
		RE	CISPR32 EN55032	30MHz - 2GHz	CLASS B
		Harmonic current	IEC/EN61000-3-2		CLASS A and CLASS D
		Voltage flicker	EN61000-3-3		
	Immunity (EMS)	ESD	IEC/EN61000-4-2	Contact ±8KV/Air ±15KV	perf. Criteria A
		RS	IEC/EN61000-4-3	20V/m	
		EFT (Input port)	IEC/EN61000-4-4	±4KV	
		EFT (Output port)	IEC/EN61000-4-4	±2kv	
		Surge (Input port)	IEC/EN61000-4-5	L to N ±3KV/L or N to PE ±6KV	
		Surge (Output port)	IEC/EN61000-4-5	line to line ±1KV/line to ground ±2KV	
		MS	IEC/EN61000-4-8	30A/m	
		AC power port harmonics	IEC61000-4-13	CLASS 3	
		Harmonic and network signal			
		Low frequency immunity			
		CS	IEC/EN61000-4-6	0.15 - 80MHz 20Vr.m.s	
		Voltage dips	IEC/EN61000-4-11	0% of 100Vac, 0Vac, 20ms	perf. Criteria A
				40% of 100Vac, 40Vac, 200ms	perf. Criteria C
				70% of 100Vac, 70Vac, 500ms	perf. Criteria A
				0% of 200Vac, 0Vac, 20ms	perf. Criteria A
				40% of 200Vac, 80Vac, 200ms	perf. Criteria A
				70% of 200Vac, 140Vac, 500ms	perf. Criteria A
		Voltage interruption	IEC/EN61000-4-11	0% of 200Vac, 0Vac, 5000ms	perf. Criteria C

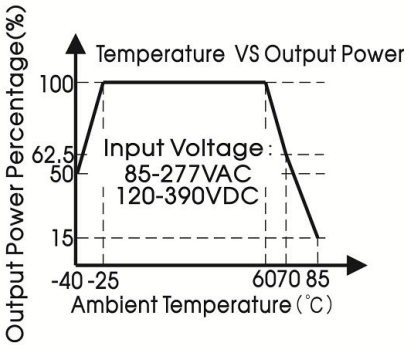
Note:* perf.Criteria:

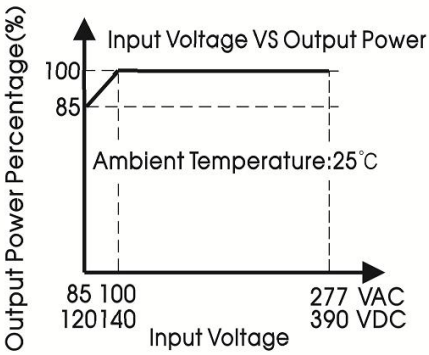
A: The equipment shall continue to operate as intended without operator intervention;

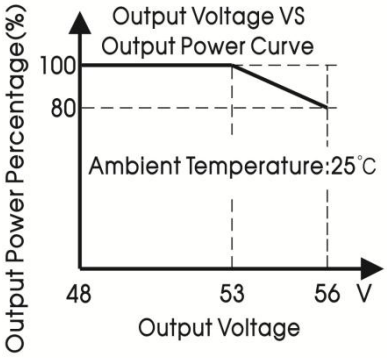
B: After the test, the equipment shall continue to operate as intended without operator intervention;

C: Loss of function is allowed, provided the function is self-recoverable, or can be restored by the operation of the controls by the user in accordance with the manufacturer's instructions.

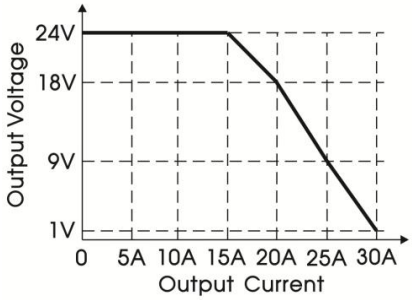
Characteristic Curve



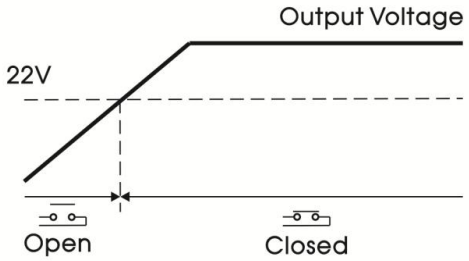




Output voltage VS Output current curve (Typ.)



DC OK behavior curve (Typ.)



Over-current protection curve (Typ.)

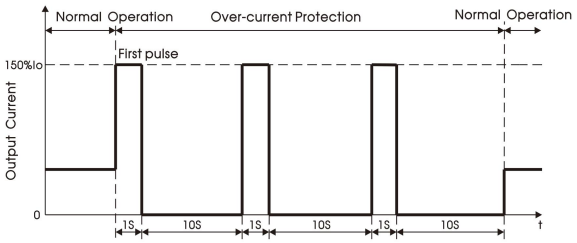


Figure 6

Short circuit protection curve (Typ.)

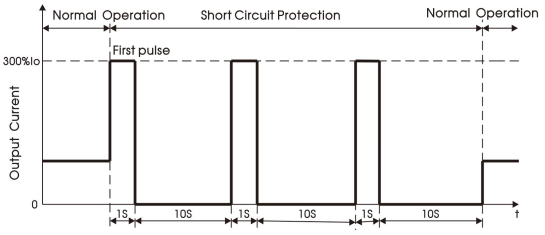
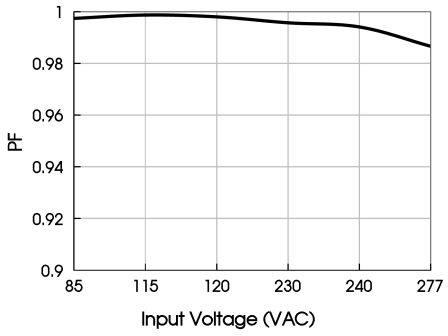
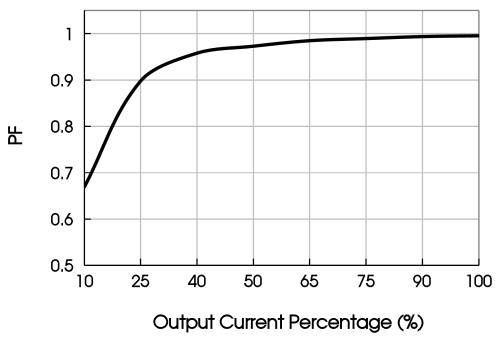


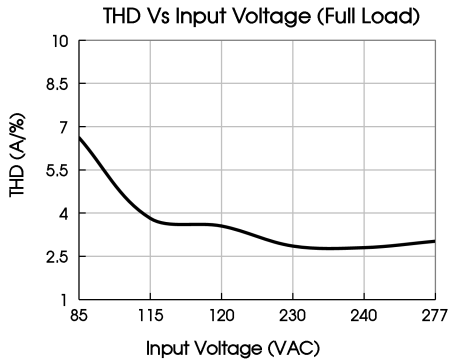
Figure 7

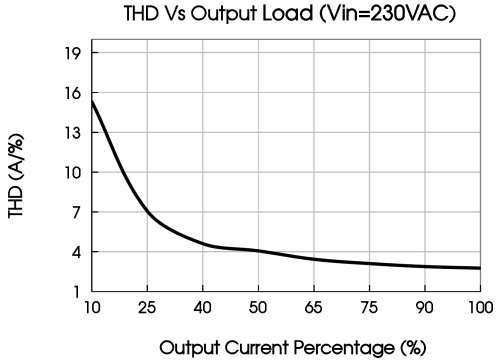
PF Vs Input Voltage (Full Load)

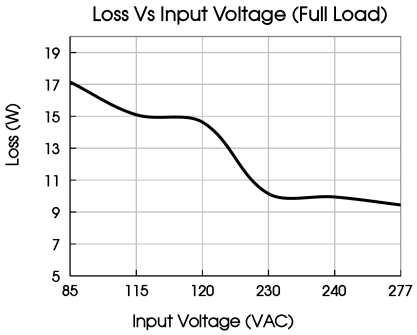


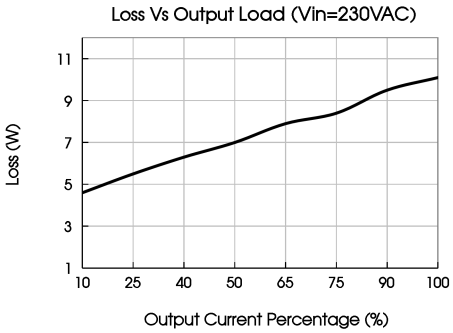
PF Vs Output Load (Vin=230VAC)







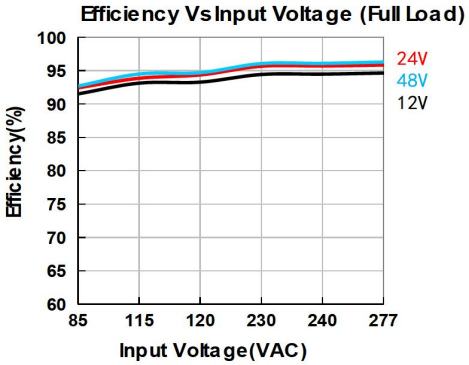


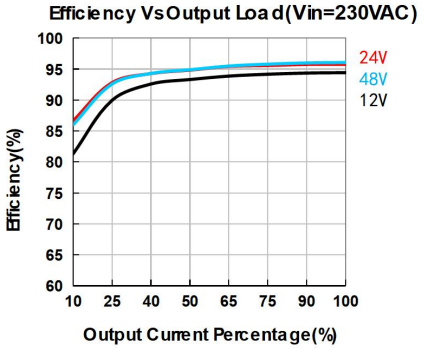


Note: 1.All curves are for 24V output, measured at input 230VAC, 50Hz, output Io, ambient temperature 25℃, unless otherwise stated.

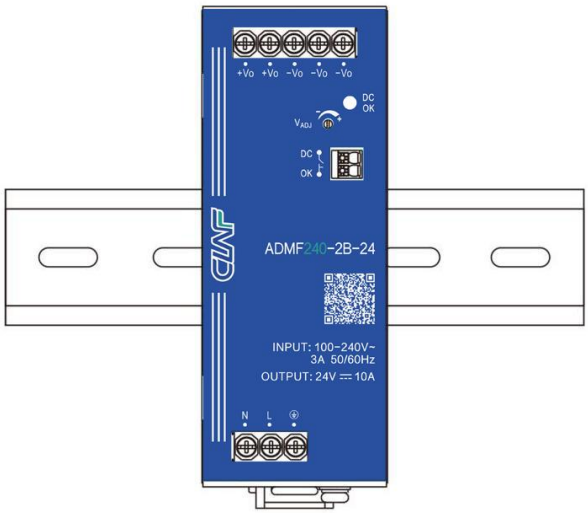
2.With an AC input voltage between 85-100VAC and a DC input between120-140VDC the output power must be derated as per the temperature derating curves;

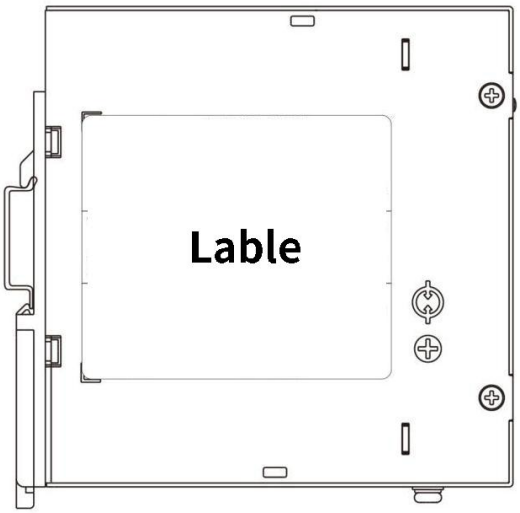
3.This product is suitable for applications using natural air cooling.



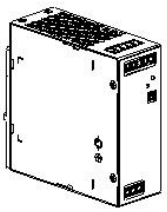


Installation Diagram

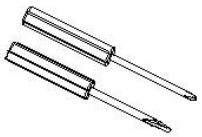




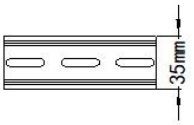
Bill Of Material		
1	Product	1 PCS
2	Phillips screwdriver Slotted screwdriver	1 PCS
3	TS35/7.5 or TS35/15	1 PCS
4	24–10AWG wire	/ PCS
	The content is for reference only. Regarding the actual wire diameter and tightening torque, refer to the dimensional drawing.	



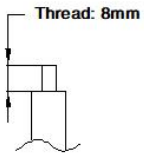
Product



Phillips screwdriver
Slotted screwdriver
Diameter : 3mm



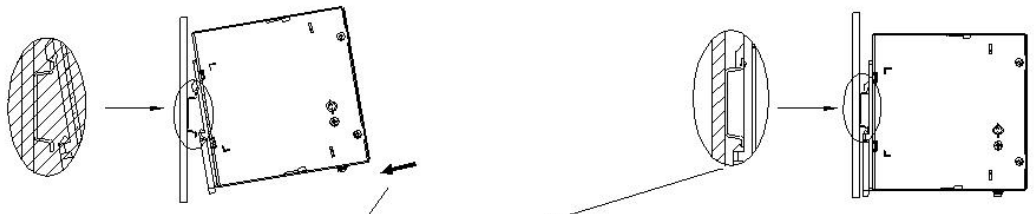
TS35/7.5 or TS35/15



24–10AWG wire

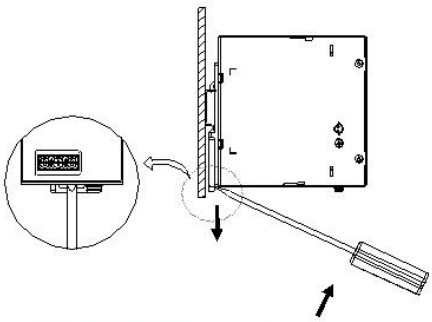
Installation steps ①–②

①Clamp the buckle of the product into the TS35 DIN rail.

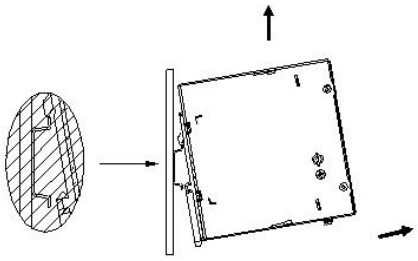


②Push the product vertically towards the TS35 DIN rail until hearing the sound of the buckle snapping into it.

Disassembly steps ③–④

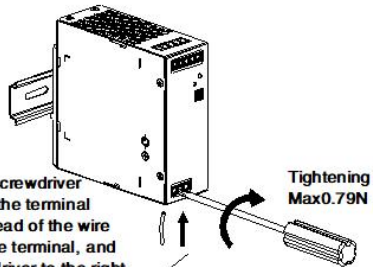


③After inserting the slotted screwdriver into the square groove at the bottom of the buckle, push the slider of the buckle downward in the direction shown in the figure.



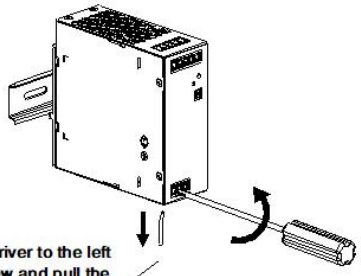
④Hold the bottom of the product and push it outwards while pushing down the slider, then lift the product up to take the product out of the DIN rail.

Wiring / Unwiring Steps ⑤–⑥

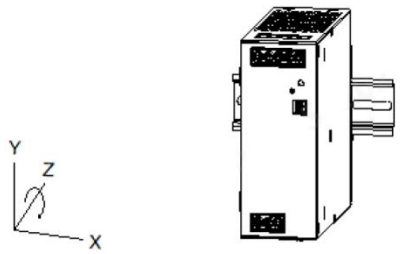


⑤Turn the Phillips screwdriver to the left to loosen the terminal screws, insert the head of the wire into the bottom of the terminal, and then turn the screwdriver to the right to tighten the terminal screws

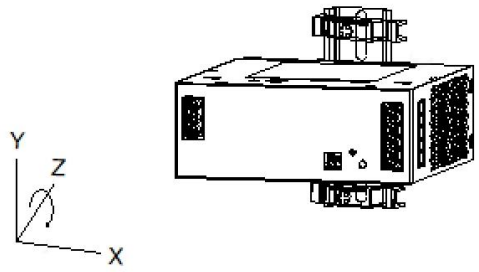
Tightening torque:
Max0.79N · m(Reference);



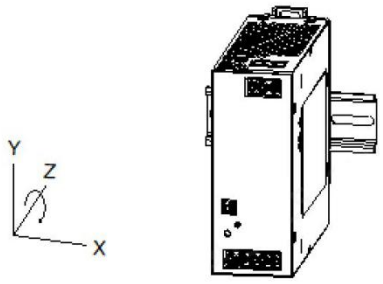
⑥Turn the Phillips screwdriver to the left to loosen the terminal screw and pull the wire out of the bottom of the terminal



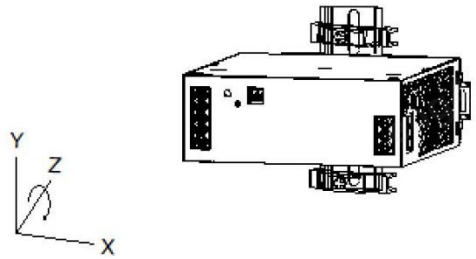
Rotate the installation position
(0° Z-Axis)



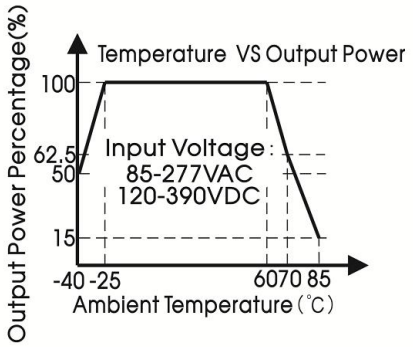
Rotate the installation position
(90° Z-Axis)

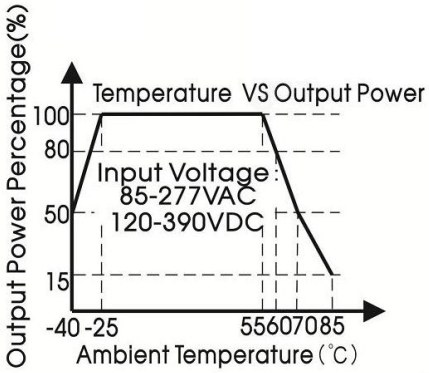


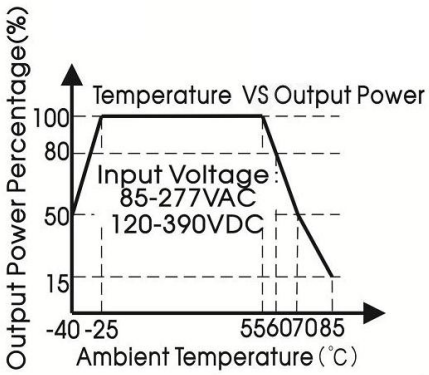
Rotate the installation position
(180° Z-Axis)

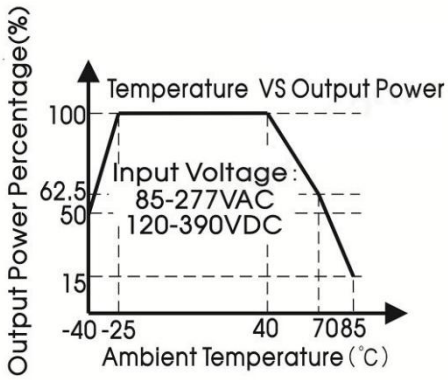


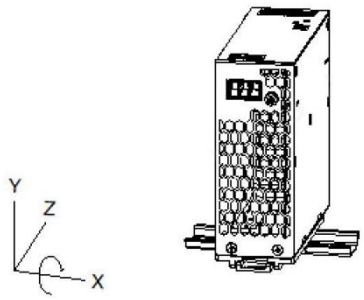
Rotate the installation position
(270° Z-Axis)



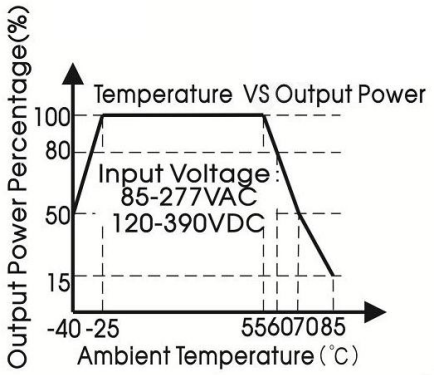


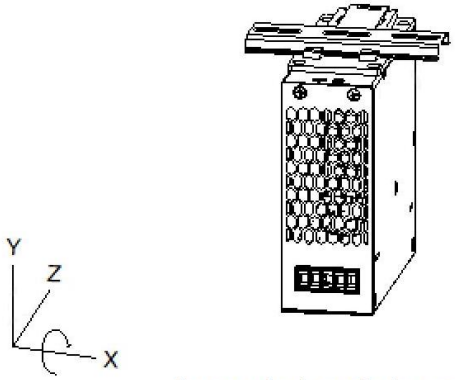




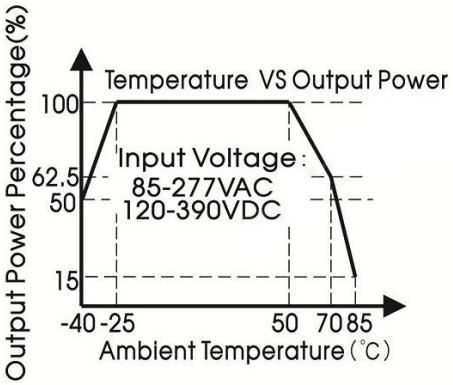


Rotate the installation position
(270° X-Axis)

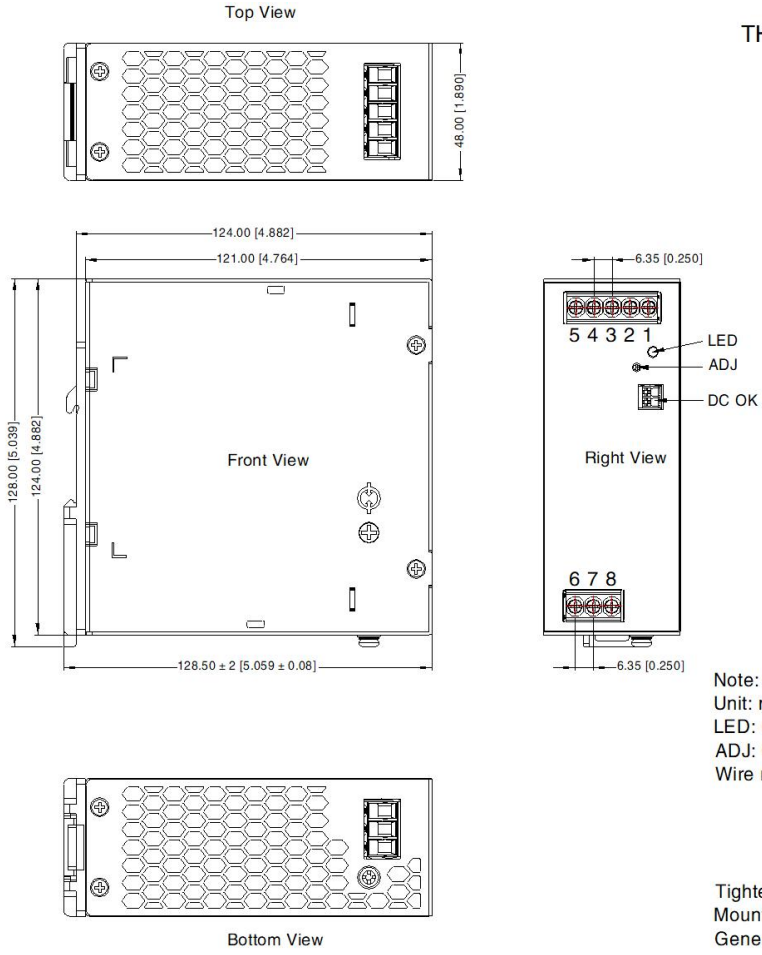




Rotate the installation position
(90° X-Axis)



Dimensions and Recommended



THIRD ANGLE PROJECTION

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]
LED: Output status indicator LED
ADJ: Output adjustable resistor
Wire range: Input: 26–10AWG(12–10AWG for pin8)
Output: 12V: 12–10AWG
24V: 16–10AWG
48V: 18–10AWG
DC OK: 24–16AWG
Tightening torque: Max 0.5N・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.We can provide product customization service, please contact our technicians directly for specific information;
5.Products are related to laws and regulations: see "Features" and "EMC";
6.The out case needs to be connected to PE (⏚) of system when the terminal equipment in operating;
7.The output voltage can be adjusted by the ADJ, clockwise to increase;
8.Our products shall be classified according to ISO14001 and related environmental laws and regulations, and shall be handled by qualified units.
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.