DESCRIPTIONS

480W, AC-DC DIN-Rail Power Supply



RoHS

CE Report EN 62368-1

UKCA Report BS EN 62368-1

FEATURES

- Universal 85 - 277VAC or 120 - 390VDC Input voltage
- Operating ambient temperature range: -40℃ to +85℃, 60 ℃ @ 100% load without derating
- Efficiency up to 95%
- Active PFC, PF > 0.97
- DC OK function
- Double-sided conformal coating, salt-spray proof, explosion-proof
- Operating altitude up to 5000m
- Input under-voltage protection
- Output short circuit, over-current, over-voltage, over-temperature protection
- Safety according to ATEX, IECEx increased safety type explosion-proof certification
- Safety according to ANSI/ISA 71.04-2013 G3
- OVC III (Safety according to EN61010)
- 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	ADMF480-2B-24	480	24V/20A	24-28V	95.0	100000
	ADMF480-2B-48		48V/10A	48-56V	95.5	25000

Note: 1. * When the output voltage rises, the total power of the product should not exceed the rated power.
2.*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			75	--	85	VAC
	Input Turn-off Voltage			60	--	70	
	Input Current	115VAC		--	--	5	A
		230VAC		--	--	2.5	
	Inrush Current	115VAC	Cold start	--	--	15	A
		230VAC		--	--	35	A^2s
	Inrush Current Integral (I^2t)	115VAC		--	0.2	--	
		230VAC		--	0.8	--	
	Power Factor	Rated load	115VAC	0.99	--	--	--
			230VAC	0.97	--	--	
	THD	230VAC, rated load		--	2	--	%
	Start-up Delay Time	115VAC/230VAC, rated load		--	400	--	ms
	Rise Time			--	25	--	
	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	--	%
	Line Regulation	Rated load		--	±0.25	--	

	Load Regulation	0% - 100% load			--	±0.5	--	
	Power Consumption*	230VAC, rated load	24V		--	24	--	W
			48V		--	21.6	--	
	Ripple & Noise*	20MHz bandwidth, peak-to-peak value	24V		--	--	100	mV
			48V		--	--	150	
	Hold-up Time	115VAC/230VAC			--	22	--	ms
	DC OK Relay	Operation voltage	24V		--	21.6	--	V
			48V		--	43.2	--	
		Release voltage	24V		--	19.2	--	
			48V		--	38.4	--	
Output Specifications	Short Circuit Protection	Constant current			115	125	140	%Io
	Over-current Protection	115VAC/230VAC			115% - 140% Io (typ. 125%Io, constant current, self-recover)			
	Over-voltage Protection	24V			<32VDC (Output-off or clamping, self-recover)			
		48V			<60VDC (Output-off or clamping, self-recover)			
	Over-temperature Protection*	230VAC, rated load	Over-temperature protection start		--	--	95	℃
			Over-temperature protection release		60	--	--	
General Specifications	Isolation Test*	Input - ⏚	Electric strength test for 1min., leakage current <5mA		2500	--	--	VAC
		Input - Output	Electric strength test for 1min., leakage current <10mA		4000	--	--	
		Output - ⏚	Electric strength test for 1min., leakage current <5mA		1500	--	--	
	Insulation Resistance	Input - ⏚	Environment temperature: 25±5℃ Relative humidity: < 95%, non-condensing Test voltage: 500VDC		500	--	--	MΩ
		Input - Output				--	--	
		Output - ⏚				--	--	
	Operating Temperature				-40	--	+85	℃
	Storage Temperature				-40	--	+85	
	Operating Humidity	Non-condensing			10	--	95	%RH
	Storage Humidity				20	--	90	
	Switching Frequency*	PFC			58	--	77	kHz
		DC-DC			40	--	130	
	Power Derating	Operating temperature derating @AC input	-40℃ to -30℃		2	--	--	%/℃
			-30℃ to +60℃		0	--	--	
			+60℃ to +85℃		3.75	--	--	
		Operating temperature derating @DC input	-40℃ to -30℃		2	--	--	
			-30℃ to +60℃		0	--	--	
			+60℃ to +85℃		2	--	--	
	Power Derating	Input voltage	85VAC - 100VAC		1	--	--	%/VAC

		derating	100VAC - 277VAC	0	--	--	
			120VDC - 140VDC	1	--	--	%/VDC
			140VDC - 390VDC	0	--	--	
	Leakage Current	240VAC		< 1.5mA			
	Safety Class			CLASS I, ANSI/ISA71.04-2013			
	MTBF	MIL-HDBK-217F@25℃		> 702,000h			
		MIL-HDBK-217F@40℃		> 504,000h			
	Warranty	Ambient temperature: <40℃		5 years			
	High and Low Voltage Crossing	Test with UPS		NB/T 31111-2017			
Environmental Characteristics	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, 12h		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 × 55.00mm × 127.00mm					
	Weight	985g (Typ.)					
	Cooling Method	Free air convection					

Note:

1.* Power consumption curve, over-current protection mode and short circuit protection mode see product characteristic curve;

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

3.* 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.

4. ① Remove the screw at the mark when the product is subjected to withstand voltage test; ② 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 installation diagram below for specific operation methods;

5.* The power supply has two converters with two different switching frequencies.

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		Fulfilled
	Immunity (EMS)	ESD	IEC/EN61000-4-2	Contact1±8KV/Air ±15KV	perf. Criteria A
		RS	IEC/EN61000-4-3	20V/m	
		EFT	IEC/EN61000-4-4 (Input port)	±4KV	
			IEC/EN61000-4-4 (Output port)	±2kv	
		Surge	IEC/EN61000-4-5 (Input port)	L to N ±3KV/L or N to PE ± 6KV	
			IEC/EN61000-4-5 (Output port)	line to line ±1KV/line to ground ±2KV	
		CS	IEC/EN61000-4-6	0.15 - 80MHz 20Vr.m.s	
		AC power port harmonics	IEC61000-4-13	CLASS 3	
		Harmonic and network signal			
		Low frequency immunity			
		PFMF	IEC/EN61000-4-8	30A/m	
		Voltage dips, short interruptions and voltage variations immunity	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

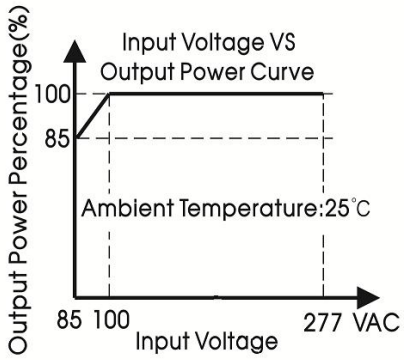
Note:* perf. Criteria:

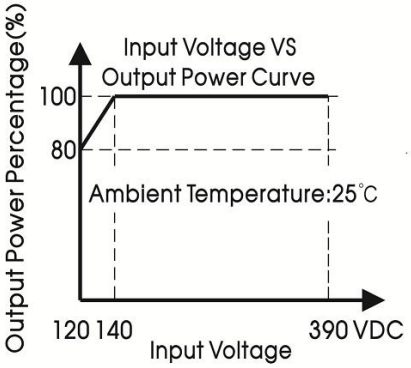
A: The equipment shall continue to operate as intended without operator intervention;

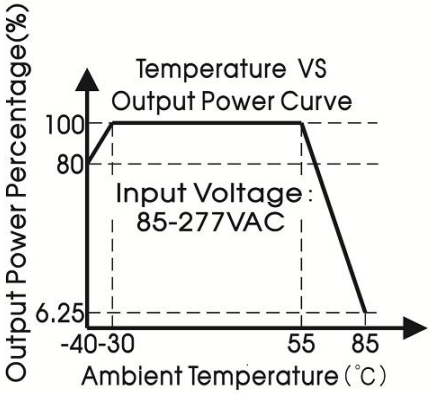
B: After the test, the equipment shall continue to operate as intended without operator intervention;

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.

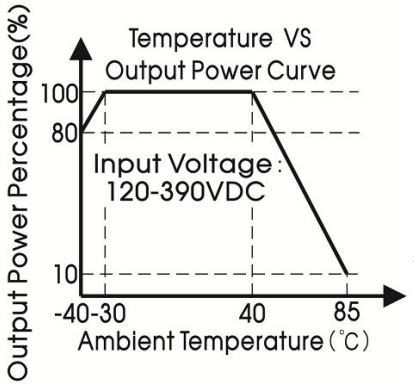
Characteristic Curve



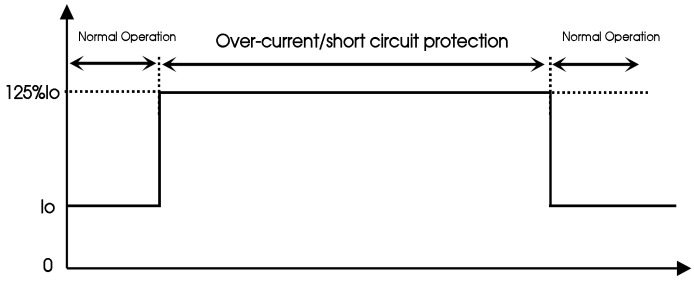


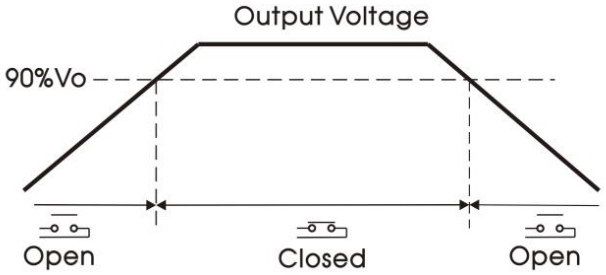


Over-current/ Short circuit protection curve (Typ.)

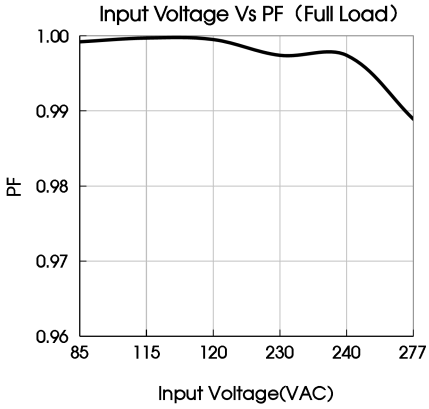


DC OK behavior curve (Typ.)

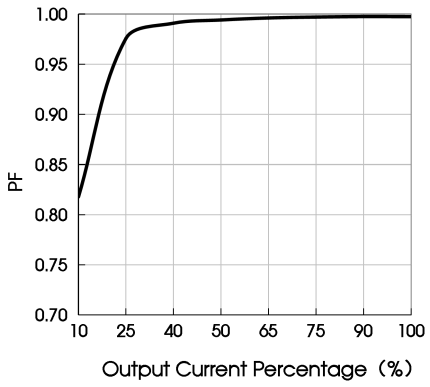




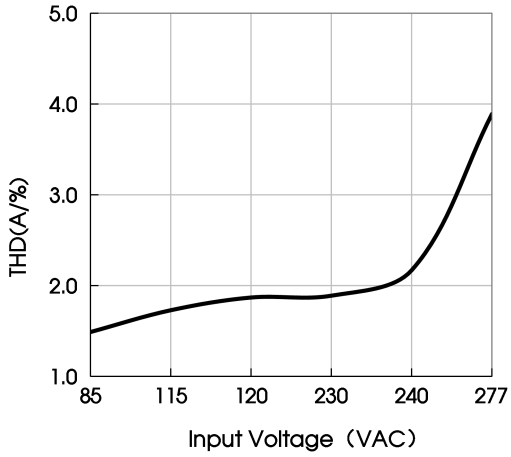
Input Voltage Vs PF（Full Load）



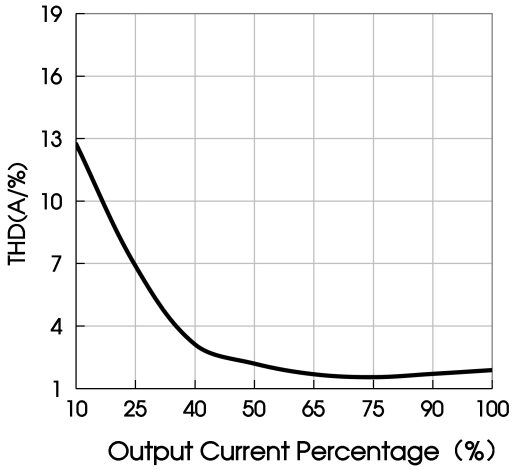
Output Load Vs PF（Vin=230VAC）



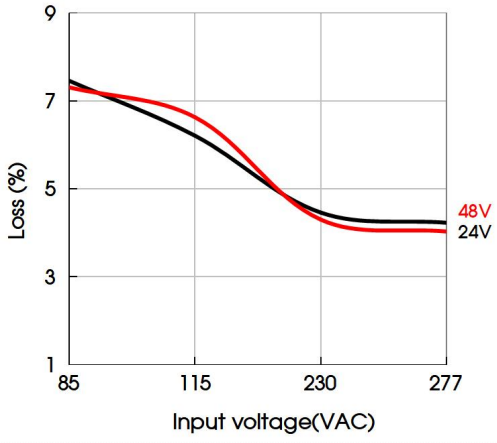
Input Voltage Vs THD（Full Load）



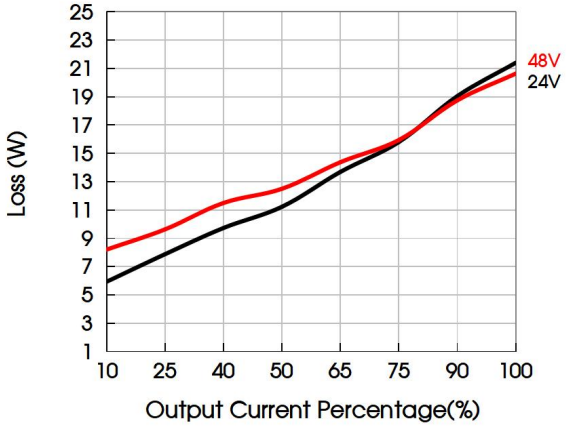
Output Load Vs THD（Vin=230VAC）

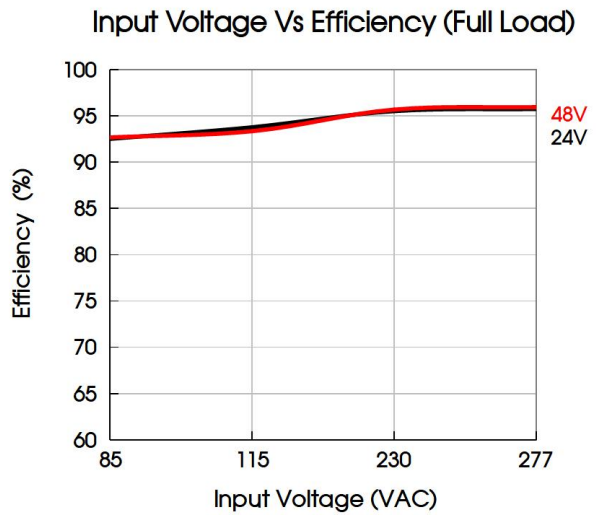


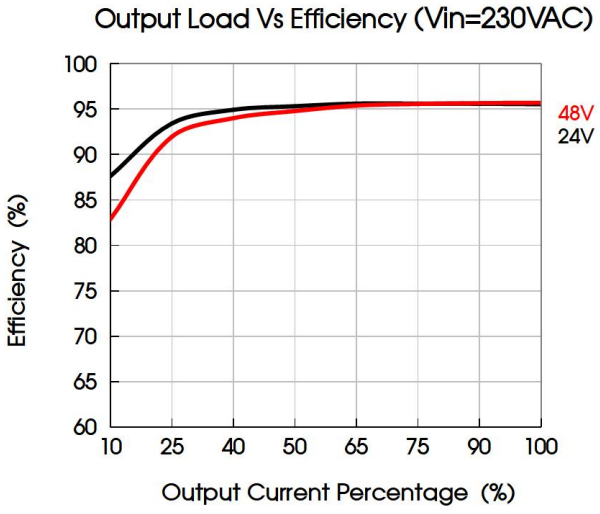
Input voltage Vs Loss（Full Load）



Output Load Vs Loss (Vin=230VAC)



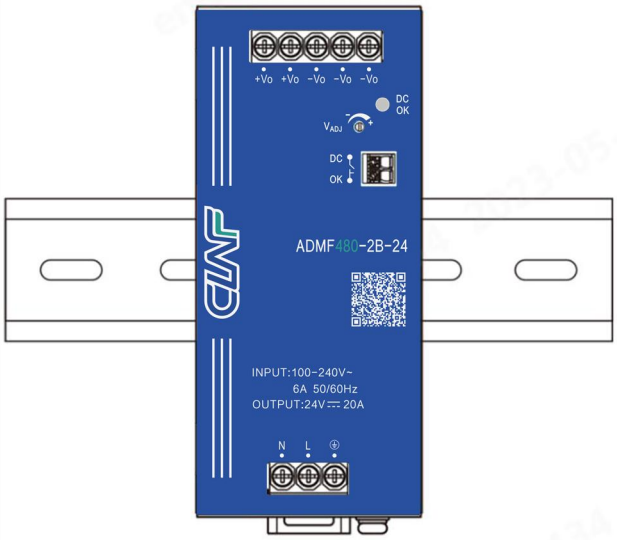


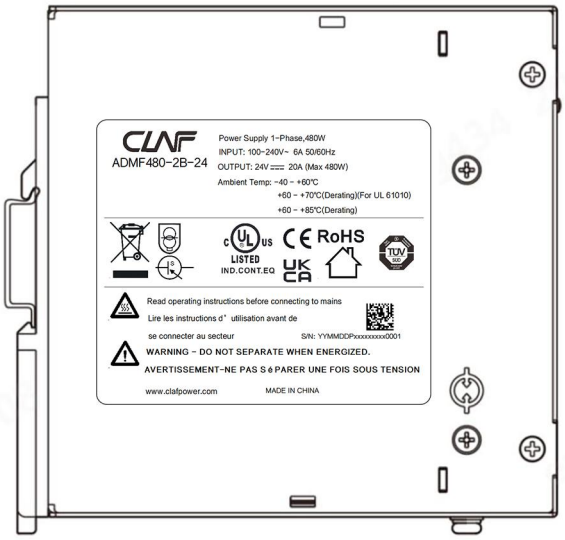


Note: 1. All curves are for 24V output, measured at input 230VAC, 50Hz, output Io, ambient temperature 25℃, unless otherwise stated;

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;

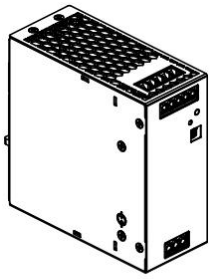
Installation Diagram



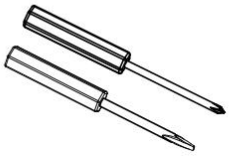


Note: Keep the following installation clearances: 20mm on top, 20mm on the bottom, 5mm on the left and right sides are recommended when the device is loaded permanently with more than 50% of the rated power. Increase this clearance to 15mm in case the adjacent device is a heat source (e.g. another power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

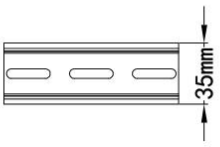
Materials required in the installation		
1	Product	1 PC
2	Phillips screwdriver Slotted screwdriver	1 PC
3	TS35/7.5 or TS35/15	1 PC
4	16–10AWG wire	/ PCS
	The content is for reference only. Regarding the actual wire diameter and tightening torque, refer to the dimensional drawing.	



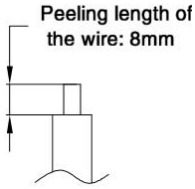
Product



Phillips screwdriver
Slotted screwdriver
Diameter of the cutting
Diameter: 3mm

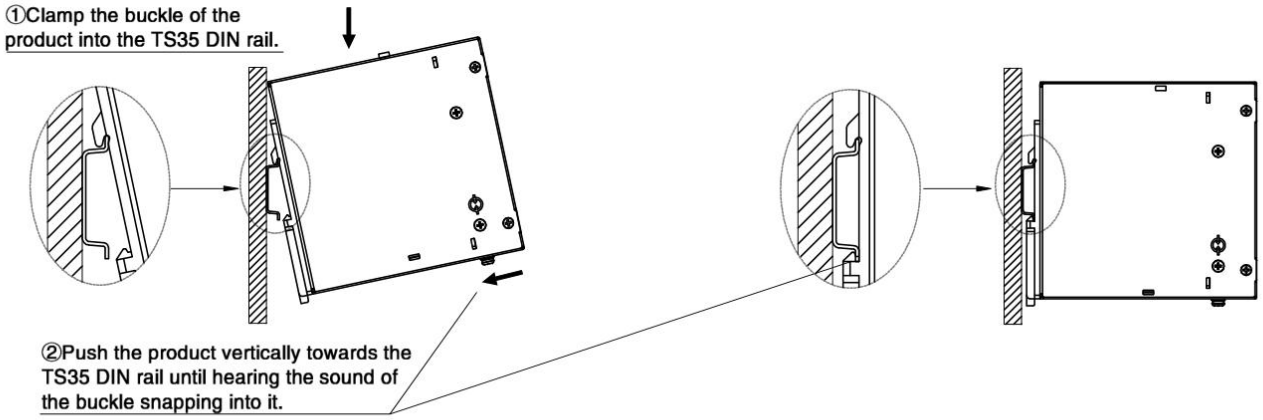


TS35/7.5 or TS35/15

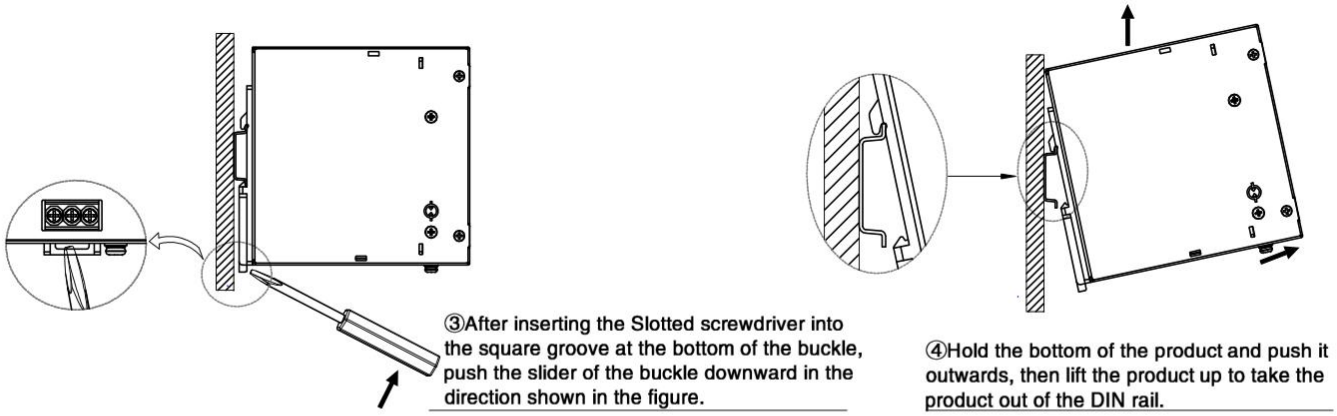


16–10AWG wire

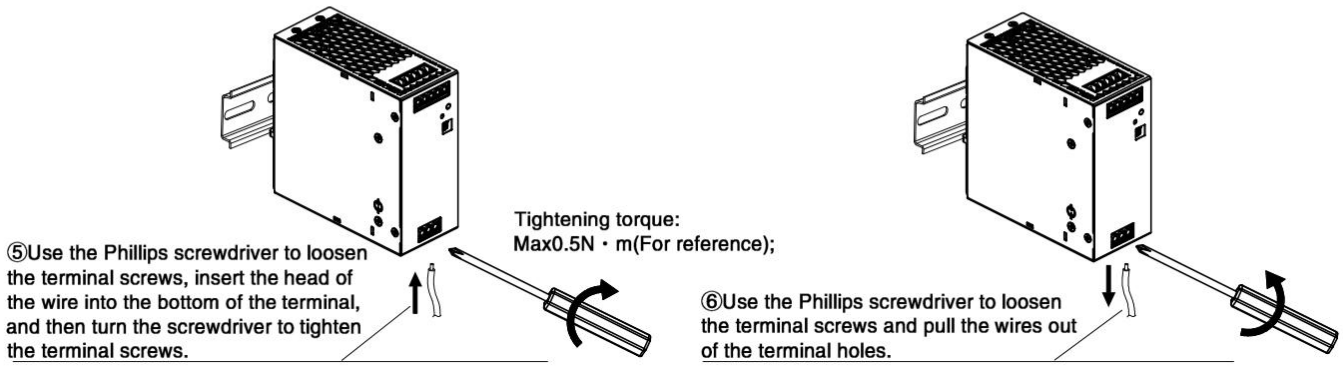
Installation steps ①–②

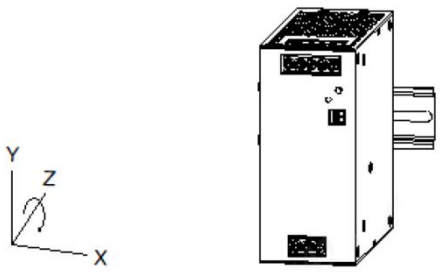


Disassembly steps ③–④

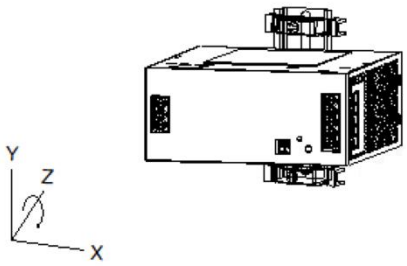


Wiring / Unwiring Steps ⑤–⑥

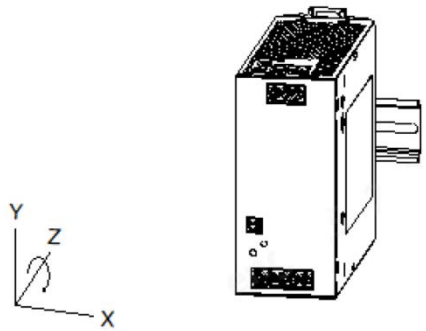




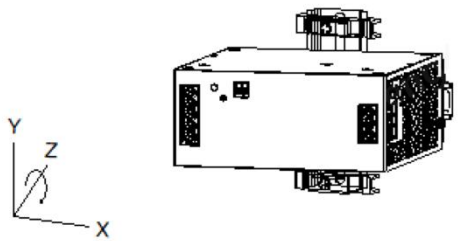
Rotate the installation position
(0° Z-Axis)



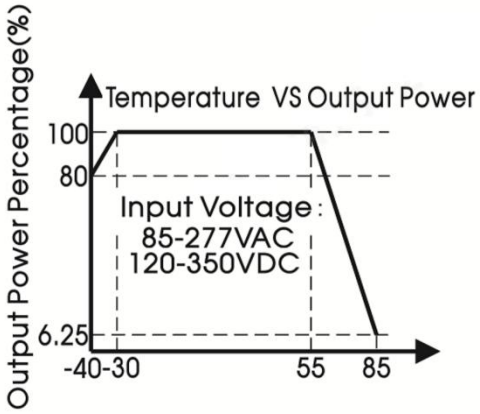
Rotate the installation position
(90° Z-Axis)

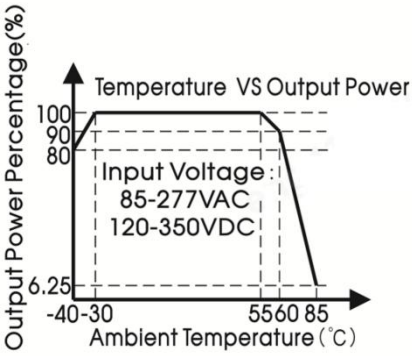


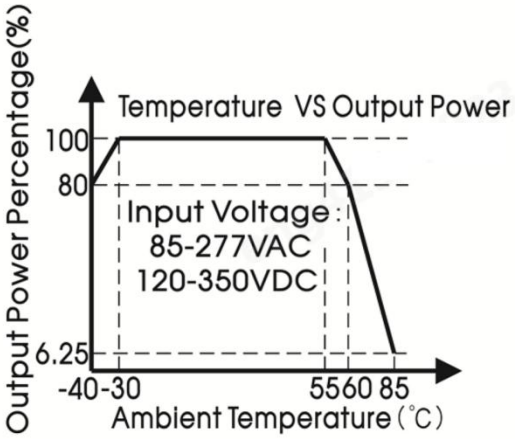
Rotate the installation position
(180° Z-Axis)

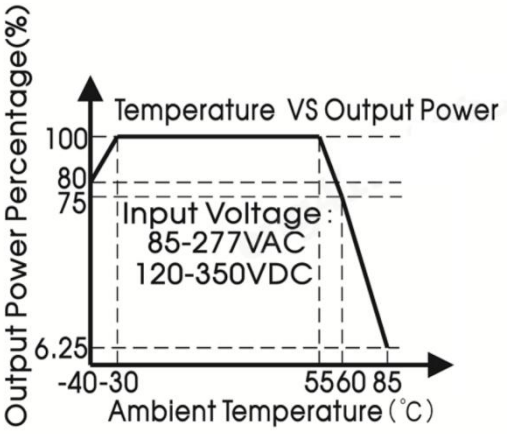


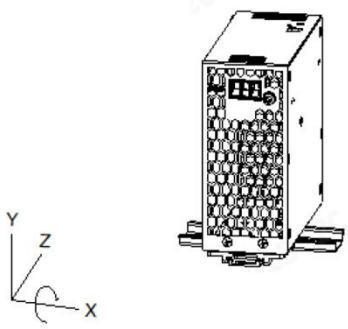
Rotate the installation position
(270° Z-Axis)



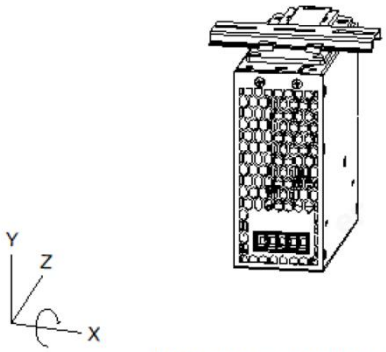




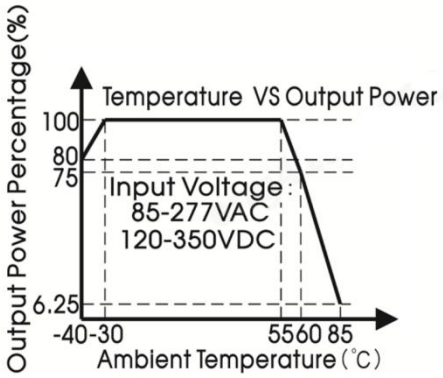


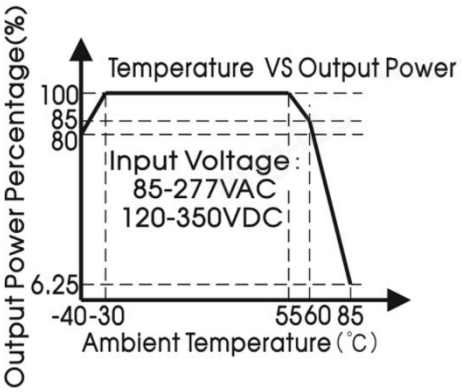


Rotate the installation position
(270° X-Axis)

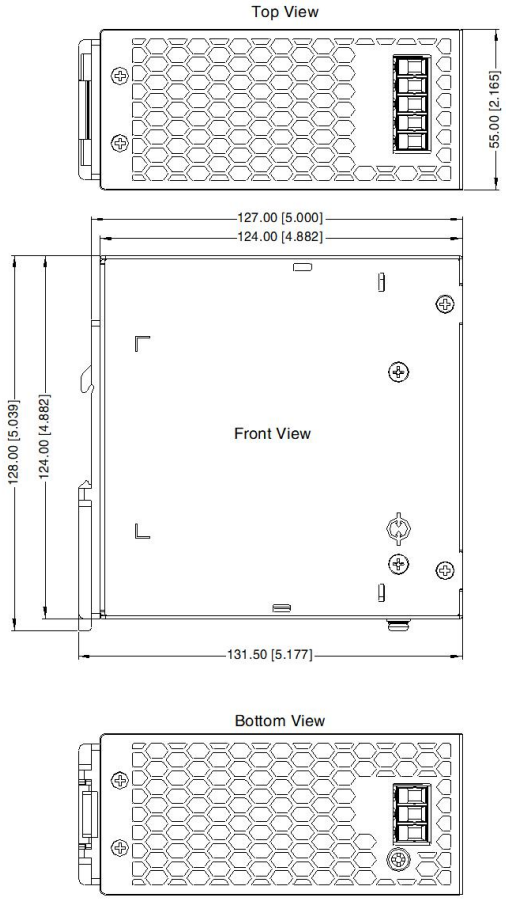


Rotate the installation position
(90° X-Axis)

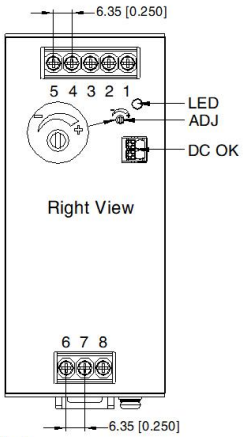




Dimensions and Recommended



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: 16–10AWG(12–10AWG for Pin8)
Output: 24V: 12–10AWG
48V: 16–10AWG
DC–OK: 24–16AWG
Tightening torque: Max 0.5 N・m
Mounting rail: TS35
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.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 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.