DESCRIPTIONS

120W, AC-DC DIN-Rail Power Supply



RoHS

CE Report EN62368-1

UKCA Report BS EN62368-1

FEATURES

- Universal 85 - 277VAC or 120 - 390VDC Input voltage
- Efficiency up to 94.5%
- Operating ambient temperature range: -40℃ to +85℃, full load at 60℃
- 150% peak load
- Active PFC, PF≥0.98
- DC OK function
- Double-sided conformal coating, salt-spray proof, explosion-proof
- Operating altitude up to 5000m
- OVC III (design refer to EN62477, 2000m)
- OVC II
- Pollution degree 2
- 5 years warranty
- 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 anticorrosion test
- Safety according to IEC/UL62368, EN60335, EN62477, 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	ADMF120-2B-12	120	12V/10A	12-14	93	80000
	ADMF120-2B-24		24V/5A	24-28	94	50000
	ADMF120-2B-48		48V/2.5A	48-56	94.5	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 Current	115VAC		--	--	1.5	A
		230VAC		--	--	0.75	
	Inrush Current	115VAC	Cold start	--	15	--	
		230VAC		--	30	--	
	Power Factor	115VAC	Room temperature, full load	0.98	--	--	--
		230VAC		0.95	--	--	
	Start-up Delay Time	115VAC/230VAC, rated load		--	--	3000	ms
	Input Fuse	Built-in fuse		--	8	--	A
	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	--	
	Minimum Load			0	--	--	
	Stand-by Power Consumption			--	--	5	W
	Power Consumption*	230VAC, rated load		--	8	--	
	Ripple & Noise*	20MHz bandwidth (peak-to-peak value)		--	--	100	mV
	Hold-up Time			--	35	--	ms
	DC OK Signal	Resistive load		30VDC/1A Max.			
	Over-current Protection*	115VAC/230VAC	Room temperature	110	150	--	%
			High temperature, low temperature	105	--	--	

	Short Circuit Protection*				Hiccup mode, constant current works 1s (Typ.), turn off 10s, continuous, self-recover			
	Over-voltage Protection		12V		≤18VDC (Hiccup, self-recover)			
			24V		≤35VDC (Hiccup, self-recover)			
			48V		≤60VDC (Hiccup, self-recover)			
	Over-temperature Protection*		230VAC, rated load	Over-temperature protection start	--	--	90	℃
				Over-temperature protection release	60	--	--	
General Specifications	Isolation Test*	Input - ⏚	Electric strength test for 1min., leakage current <10mA (Isolation Test for ⏚ need to remove the screw at the mark shall ⌀ *)		2500	--	--	VAC
		Input - output			4000	--	--	
		Output - ⏚			500	--	--	
		DC OK - output			500	--	--	
	Insulation Resistance	Input - ⏚	Ambient temperature: 25 ± 5℃ Relative humidity: < 95%RH, no condensation Test voltage: 500VDC		500	--	--	MΩ
		Input - output			500	--	--	
		Output - ⏚			500	--	--	
	Operating Temperature				-40	--	+85	℃
	Storage Temperature				-40	--	+85	
	Operating Humidity		Non-condensing		10	--	95	%RH
	Storage Humidity				20	--	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	--	--	
				+70℃ to +85℃	3.34	--	--	
			Input voltage derating	85VAC - 100VAC	1	--	--	%/VAC
	Leakage Current		240VAC	Touch current	< 0.88mA			
	Safety Class				CLASS I			
	MTBF		MIL-HDBK-217F@25℃		> 702,000h			
			MIL-HDBK-217F@40℃		> 524,000h			
	Warranty		Ambient temperature: <40℃		5 years			
	High and Low Voltage Crossing		Test with ATAZ P/N: AUPS20-24F-N		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	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 × 34.00mm	
	Weight	540g (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.

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.

6.*DC OK Signal: When the output voltage is normal, the relay is connected. When the output voltage is abnormal (<90%Vo), the relay is disconnected.

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 +20dB
		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 line to line ±3KV/line to ground ±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

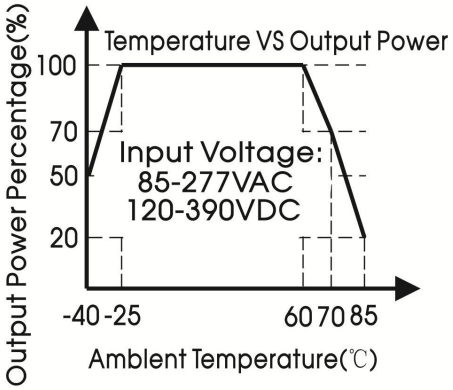
Note:* perf. Criteria:

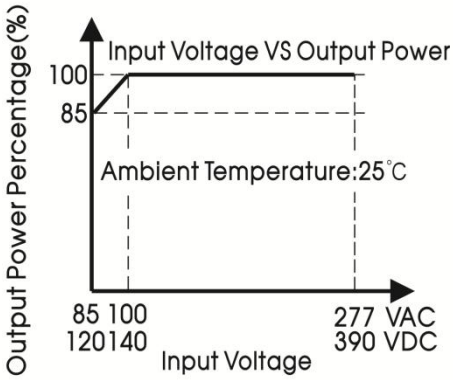
A: The equipment shall continue to operate as intended without operator intervention;

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

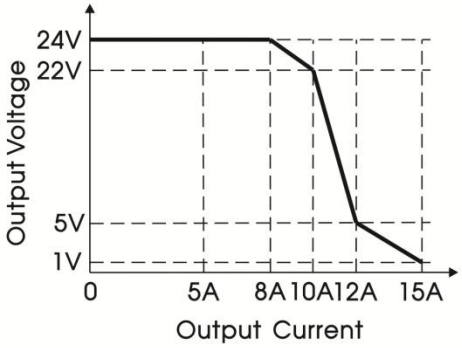
C: Loss of function is allowed, provided the function is self-recoverable, or can be restored by the operation of the controls by the user in accordance with the manufacturer's instructions.

Characteristic Curve

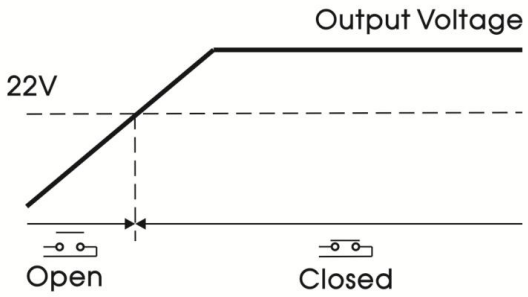




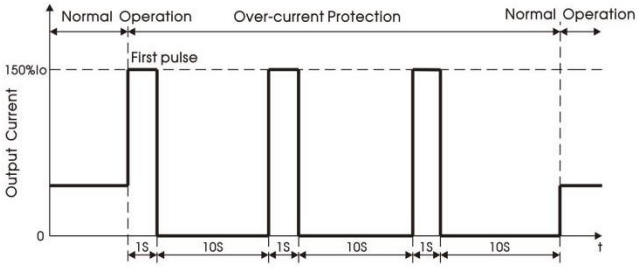
Output voltage VS Output current curve (Typ.)



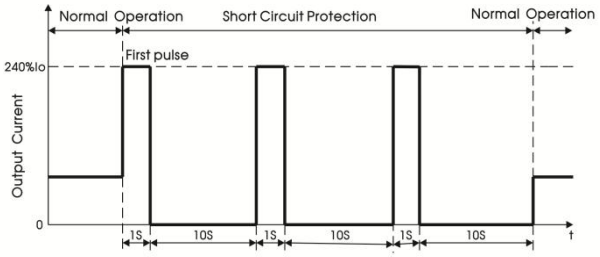
DC OK behavior curve (Typ.)



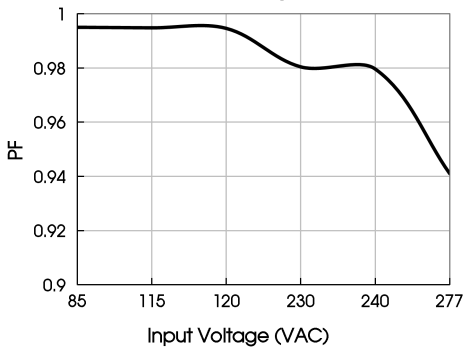
Over-current protection curve (Typ.)



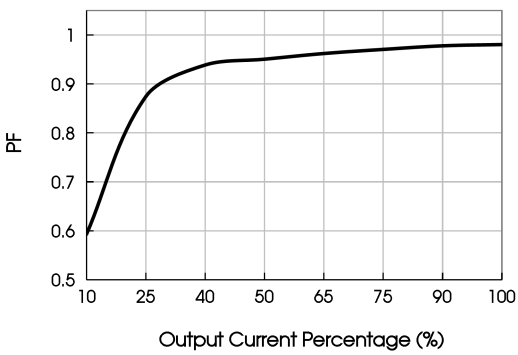
Short circuit protection curve (Typ.)

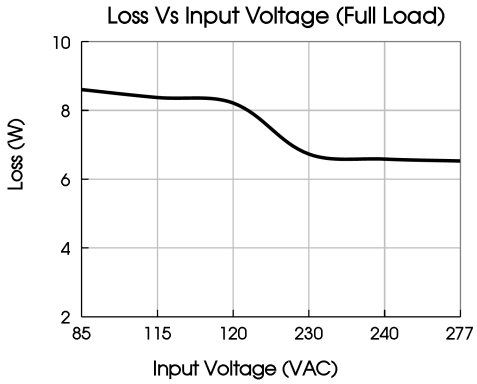


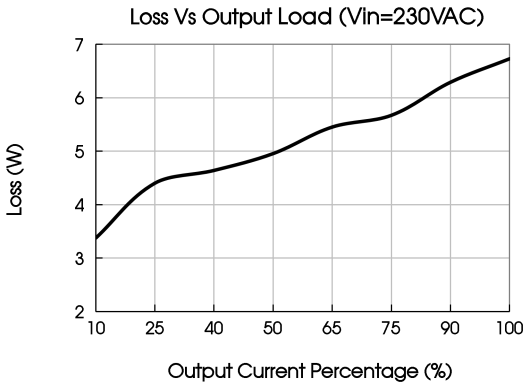
PF Vs Input Voltage (Full Load)



PF Vs Output Load (Vin=230VAC)





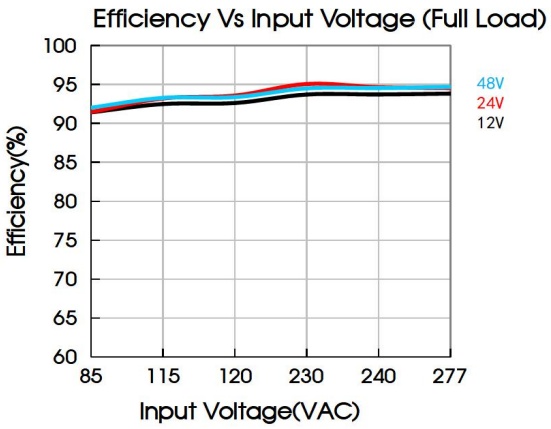


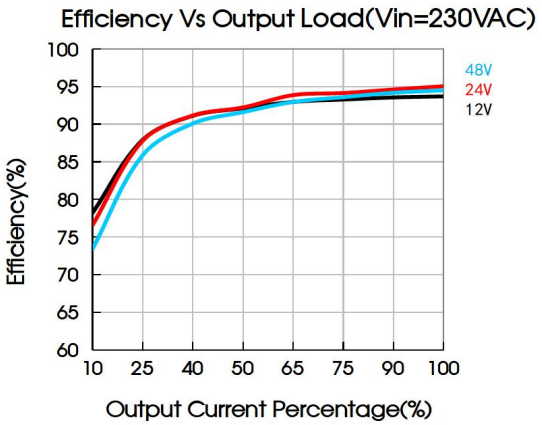
Note: 1.All curves are for 24V output, measured at input 230VAC, 50Hz, output Io, ambient temperature 25℃, unless otherwise stated;

2.Figure shows that the product will enter the overload state when the rated output current increases to 100%-150%Io (TYP.), and enter the overcurrent protection when the current > 150%Io (TYP.), and the output voltage will decrease with the increase of the output current. When the output current increases to a certain value, the product will enter the constant current mode;

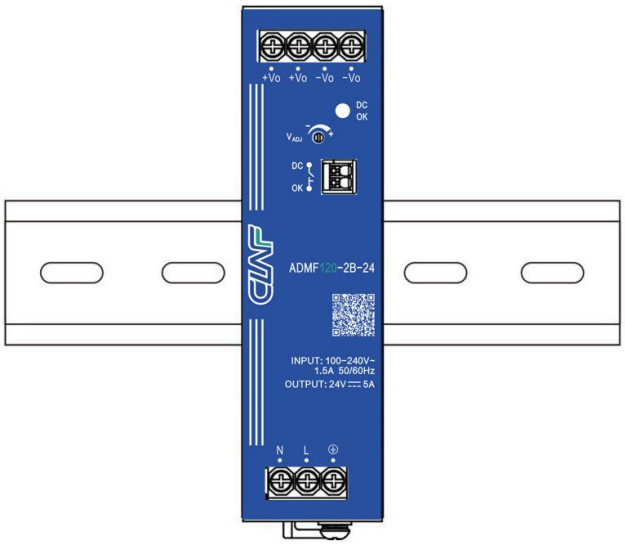
3.With an AC input voltage between 85-100VAC and a DC input between120-140VDC the output power must be derated as per the temperature derating curves;

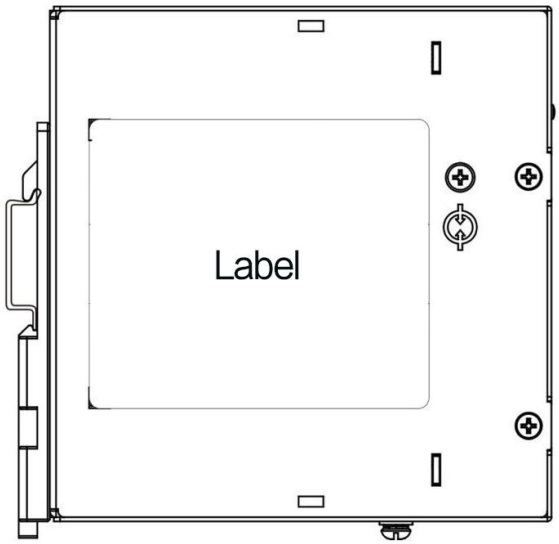
4.This product is suitable for applications using natural air cooling.





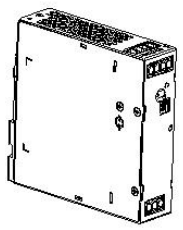
Installation Diagram



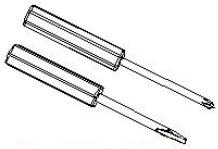


Note: Keep the following installation clearances: 20mm on top, 20mm on the bottom, 5mm on the left and right sides are recommended when the device is loaded permanently with more than 50% of the rated power. Increase this clearance to 15mm in case the adjacent device is a heat source (e.g. another power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

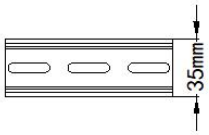
Bill Of Material		
1	Product	1 PCS
2	Phillips screwdriver Slotted screwdriver	1 PCS
3	TS35/7.5 or TS35/15	1 PCS
4	24–10AWG wires	/ PCS
	All above is only for reference, the actual wiring diameter and locking torque refer to the appearance size diagram	



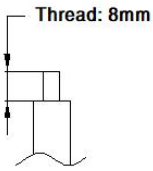
Product



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

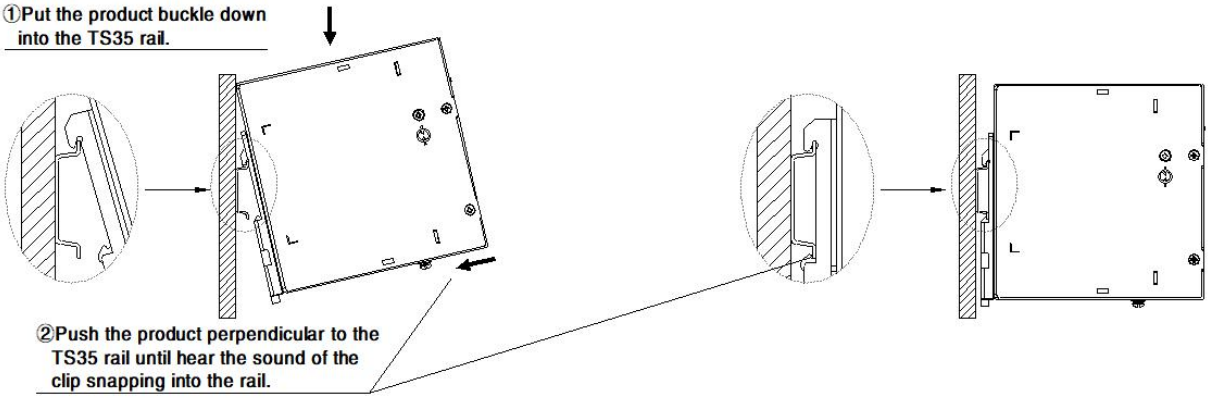


TS35/7.5 or TS35/15

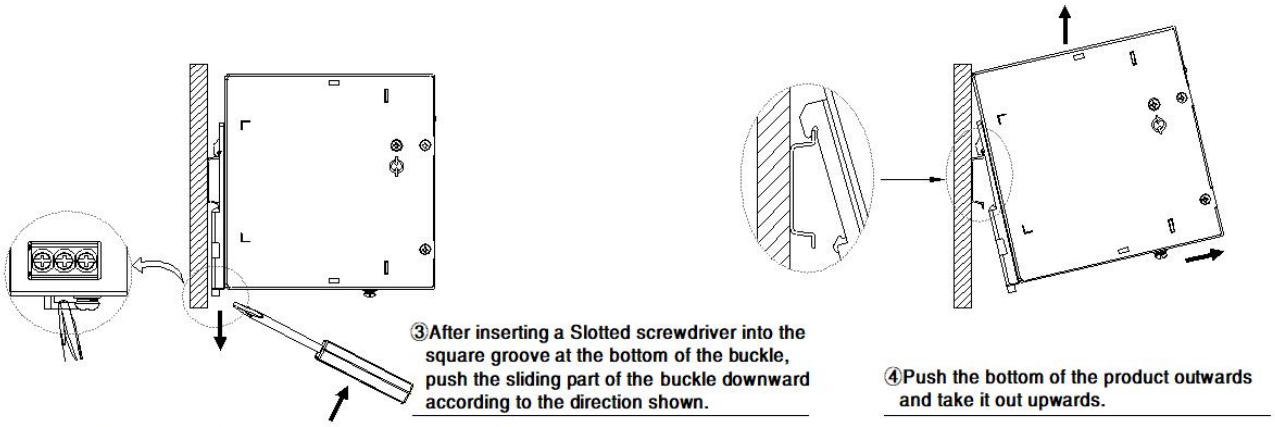


24–10AWG wires

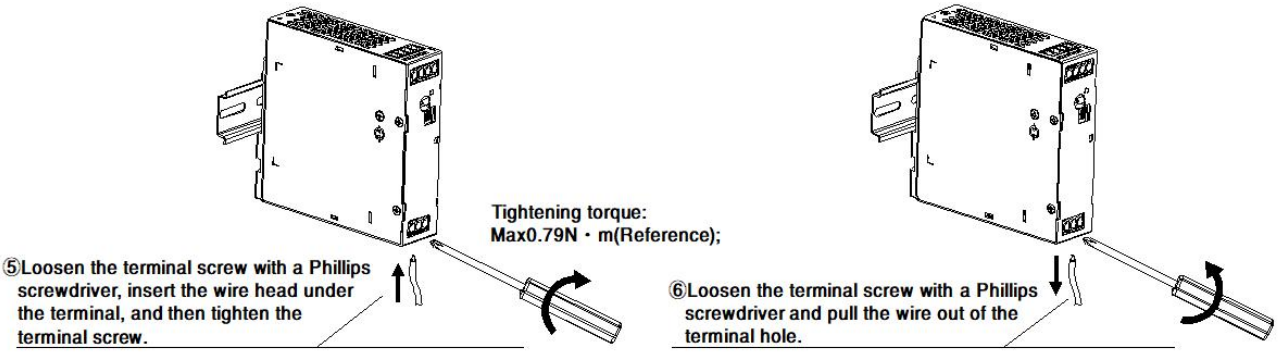
Installation steps ①–②

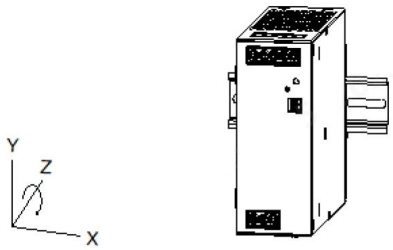


Disassembly steps ③–④

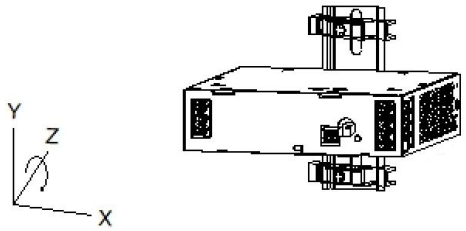


Connecting/Disconnecting Steps ⑤–⑥

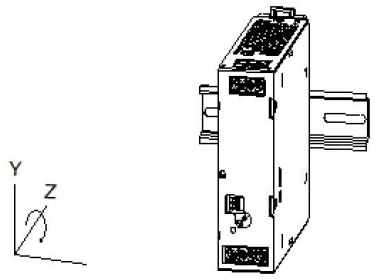




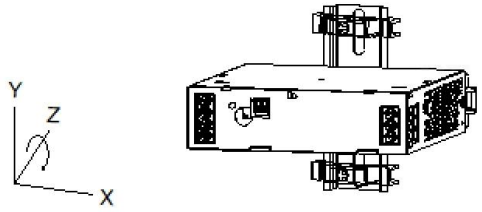
Rotate the installation position
(0° Z-Axis)



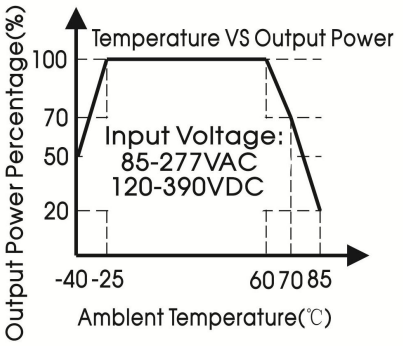
Rotate the installation position
(90° Z-Axis)

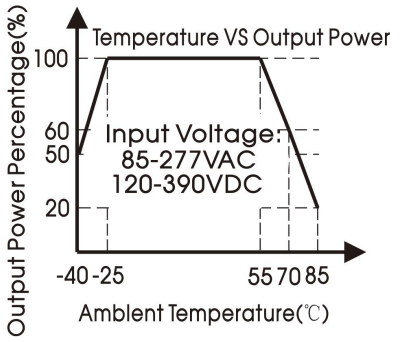


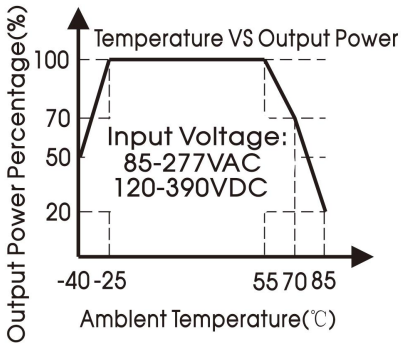
Rotate the installation position
(180° Z-Axis)

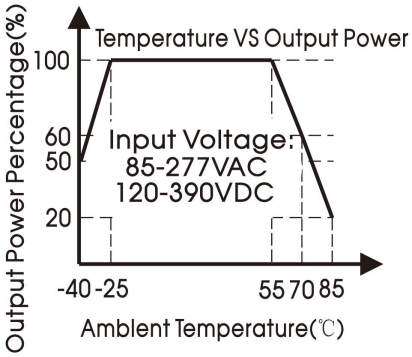


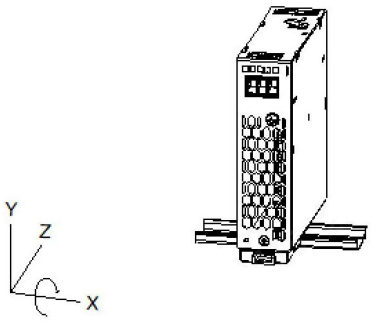
Rotate the installation position
(270° Z-Axis)



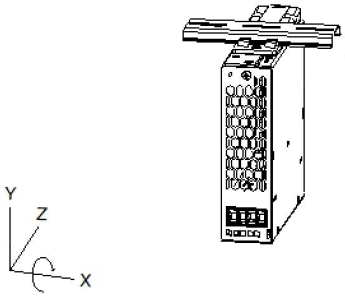




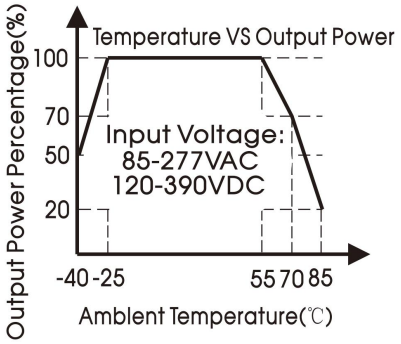


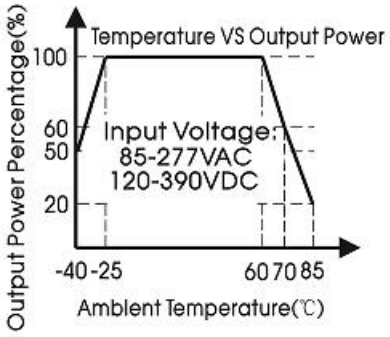


Rotate the installation position
(270° X–Axis)

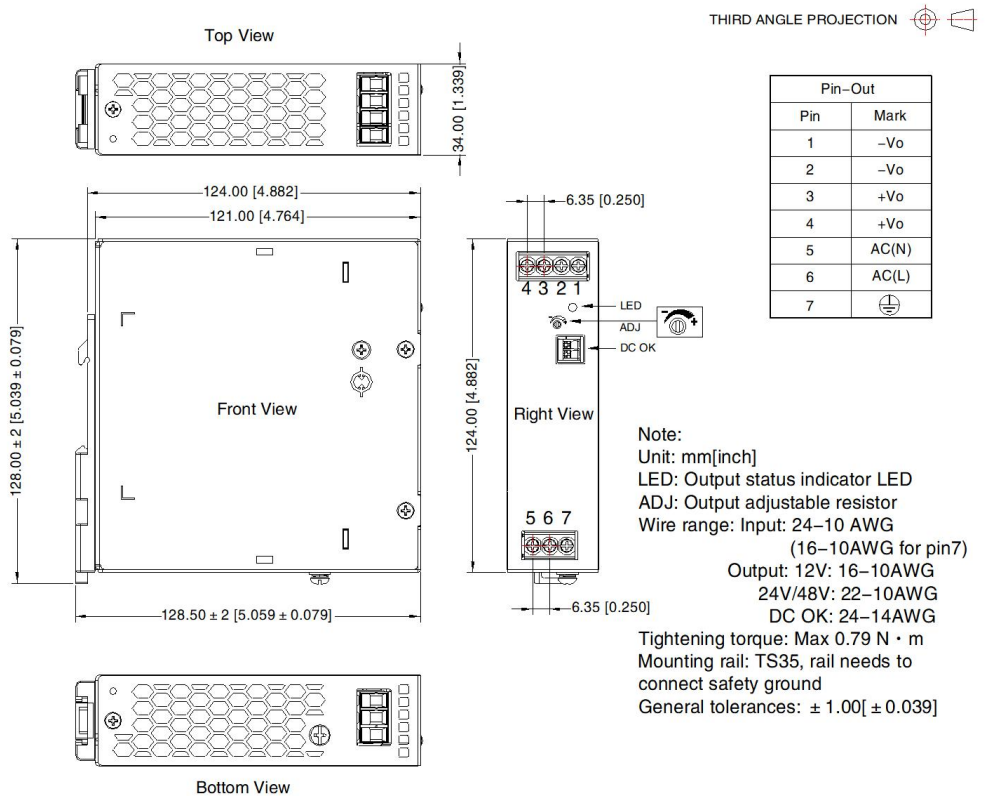


Rotate the installation position
(90° X–Axis)





Dimensions and Recommended



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

Note:
Unit: mm[inch]
LED: Output status indicator LED
ADJ: Output adjustable resistor
Wire range: Input: 24–10 AWG
(16–10AWG for pin7)
Output: 12V: 16–10AWG
24V/48V: 22–10AWG
DC OK: 24–14AWG
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;

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 ualified 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.