

2023 September

DIN-Rail Power Supply UDP Series

with service life indicator



UDP-120 series



UDP-180 series




UDP-240 series

Notifying replacement timing based on electrolytic capacitor degradation

DIN-rail-compatible model with service life indicator


With service life indicator



A signal is sent as the expected service life expiration nears. Planning the maintenance work becomes possible.

It is possible to eliminate unwanted early replacement, reducing the maintenance cost.

Without service life indicator

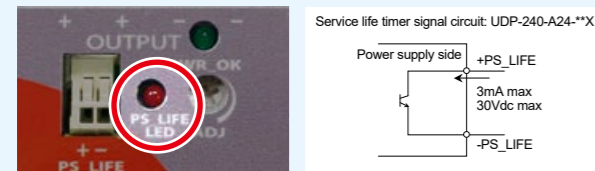


Unexpected support required due to a sudden shutdown of power caused by expiration of service life

Increased maintenance cost due to the replacement of PSU well before the expiration of service life

What is the service life indicator?

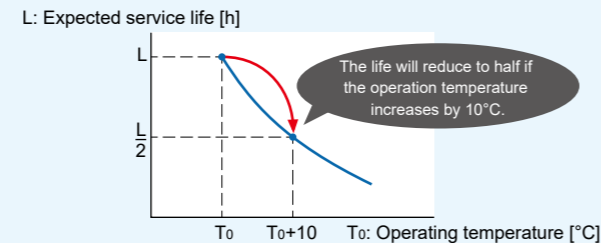
In general, the service life of fanless PSUs depends on the service life of electrolytic capacitors used. The service life indicator is a feature to compute the level of degradation of electrolytic capacitors from the parts temperature and notify the product life nearing the end with a H/L signal and LED light if the estimated remaining life drops to 20% or the cumulative operating hours reaches fifteen years excluding the period in which the system is not energized.



* The signal indicated the estimated time of PSU replacement based on the degradation (service life) of electrolytic capacitors and does not include failures caused by other factors.

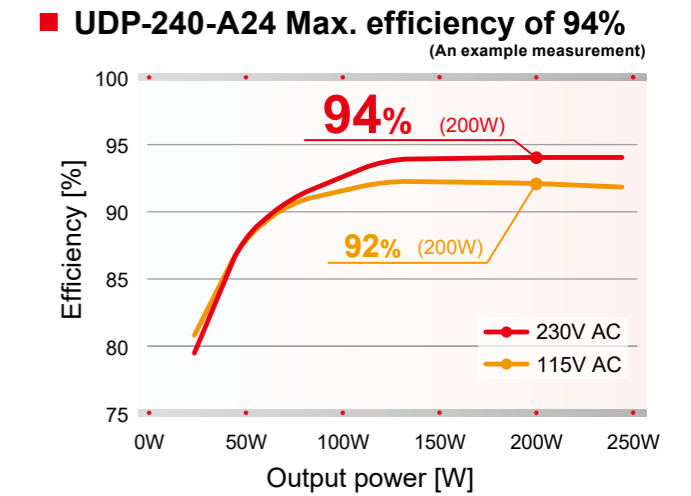
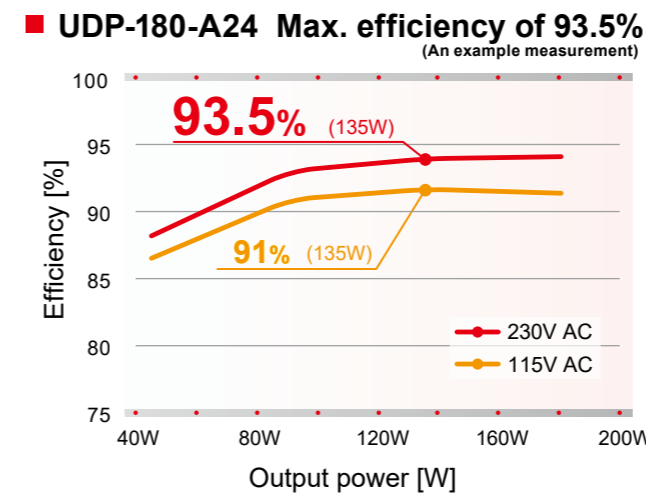
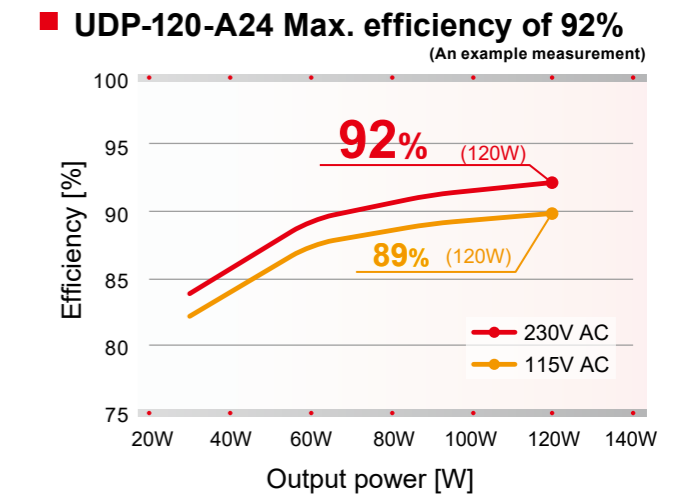
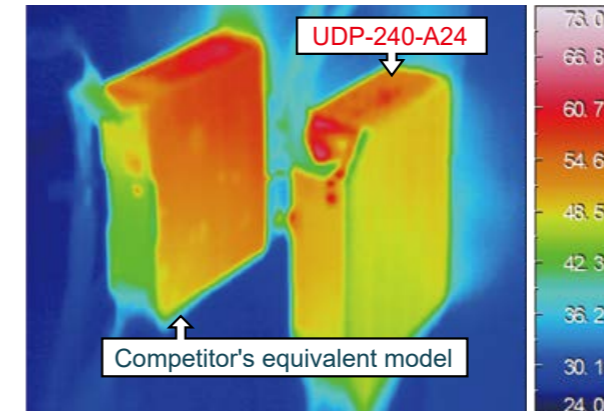
Electrolytic capacitors

The formula used to estimate the service life of electrolytic capacitors is based on the Arrhenius's 10°C rule. If the ambient temperature increases by 10°C, the service life drops to half and, if the temperature drops by 10°C, the life becomes twice as long. However, it is also necessary to consider the degradation of sealing rubber on the electrolytic capacitor and the time it takes for the sealing rubber to deteriorate is generally considered as fifteen years.



High-efficiency design

Adopted "soft switching" design. Enabled compact slim size and high efficiency by controlling created heat with switching loss, which is better than "hard switching" design.



Output specifications

Model	UDP-120-A24	UDP-180-A24	UDP-240-A24
Output voltage	+24V	+24V	+24V
Continuous power	120W	180W	240W
Peak power (10s) 100V AC	201.6W	201.6W	400.8W
Peak power (10s) 200V AC	300W	300W	400.8W
Input voltage	85-264V AC (with PFC, worldwide range)		
Safety standards	UDP-120/180: UL(c-UL)62368-1, UL508, SEMI F47, PSE (ordinance clause 2) compliant UDP-240: UL(c-UL)62368-1, UL508 certified, CE marking SEMI F47, PSE (ordinance clause 2) compliant		
Size (W×H×D)	UDP-120/180: 35×124×117.5 mm UDP-240: 41×124×117.5 mm		

lineup

UDP-120-A24-**-X



UDP-180-A24-**-X



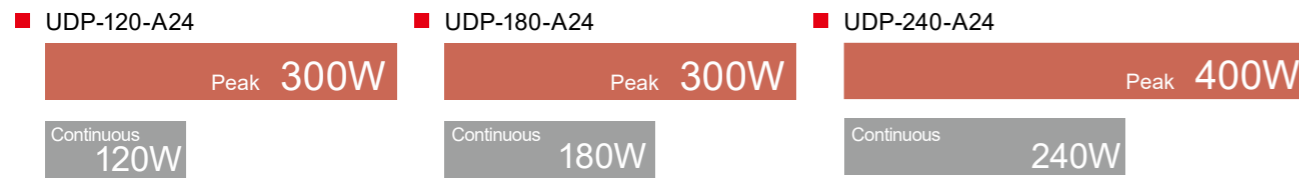
UDP-240-A24-**-X



High peak power

Supports up to 250% peak load

The product supports 10 second output of peak power, which makes it optimum for devices requiring an inrush current, such as motors.



Low noise and Low leakage current

The power supply unit clears VCCI Class B for conducted emissions. There is no need for an external noise filter, which helps to save associated work and costs. In addition, it achieves low leakage current both at 100V AC and 200V AC.

Leakage current characteristics (an example measurement)

UDP-120-A24		
Input	Rated load	Min. load
100V AC	0.11mA	0.12mA
200V AC	0.23mA	0.23mA

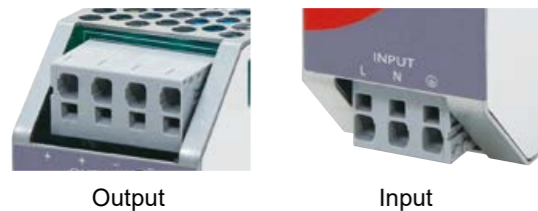
UDP-240-A24		
Input	Rated load	Min. load
100V AC	0.18mA	0.19mA
200V AC	0.39mA	0.39mA

UDP-180-A24		
Input	Rated load	Min. load
100V AC	0.11mA	0.12mA
200V AC	0.23mA	0.23mA

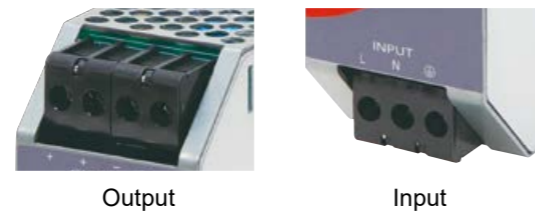
Selectable input/output connector type

The PSU comes with European terminal block type or screw terminal block type as I/O terminals.

European terminal block type

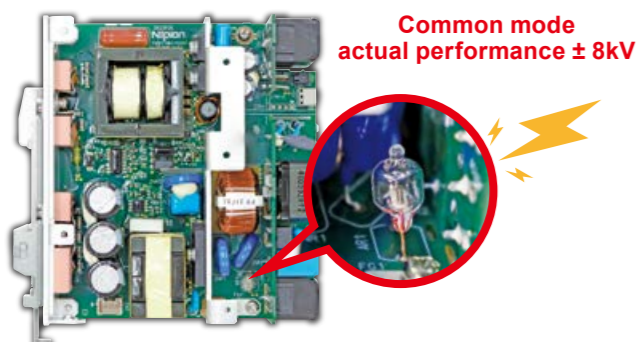


Screw terminal block type



The built-in arrestor enhances the resistance against lightning surges

By incorporating an arrestor as a surge protector, the resistance to external surges due to lightning or other causes has been enhanced.



The built-in arrestor offers the security & safety

Others

- Instantaneous power failures can be addressed by connecting a capacitor unit
- Wide operating temperature range from -20°C to 70°C (derating required)
Flexible mechanical design is possible even when it is installed inside a high-temperature control panel.
- Able to start-up at -40°C environment
- Coated PCB as standard
- Equipped with a variable resistor to adjust output voltage
- Model with a service life indicator is available
Warnings of the deterioration of the electrolytic capacitor are provided by H/L signals and LEDs.
- SEMI F47 compliant design
- EN62477-1 OVC III compliant design

Battery unit for backup at blackout

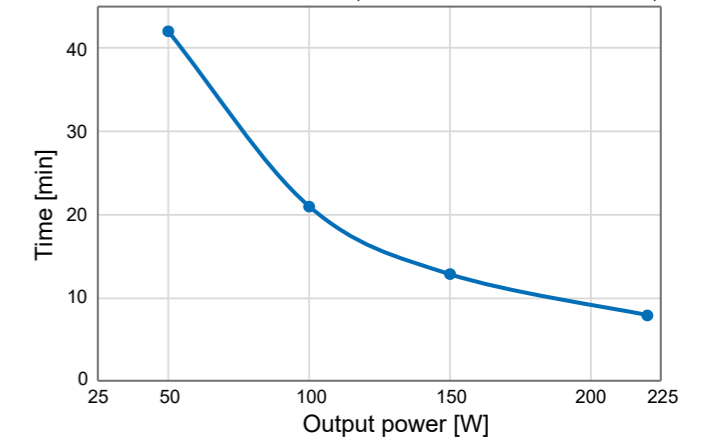
DS02A-L24/2.5L

Lithium-ion battery unit



Backup discharge time characteristics

Please note that the value shown is an initial reference not guaranteed. (Measured with UDP-240-A24-E00)

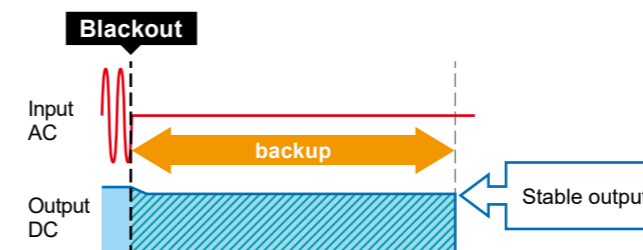


Features

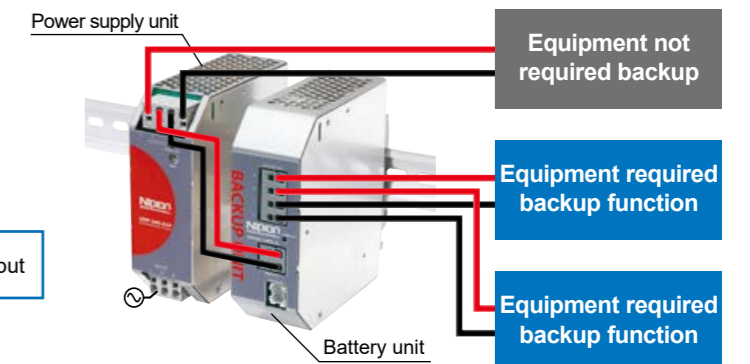
- Backup with no interruption is possible at blackout by connecting this product to UDP series.
- Lithium-ion battery with approximately twice as high energy density as a conventional nickel-metal hydride battery.
- It is possible to detect and notify various battery abnormalities.
- UL(c-UL)62368-1 compliant

Operation concept

Backup with no interruption at blackout is possible. It can save space rather than using a UPS.



Connection concept



Configurable backup time

The backup time after AC input power failure can be set by DIP switch setting. (Setting time tolerance: ±10%)

Pattern	Switch 1	Switch 2	Discharge time
①	ON	ON	1 min
②	ON	OFF	3 min
③	OFF	ON	5 min
④	OFF	OFF	Until discharge cut-off voltage

*Factory setting is pattern ④

Battery condition indicator

The LED shows the battery condition.

Condition	LED (Green)	LED (Red)	Notes
Fully charged	ON	OFF	-
Charging	Blinking every 2s	OFF	-
Discharging	Flashing	OFF	-
Detecting abnormality	OFF	ON	Abnormality in the battery unit
Abnormal input	OFF	Flashing	The input voltage is out of the specification.
Abnormal temperature	OFF	Blinking every 2s	Standby for charging

Single Output Power Supply UDP-120 series

210AIG 0010041 10M6L 200011A 00B-120 261162

High efficiency 92%!! Output power 120W DIN-rail compatible power supply



**RoHS
Directive**

Single Output
Continuous 120W
Peak 201.6W ~300W

Input/Output terminal type	Model	Output voltage	Output current *1 (100/200VAC)	Output power *1 (100/200VAC)
European terminal (with service life indicator)	UDP-120-A24-E0X-B	+24V	5A (8.4A/12.5A)	120W (201.6W/300W)
Screw terminal (with service life indicator)	UDP-120-A24-T0X-B	+24V	5A (8.4A/12.5A)	120W (201.6W/300W)

■ Model name coding

UDP-120-A - **** - ***

① Series name	⑤ Input/Output terminal type	⑦ Service life indicator	⑨ DIN-rail
② Output power	E:European terminal	0:Without service life indicator	Blank:Without DIN-rail bracket
③ Arrestor	T:Screw terminal	X:With service life indicator	B:With DIN-rail bracket
A:With arrestor	⑥ Connector for backup (DS01A)	⑧ Modification	
④ 24:24V	0:without connector	Blank: standard	
	B:with connector		

*1 Values in () above show peak current and power.

Features

- Service life indicator is available.
- It is not necessary to install an external noise filter because of low noise (supports VCCI Class B).
- The built-in arrestor to avoid/mitigate the risk of lightning damage
- Able to start-up at -40°C environment
- The PCB is coated as standard specification
- European terminal type and screw terminal type are available.
- Equipped with a variable resistor to adjust output voltage
- Backup for blackout

Safety standard	UL	CSA	EN	CE	CCC
Reliability grade	HFA	FA	HOA	OA	

* Various safety standards will be certified.

Function

TTL	PFC	RoHS Directive
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Input

AC input	85-264V AC (Worldwide range)
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Dimension

W×H×D (mm)	with DIN-rail bracket	35×124×117.5
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High efficiency 92%*

(*At 230V AC input)

300W* peak power, approx. 250% higher than continuous rated power

(*At 200V AC input)

General Specification (Items are provided at normal temperature and humidity unless otherwise specified.)

Items	Specification	Measurements conditions, etc.	
AC Input	Rated Voltage	100-240VAC (85*~264VAC)	Worldwide range *See <Fig.1> Low input voltage derating below.
	Input Frequency	50-60Hz	Frequency range 47-63Hz
		Efficiency	115VAC 90.5% typ 230VAC 92.0% typ
	Power Factor	115VAC 99% typ 230VAC 88% typ	At rated output *Characteristic data: Fig.5
		Inrush Current	20A typ (115VAC), 41A typ (230VAC) *Characteristic data: Fig.6
	Input Current	115VAC 1.16A typ 230VAC 0.64A typ	At rated output *Characteristic data: Fig.4
Output	Rated Voltage	+24V	
	Continuous Rated Output	5.0A 120W	At rated input Refer to <Fig.3> output derating.
		Peak Current/Power	100VAC 8.4A 201.6W* 200VAC 12.5A 300W*
	Factory Setting	24V±2%	At continuous rated output
	Adjustable Voltage Range	22.8V (95%)-28.8V (120%)	
	Static Input Regulation	94mV max.	
	Static Load Regulation	150mV max.	
	Temperature Regulation	0.02%/°C max.	
	Max. Ripple Voltage	0-70°C 120mVp-p max. -10 to 0°C 160mVp-p max. -20 to -10°C 240mVp-p max.	Connect 150mm max. lead wire to output connectors, and then connect a 10uF electrolytic capacitor with a 0.1uF ceramic capacitor in parallel to the other ends of the wires to measure by an oscilloscope with 100MHz frequency band.
		Max. Spike Voltage	
Over Current Protection			
Over Voltage Protection	OVP point (V) 30.0-36.0V Method Output shutdown (latch lock) Recovery Reclosing of AC input		
	Operating Temp./Humidity	-20 to 70°C (able to start-up at -40°C)/20-90% *1	*Refer to <Fig.3> output derating. There shall be no condensation
Environment	Storage Temp./Humidity	-30 to 85°C/10 to 95%	There shall be no condensation
	Vibration	To endure the acceleration of 2G, vibration frequency of 10 to 55Hz and 10 sweep cycles in each X, Y, Z direction (in each 1 hour).	JIS-C-60068-2-6 at no operation
	Mechanical Shock	Lift one bottom edge 50mm high with the opposite edge placed on a test bench, and let it fall. Repeat 3 times on the other three edges as well, and no malfunction shall be observed.	JIS-C-60068-2-31 at no operation
Insulation	Dielectric Strength	1.5kVAC/1minute between input and output *2 1.5kVAC/1minute between input and FG *2 500VAC/1minute between each output/FG	Cut-off current 10mA Cut-off current 10mA Cut-off current 100mA
	Insulation Resistance	50MΩ min. between input/output/FG	At 500VDC
	Leakage Current	0.12mA typ (100VAC), 0.24mA typ (200VAC) *Characteristic data: Fig.7	
EMC	Line Noise Immunity	±2000V (pulse width of 100/1000nS, cycle period of 30 to 100Hz, Normal/Common mode with Positive/Negative polarity for 10 minutes)	There shall be no fluctuation of DC output or malfunction.
	Electrostatic Discharge	EN61000-4-2 compliant	Apply to FG and case. There shall be no malfunction, nor failure.
	Radiated, Radio-Frequency Electromagnetic Field	EN61000-4-3 compliant	
	Fast Transient Burst	EN61000-4-4 compliant	
	Lightning Surge	EN61000-4-5 compliant	
	Radio Frequency Conducted Immunity	EN61000-4-6 compliant	
	Power-Frequency Magnetic Field Immunity	EN61000-4-8 compliant	
Others	Voltage dips/Regulation	EN61000-4-11 compliant	
	Conducted Emission	VCCI-B, FCC-B, CISPR22-B, EN55022-B compliant *Characteristic data: Fig.8, 9	At rated input and rated output
	Harmonic Current Regulations	IEC61000-3-2 (edition 2.1) classA, EN61000-3-2 (A14) classA compliant	At rated input/output
	Safety Standards	UL62368-1, CSA62368-1 (c-UL), UL508 compliant, PSE (ordinance clause 2) compliant	
	SEMI Standard	SEMI-F47 compliant	At 200-240VAC input
	Cooling System	Convection cooling	
	Output Grounding	Capacitor grounding	
Output Hold-up Time	Refer to <Fig.14> Output Hold-up Time vs. Output Power	*Characteristic data: Fig.14	
Reliability Grade	FA (Industrial equipment grade to use double-sided PCB with plated through hole)	Following our standard	
Weight	520g typ	With DIN-rail bracket	
Warranty	Three years after delivery. If the defect is our responsibility, the defective unit shall be repaired or replaced at our cost.	Except for operation out of the specification.	

*1 When startup is performed at -15°C or lower, it may take several seconds until output voltage becomes stable. Before using this product, evaluate it using an actual machine.

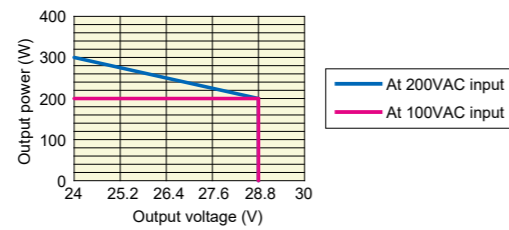
*2 The original dielectric strength between the input and output terminals is 3 kV AC for 1 minute. However, because an arrestor is mounted between the input terminal and frame ground (FG), the actual dielectric strength between them is 1.5 kV AC for 1 minute.

<Fig.1> Low input voltage derating	Peak output power condition
Follow the derating below to derate rated current/power.	<ul style="list-style-type: none"> •Duty ratio of peak current shall be 30% or less. •Energized period of peak current shall be 10 seconds or less. •In the case that the ambient temperature is 40°C or higher with convection cooling, the energized period of peak current shall be 5 seconds or less. •The value resulting from the formula below shall not exceed the continuous rated current, I_o, after derating specified in the clause, "Output derating" on the following page.
	$\sqrt{(I_p^2 \times D) + (I_m^2 \times (1-D))} \leq I_o$ <p>I_p = Peak current value I_m = Peak current value D = Duty cycle, t/T t = Pulse width of peak current T = Cycle I_o = Continuous rated current specified in output derating.</p> <p>(Note) If the temperature of the power thermistor for limiting inrush current does not rise enough (and its resistance value is too large), such as when the normal average load power is small, the output voltage at peak output might drop about 100 ms. If this might cause any problem, please check the output voltage waveform while the power supply is installed on an actual device at operation.</p>

General Specification (Items are provided at normal temperature and humidity unless otherwise specified.)

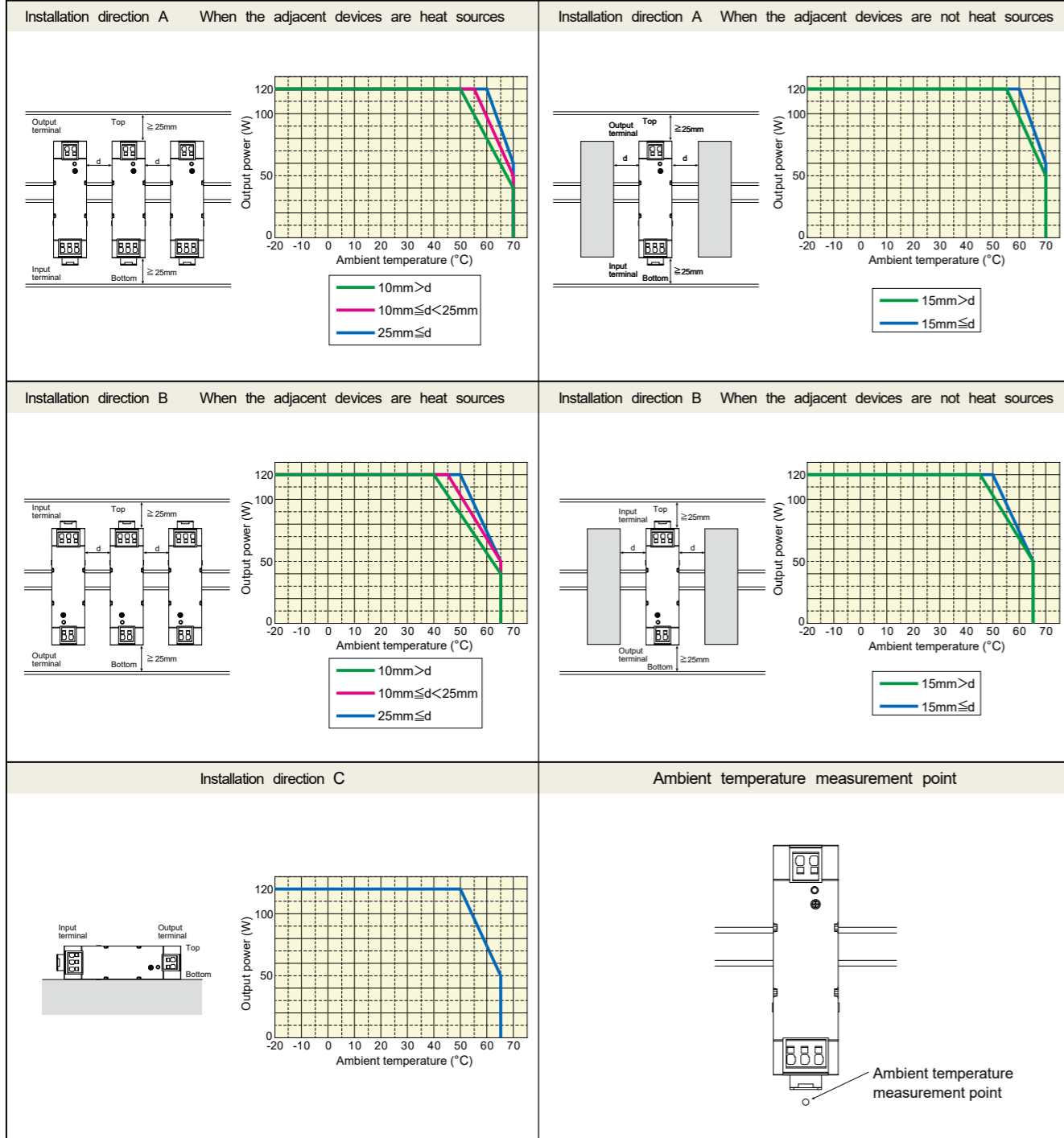
<Fig.2> Peak output derating

Use this product by reducing the peak power according to the preset output voltage, as shown in the derating diagram shown below.



<Fig.3> Installation/Output derating

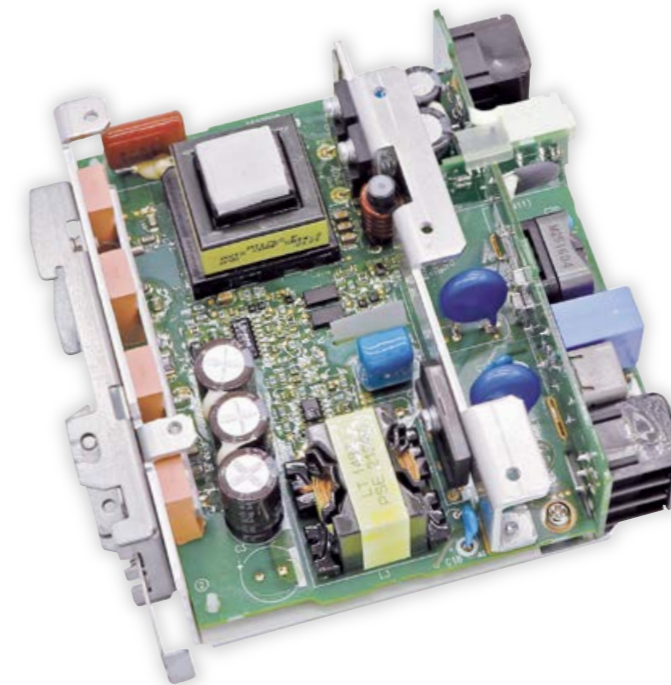
Follow the derating diagram below for output according to ambient temperature and installation direction. When installing on a DIN-rail, make sure that there is at least 25 mm space above and below the product. In addition, derate the output according to the distance between two adjacent products as shown in the derating diagram shown below. The ambient temperature during installation on a DIN-rail means the temperature at the position where convecting air enters the power supply. * The heat source is assumed to be the power supply of the same model operating at the same power.



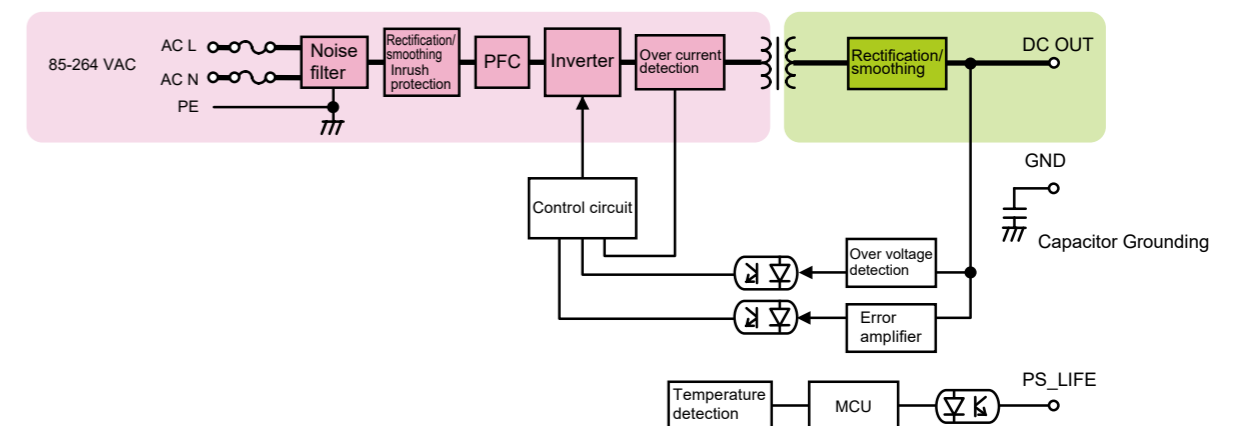
Signal Output Specification

Items	Specification	Note
Output Signal Service life indicator signal (PS_LIFE signal) (PS_LIFE LED)	When the estimated remaining life of the electrolytic capacitor decrease by 20%, or when the total operating time (excluding non-powered periods) reaches 15 years, it outputs "OPEN," and the LED illuminates in red.	This function is not intended to guarantee product lifespan but serves as a signal to indicate the approximate timing for product replacement. It notifies based on factors such as the degradation of the electrolytic capacitor and does not cover failures caused by other factors. Even if no signal is output, replace the power supply within approximately 15 years from the date of purchase. After AC input is applied, the service life timer signal outputs "OPEN" and the LED illuminates in red for approximately 0.1 seconds from the output voltage rise. This is to confirm that the service life timer function is operating correctly and is not an indication of the recommended replacement time. When it becomes time for replacement, it continuously outputs "OPEN" and the LED remains red while the power is on.
Output Signal Circuit	<p>Signal Circuit</p> <p>(PS_LIFE)</p> <p>Inside of power supply</p> <p>+PS_LIFE</p> <p>3mA max</p> <p>30Vdc max</p> <p>-PS_LIFE</p>	

Internal structure

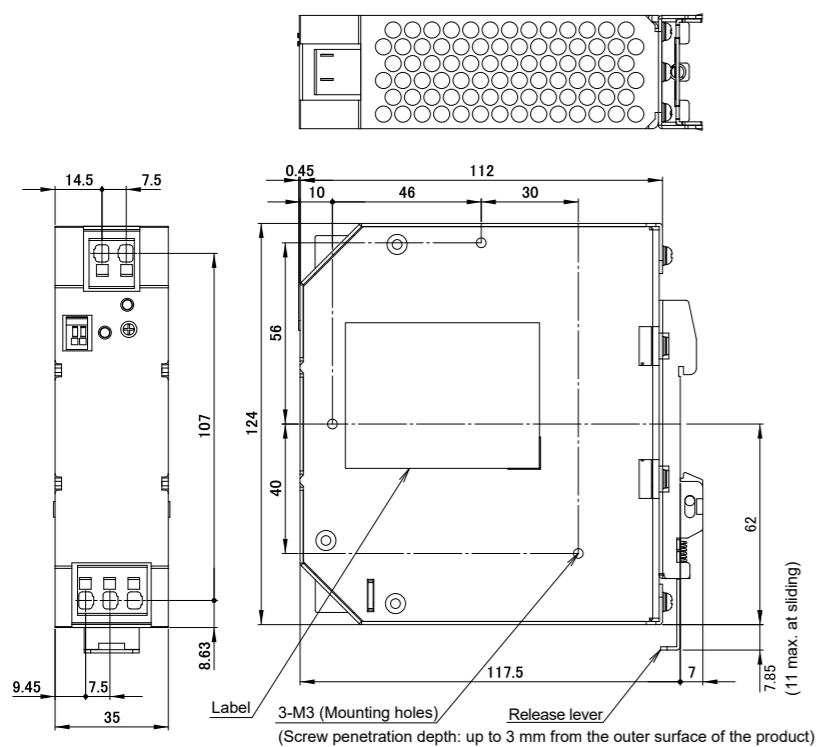


Block Diagram



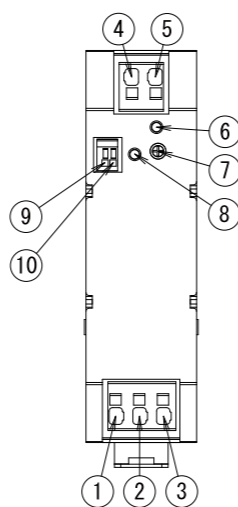
Outline Drawing

European terminal (UDP-120-A**-E0X-B)



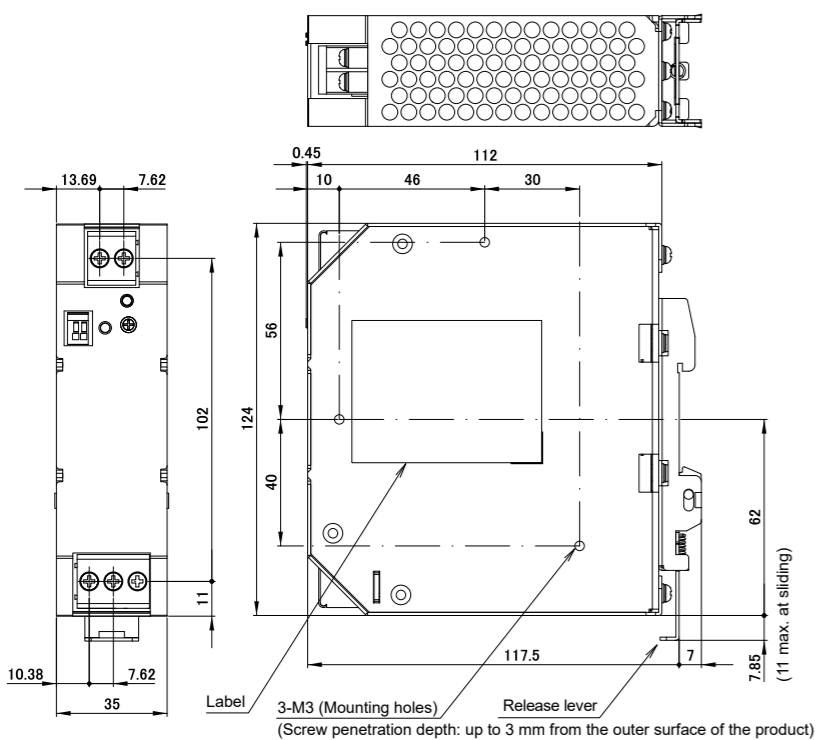
Contents: manufacturer's name, production number, model name, rating and others

*Connector pin allocation



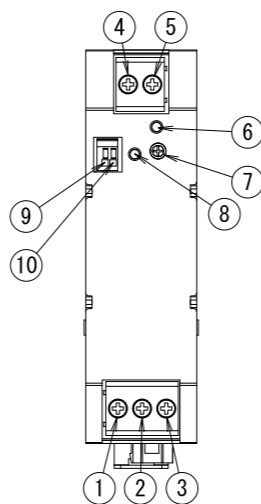
No.	Name	Function
①	AC (L)	Input terminal
②	AC (N)	Input terminal
③	PE	Protective ground terminal
④	+VOUT	+ Output terminal
⑤	-VOUT	- Output terminal
⑥	PWR_OK	Output voltage confirmation LED
⑦	ADJ	Variable resistor to adjust output voltage
⑧	PS_LIFE LED	Service life indicator LED
⑨	+PS_LIFE	+ Service life indicator signal terminal
⑩	-PS_LIFE	- Service life indicator signal terminal

Screw terminal block (UDP-120-A**-T0X-B)



Contents: manufacturer's name, production number, model name, rating and others

*Connector pin allocation



No.	Name	Function
①	AC (L)	Input terminal
②	AC (N)	Input terminal
③	PE	Protective ground terminal
④	+VOUT	+ Output terminal
⑤	-VOUT	- Output terminal
⑥	PWR_OK	Output voltage confirmation LED
⑦	ADJ	Variable resistor to adjust output voltage
⑧	PS_LIFE LED	Service life indicator LED
⑨	+PS_LIFE	+ Service life indicator signal terminal
⑩	-PS_LIFE	- Service life indicator signal terminal

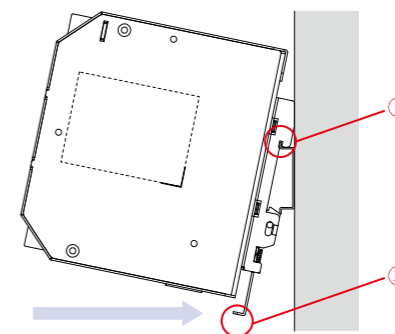
•Dimensional tolerance: ± 1 (± 0.5 for mounting dimension)

Options (Sold separately)

Battery unit		Model	Category	Size	Backup time *
Photos		DS02A-L24/2.5L-B	Battery unit	(W×D×H=41×124×117.5mm)	
* Backup time is a reference value at initial use. It is not a guaranteed value.					

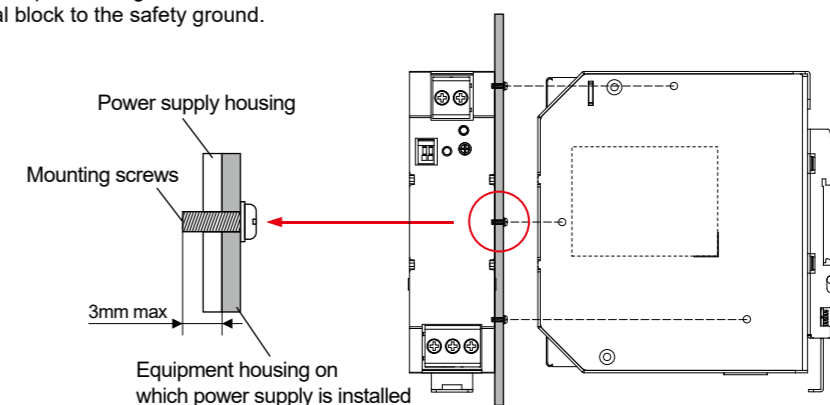
Attach to or Detach from a DIN-Rail

To attach the product to a DIN-rail, hook part 1 (shown below) first and then push the product in the direction indicated by the arrow until it snaps in. To detach the product from a DIN-rail, pull down part 2 first and then remove the product.



Power Supply Mounting Screws and Grounding

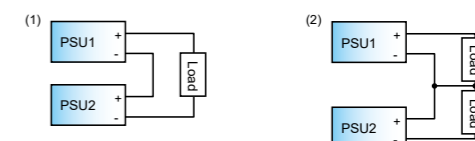
When using the power supply mounting holes, secure the power supply to all the three holes. Use 3-mm-diameter screws to secure the power supply. Be sure to connect the protective ground terminal on the input terminal block to the safety ground.



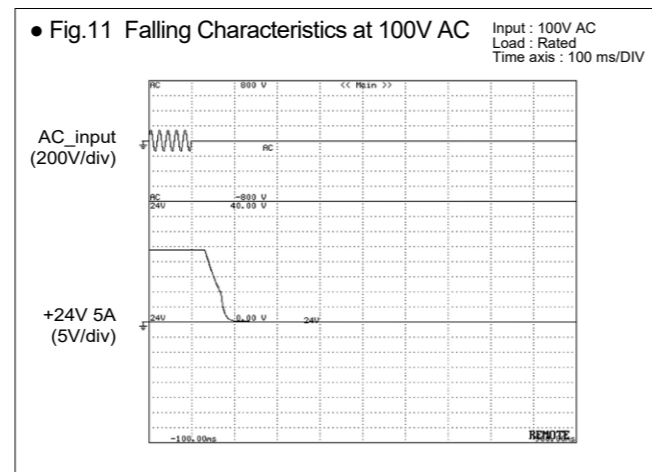
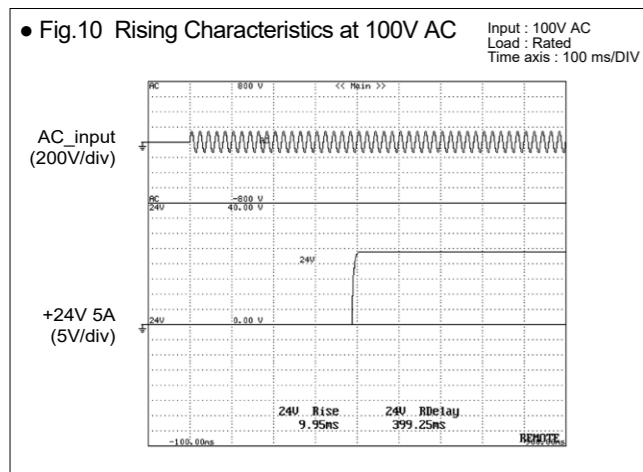
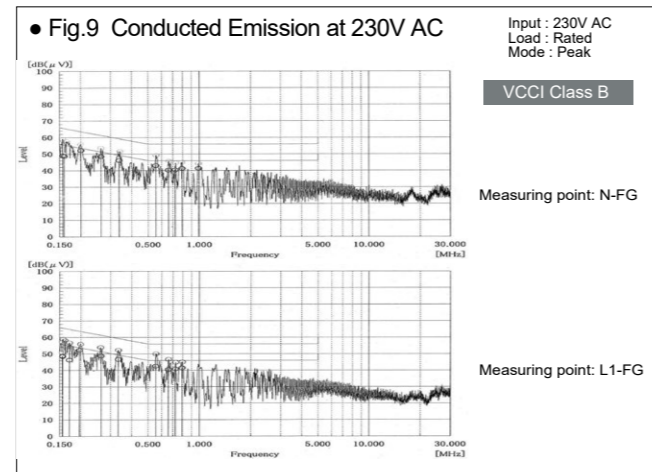
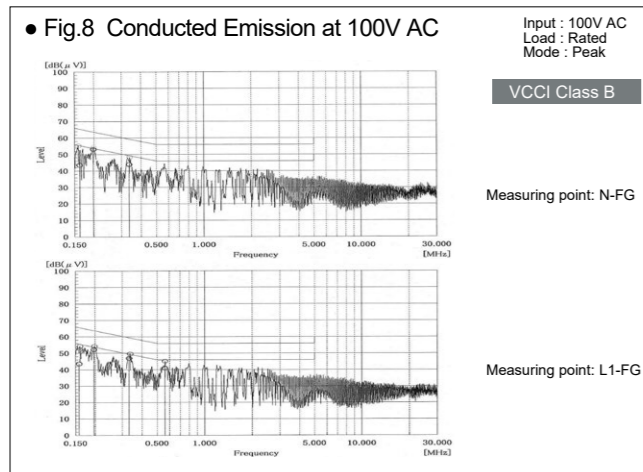
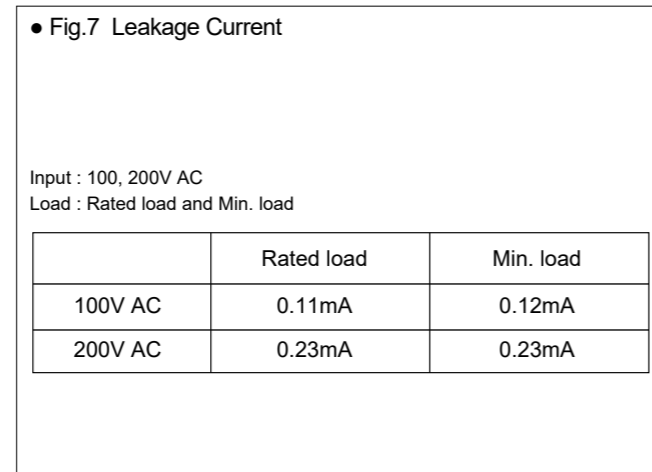
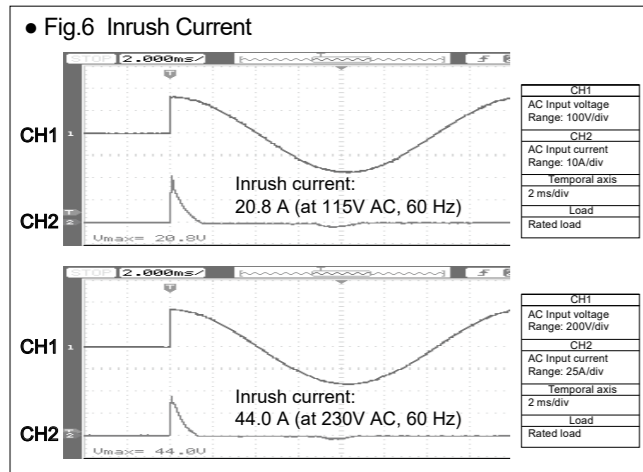
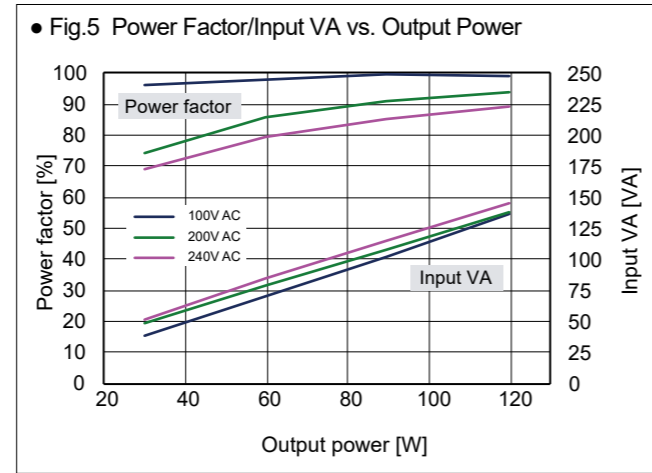
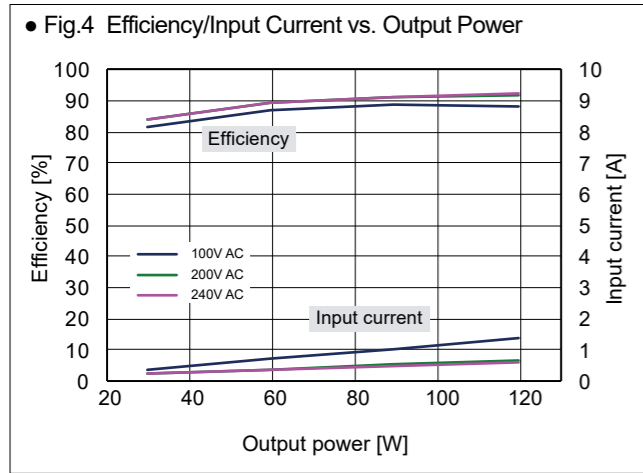
Connection in Series and Parallel

■ Series operation
Series connection is available as in figure (1) and (2) on the right.

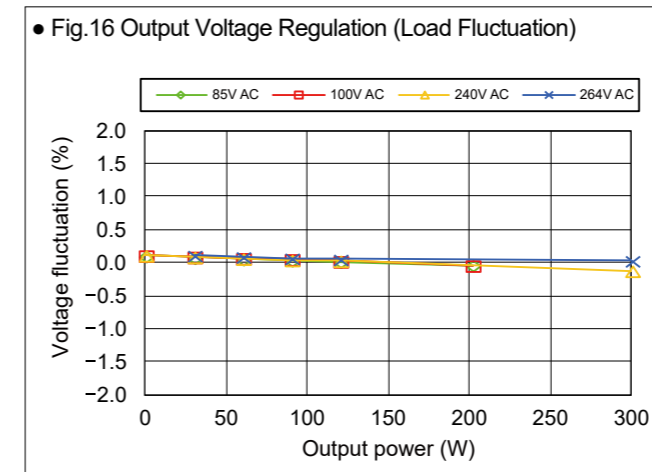
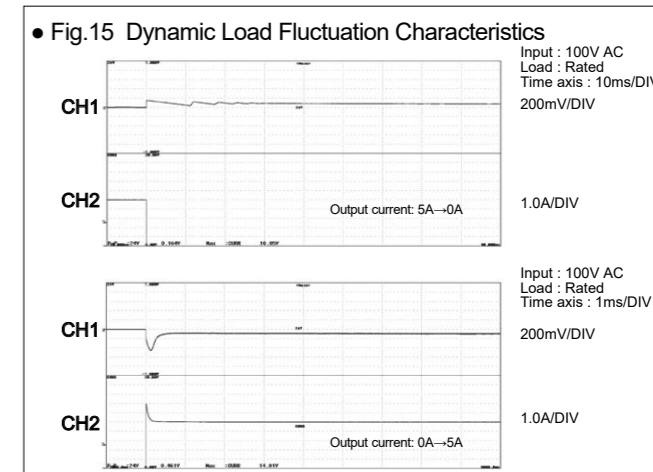
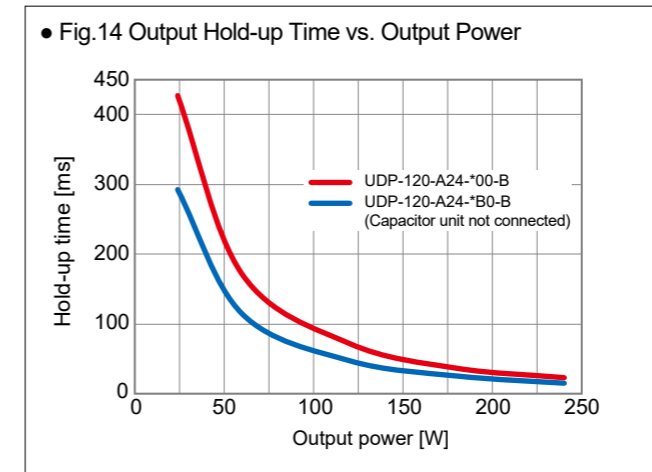
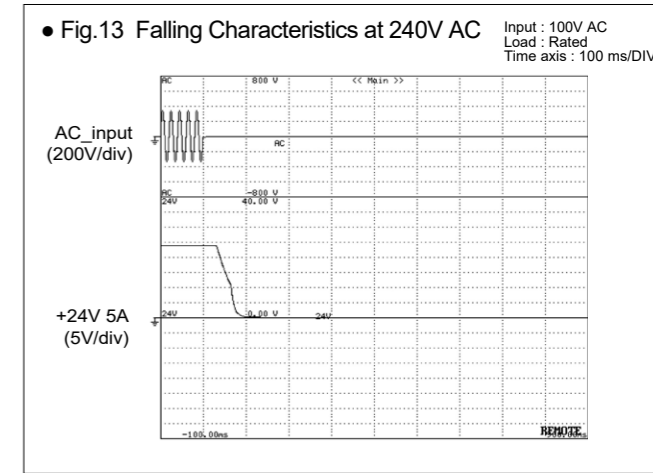
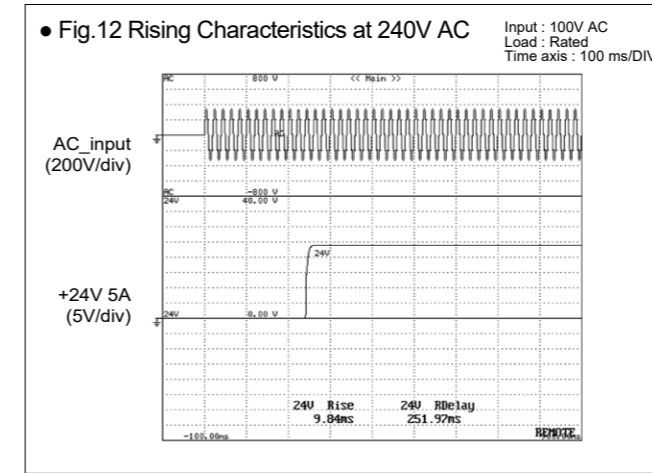
■ Parallel operation
Parallel operation is not possible.



Characteristics Data (Typical features of the product series) **UDP-120-A24** (Examples of actual measurement)

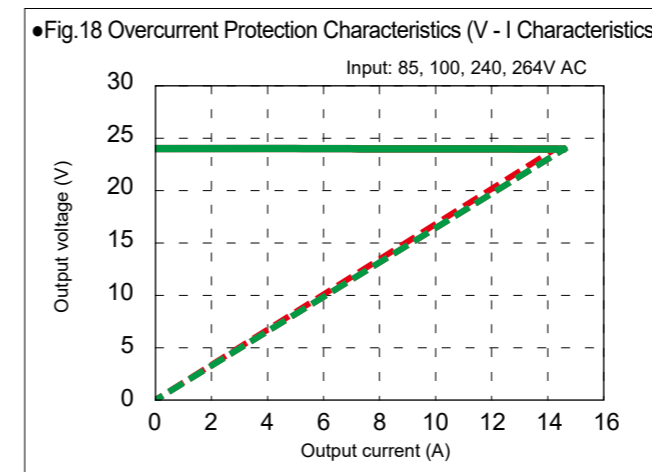


Characteristics Data (Typical features of the product series) **UDP-120-A24** (Examples of actual measurement)



• Fig.17 Ripple and Spike Voltage

Temperature	AC Input voltage	CH1 24V					
		Minimum load		50% load		Rated load	
		Ripple(mV)	Noise(mV)	Ripple(mV)	Noise(mV)	Ripple(mV)	Noise(mV)
-25°C	85V	38.2	56.3	136.8	157.7	180.7	202.5
	100V	38.9	57.9	132.7	151.9	180.6	203.8
	240V	42.2	60.9	129.2	144.8	173.5	200.0
	264V	45.5	68.0	127.9	145.8	182.4	206.2
25°C	85V	6.3	18.8	20.3	31.7	27.5	40.5
	100V	5.1	17.3	20.7	31.6	27.8	39.7
	240V	4.6	16.6	21.1	31.2	27.9	36.9
	264V	5.2	17.0	21.4	31.4	29.1	37.9
65°C	85V	8.1	19.3	12.4	24.7	20.7	35.4
	100V	8.1	19.3	12.3	24.0	20.6	35.2
	240V	7.8	19.0	12.1	23.0	20.7	30.8
	264V	8.7	19.9	12.5	23.6	21.3	30.6
75°C	85V	3.8	20.0	6.4	22.4	7.8	28.4
	100V	4.1	19.5	6.4	21.8	7.7	28.6
	240V	6.4	20.7	6.2	22.4	7.0	24.3
	264V	6.4	20.7	6.2	22.4	7.0	24.7



Single Output Power Supply UDP-180 series

High efficiency 93.5%!! Output power 180W
DIN-rail compatible power supply



RoHS Directive

Single Output
Continuous 180W
Peak 201.6W ~300W

Input/Output terminal type	Model	Output voltage	Output current *1 (100/200VAC)	Output power *1 (100/200VAC)
European terminal (with service life indicator)	UDP-180-A24-E0X-B	+24V	7.5A (8.4A/12.5A)	180W (201.6W/300W)
Screw terminal (with service life indicator)	UDP-180-A24-T0X-B	+24V	7.5A (8.4A/12.5A)	180W (201.6W/300W)

Model name coding: **UDP-180-A**-***-**-***

① Series name	⑤ Input/Output terminal type	⑦ Service life indicator	⑨ DIN-rail
② Output power	E:European terminal	0:Without service life indicator	Blank:Without DIN-rail bracket
③ Arrestor	T:Screw terminal	X:With service life indicator	B:With DIN-rail bracket
A:With arrestor	⑥ Connector for backup (DS01A)	⑧ Modification	
④ 24:24V	0:without connector		
	B:with connector		

*1 Values in () above show peak current and power.

Features

- Service life indicator is available.
- It is not necessary to install an external noise filter because of low noise (supports VCCI Class B).
- The built-in arrestor to avoid/mitigate the risk of lightning damage
- Able to start-up at -40°C environment
- The PCB is coated as standard specification.
- European terminal type and screw terminal type are available
- Equipped with a variable resistor to adjust output voltage
- Backup for blackout

Safety standard	UL	CSA	EN	CE	CCC
Reliability grade	HFA	FA	HOA	OA	

* Various safety standards will be certified.

Function

TTL	PFC	RoHS Directive
-----	-----	----------------

Input

AC input	85-264V AC (Worldwide range)
----------	------------------------------

Dimension

W×H×D (mm)	with DIN-rail bracket 35×124×117.5
------------	------------------------------------

High efficiency 93.5%*

(*At 230V AC input)

300W* peak power, approx. 160% higher than continuous rated power

(*At 200V AC input)

General Specification (Items are provided at normal temperature and humidity unless otherwise specified.)

Items	Specification	Measurements conditions, etc.		
AC Input	Rated Voltage	100-240VAC (85*-264VAC)	Worldwide range *See <Fig.1> Low input voltage derating below.	
	Input Frequency	50-60Hz	Frequency range 47-63Hz	
	Efficiency	115VAC	91.5% typ	At rated output
		230VAC	93.5% typ	*Characteristic data: Fig.4
	Power Factor	115VAC	99% typ	At rated output
		230VAC	93% typ	*Characteristic data: Fig.5
Inrush Current	20A typ (115VAC), 41A typ (230VAC)	*Characteristic data: Fig.6	Power thermistor system at cold start (25°C)	
Input Current	115VAC	1.73A typ	At rated output	
	230VAC	0.9A typ	*Characteristic data: Fig.4	
Output	Rated Voltage	+24V		
	Continuous Rated Output	7.5A	At rated input	
		180.0W	Refer to <Fig.3> output derating.	
	Peak Current/Power	8.4A	*Refer to rated input/output voltage and <Fig.2>	
		201.6W*	*Follow Peak output power condition below.	
	100VAC	12.5A		
		300W*		
	200VAC	12.5A		
		300W*		
	Factory Setting	24V±2%	At continuous rated output	
Adjustable Voltage Range	22.8V (95%)-28.8V (120%)			
Static Input Regulation	94mV max.			
Static Load Regulation	150mV max.			
Temperature Regulation	0.02%/°C max.			
Max. Ripple Voltage	0-70°C	120mVp-p max.	Connect 150mm max. lead wire to output connectors, and then connect a 10uF electrolytic capacitor with a 0.1uF ceramic capacitor in parallel to the other ends of the wires to measure by an oscilloscope with 100MHz frequency band. *1	
	-10 to 0°C	160mVp-p max.		
	-20 to -10°C	240mVp-p max.		
Max. Spike Voltage	0 to 70°C	150mVp-p max.		
	-10 to 0°C	180mVp-p max.		
	-20 to -10°C	300mVp-p max.		
Over Current Protection	OCP point (A)	101% min. of peak rated current		
	Method	Blocking oscillation *Characteristic data: Fig.18		
	Recovery	Automatic recovery		
	Over Voltage Protection	OVP point (V)	30.0-36.0V	
Method	Output shutdown (latch lock)			
	Recovery	Reclosing of AC input		
Operating Temp./Humidity	-20 to 70°C (able to start-up at -40°C)*70-90% *2	*Refer to <Fig.3> output derating. There shall be no condensation		
Storage Temp./Humidity	-30 to 85°C/10 to 95%	There shall be no condensation		
Vibration	To endure the acceleration of 2G, vibration frequency of 10 to 55Hz and 10 sweep cycles in each X, Y, Z direction (in each 1 hour).	JIS-C-60068-2-6 at no operation		
Mechanical Shock	Lift one bottom edge 50mm high with the opposite edge placed on a test bench, and let it fall. Repeat 3 times on the other three edges as well, and no malfunction shall be observed.	JIS-C-60068-2-31 at no operation		
Insulation	Dielectric Strength	1.5kVAC/1minute between input and output *3	Cut-off current 10mA	
		1.5kVAC/1minute between input and FG *3	Cut-off current 10mA	
		500VAC/1minute between each output/FG	Cut-off current 100mA	
Insulation Resistance	50MΩmin. between input/output/FG	At 500VDC		
Leakage Current	0.12mA typ (100VAC), 0.24mA typ (200VAC) *Characteristic data: Fig.7			
Line Noise Immunity	±2000V (pulse width of 100/1000nS, cycle period of 30 to 100Hz, Normal/Common mode with Positive/Negative polarity for 10 minutes)	There shall be no fluctuation of DC output or malfunction.		
Electrostatic Discharge	EN61000-4-2 compliant	Apply to FG and case. There shall be no malfunction, nor failure.		
Radiated, Radio-Frequency Electromagnetic Field	EN61000-4-3 compliant			
Fast Transient Burst	EN61000-4-4 compliant			
Lightning Surge	EN61000-4-5 compliant			
Radio Frequency Conducted Immunity	EN61000-4-6 compliant			
Power-Frequency Magnetic Field Immunity	EN61000-4-8 compliant			
Voltage dips/Regulation	EN61000-4-11 compliant			
Conducted Emmission	VCCI-B, FCC-B, CISPR22-B, EN55022-B compliant *Characteristic data: Fig.8, 9	At rated input/output		
Harmonic Current Regulations	IEC61000-3-2 (edition 2.1) classA, EN61000-3-2 (A14) classA compliant	At rated input/output		
Others	Safety Standards	UL62368-1, CSA62368-1 (c-UL), UL508 compliant, PSE (ordinance clause 2) compliant		
	SEMI Standard	SEMI-F47 compliant	At 200-240VAC input	
	Cooling System	Convection cooling		
	Output Grounding	Capacitor grounding		
	Output Hold-up Time	Refer to <Fig.14> Output Hold-up Time vs. Output Power	*Characteristic data: Fig.14	
	Reliability Grade	FA (Industrial equipment grade to use double-sided PCB with plated through hole)	Following our standard	
	Weight	520g typ	With DIN-rail bracket	
Warranty	Three years after delivery. If the defect is our responsibility, the defective unit shall be repaired or replaced at our cost.	Except for operation out of the specification.		

*1 Regarding the model with the backup connector, the specifications are based on the condition that it is connected to a capacitor unit.

*2 When startup is performed at -15°C or lower, it may take several seconds until output voltage becomes stable. Before using this product, evaluate it using an actual machine.

*3 The original dielectric strength between the input and output terminals is 3 kV AC for 1 minute. However, because an arrestor is mounted between the input terminal and frame ground (FG), the actual dielectric strength between them is 1.5 kV AC for 1 minute.

<Fig.1> Low input voltage derating

Follow the derating below to derate rated current/power.

Peak output power condition

- Duty ratio of peak current shall be 30% or less.
- Energized period of peak current shall be 10 seconds or less.
- In the case that the ambient temperature is 40°C or higher with convection cooling, the energized period of peak current shall be 5 seconds or less.
- The value resulting from the formula below shall not exceed the continuous rated current, I_o, after derating specified in the clause, "Output derating" on the following page.

$$\sqrt{(I_p^2 \times D) + (I_m^2 \times (1-D))} \leq I_o$$

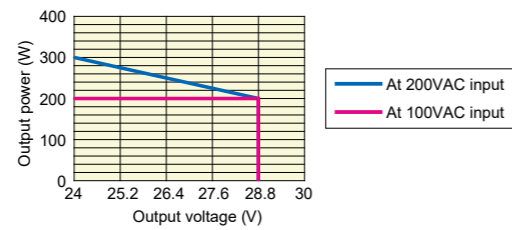
I_p=Peak current value
I_m=Peak current value
D= Duty cycle, t/T
t= Pulse width of peak current
T=Cycle
I_o= Continuous rated current specified in output derating.

(Note) If the temperature of the power thermistor for limiting inrush current does not rise enough (and its resistance value is too large), such as when the normal average load power is small, the output voltage at peak output might drop about 100 ms. If this might cause any problem, please check the output voltage waveform while the power supply is installed on an actual device at operation.

General Specification (Items are provided at normal temperature and humidity unless otherwise specified.)

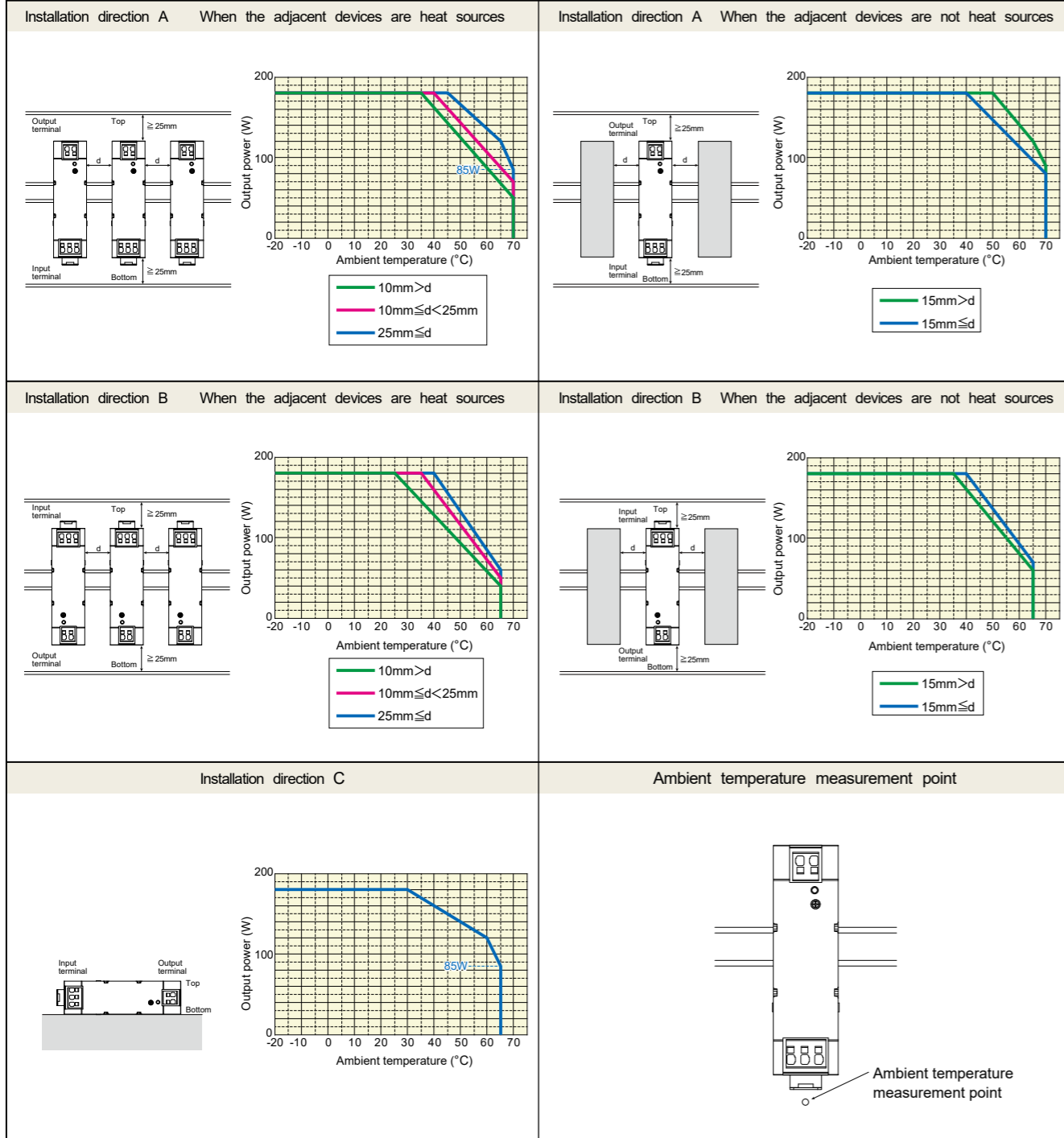
<Fig.2> Peak output derating

Use this product by reducing the peak power according to the preset output voltage, as shown in the derating diagram shown below.



<Fig.3> Installation/Output derating

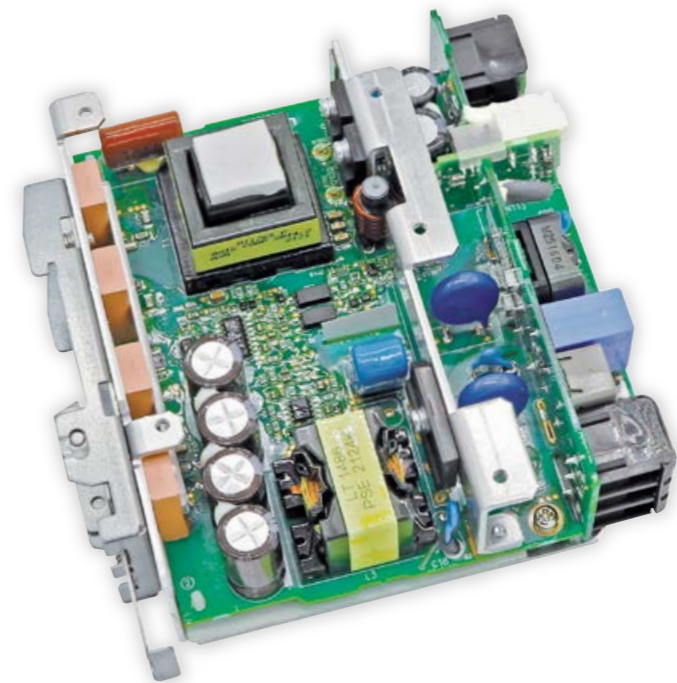
Follow the derating diagram below for output according to ambient temperature and installation direction. When installing on a DIN-rail, make sure that there is at least 25 mm space above and below the product. In addition, derate the output according to the distance between two adjacent products as shown in the derating diagram shown below. The ambient temperature during installation on a DIN-rail means the temperature at the position where convecting air enters the power supply. * The heat source is assumed to be the power supply of the same model operating at the same power.



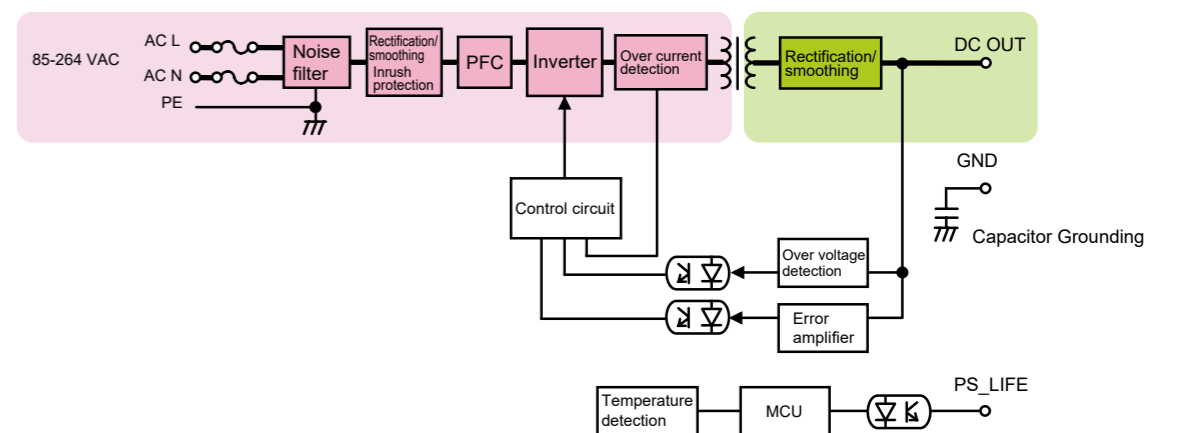
Signal Output Specification

Items	Specification	Note
Output Signal Service life indicator signal (PS_LIFE signal) (PS_LIFE LED)	When the estimated remaining life of the electrolytic capacitor decrease by 20%, or when the total operating time (excluding non-powered periods) reaches 15 years, it outputs "OPEN," and the LED illuminates in red.	This function is not intended to guarantee product lifespan but serves as a signal to indicate the approximate timing for product replacement. It notifies based on factors such as the degradation of the electrolytic capacitor and does not cover failures caused by other factors. Even if no signal is output, replace the power supply within approximately 15 years from the date of purchase. After AC input is applied, the service life timer signal outputs "OPEN" and the LED illuminates in red for approximately 0.1 seconds from the output voltage rise. This is to confirm that the service life timer function is operating correctly and is not an indication of the recommended replacement time. When it becomes time for replacement, it continuously outputs "OPEN" and the LED remains red while the power is on.
Output Signal Circuit	<p>Signal Circuit</p>	

Internal structure

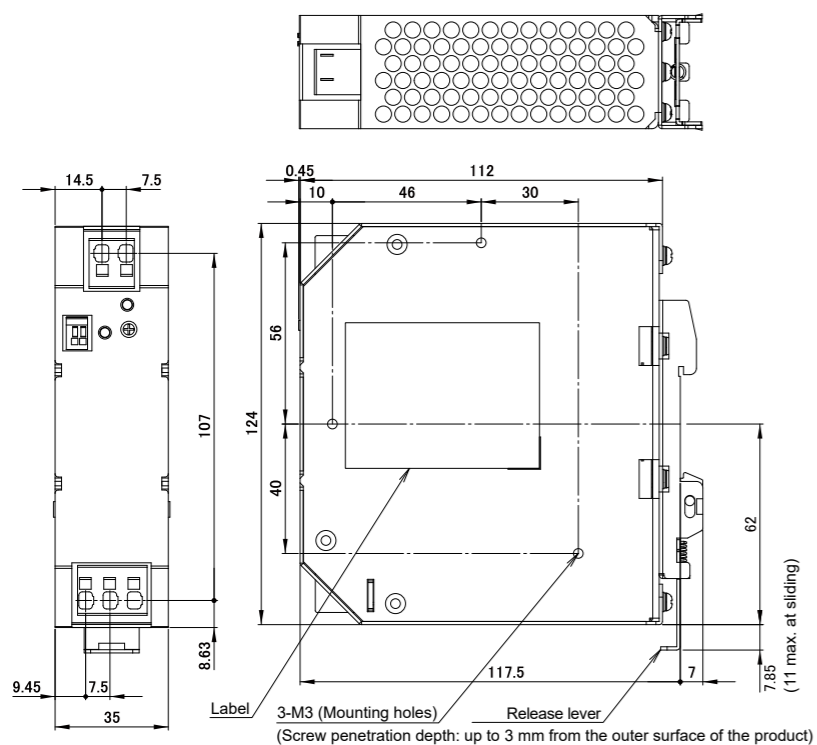


Block Diagram



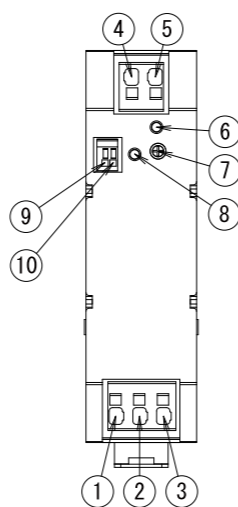
Outline Drawing

European terminal (UDP-180-A**-E0X-B)



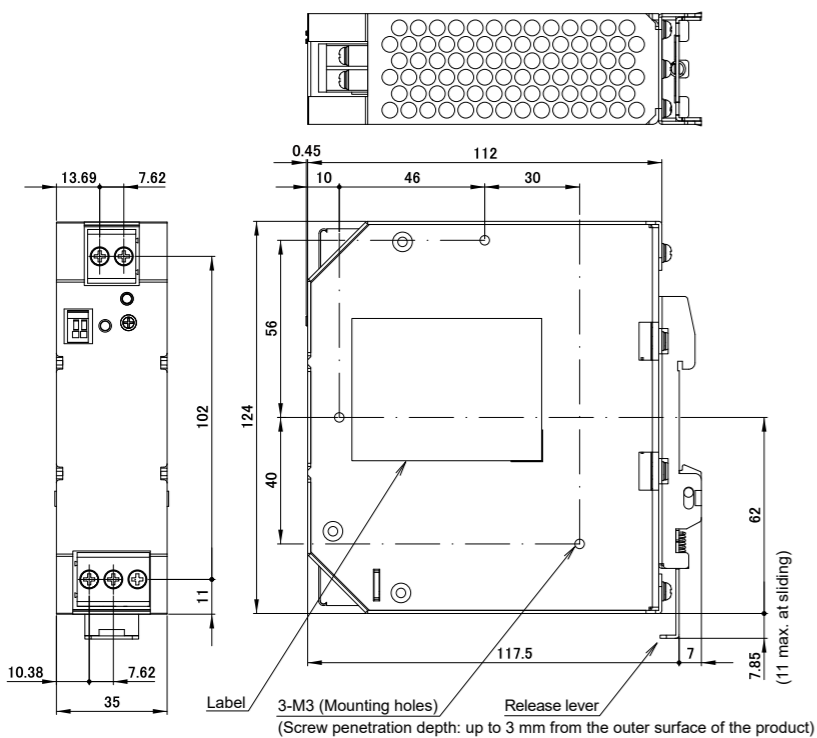
Contents: manufacture's name, production number, model name, rating and others

*Connector pin allocation



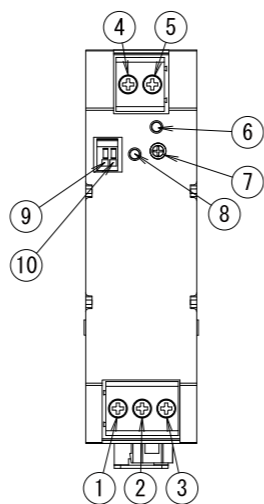
No.	Name	Function
①	AC (L)	Input terminal
②	AC (N)	Input terminal
③	PE	Protective ground terminal
④	+VOUT	+ Output terminal
⑤	-VOUT	- Output terminal
⑥	PWR_OK	Output voltage confirmation LED
⑦	ADJ	Variable resistor to adjust output voltage
⑧	PS_LIFE LED	Service life indicator LED
⑨	+PS_LIFE	+ Service life indicator signal terminal
⑩	-PS_LIFE	- Service life indicator signal terminal

Screw terminal block (UDP-180-A**-T0X-B)



Contents: manufacture's name, production number, model name, rating and others

*Connector pin allocation



No.	Name	Function
①	AC (L)	Input terminal
②	AC (N)	Input terminal
③	PE	Protective ground terminal
④	+VOUT	+ Output terminal
⑤	-VOUT	- Output terminal
⑥	PWR_OK	Output voltage confirmation LED
⑦	ADJ	Variable resistor to adjust output voltage
⑧	PS_LIFE LED	Service life indicator LED
⑨	+PS_LIFE	+ Service life indicator signal terminal
⑩	-PS_LIFE	- Service life indicator signal terminal

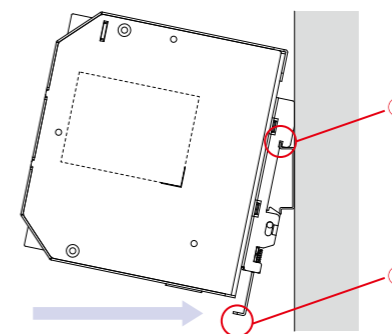
●Dimensional tolerance: ± 1 (± 0.5 for mounting dimension)

Options (Sold separately)

Battery unit				
Photos	Model	Category	Size	Backup time *
	DS02A-L24/2.5L-B	Battery unit	(W×D×H=41×124×117.5mm)	
* Backup time is a reference value at initial use. It is not a guaranteed value.				

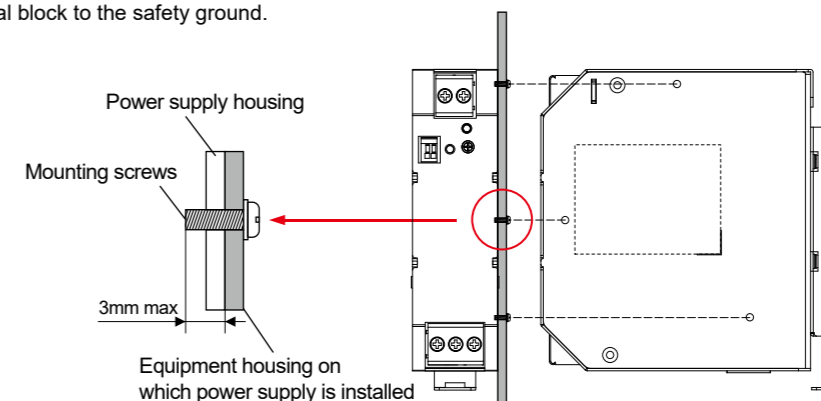
Attach to or Detach from a DIN-Rail

To attach the product to a DIN-rail, hook part 1 (shown below) first and then push the product in the direction indicated by the arrow until it snaps in. To detach the product from a DIN-rail, pull down part 2 first and then remove the product.



Power Supply Mounting Screws and Grounding

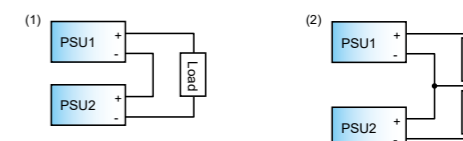
When using the power supply mounting holes, secure the power supply to all the three holes. Use 3-mm-diameter screws to secure the power supply. Be sure to connect the protective ground terminal on the input terminal block to the safety ground.



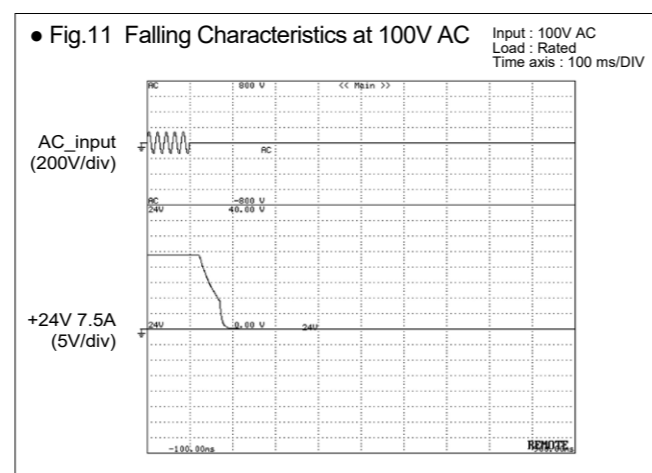
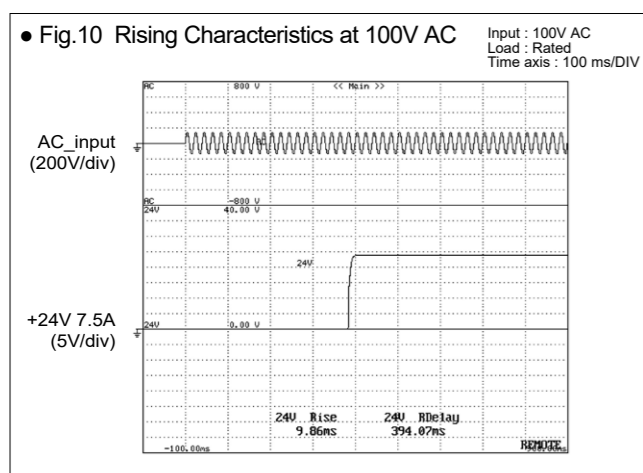
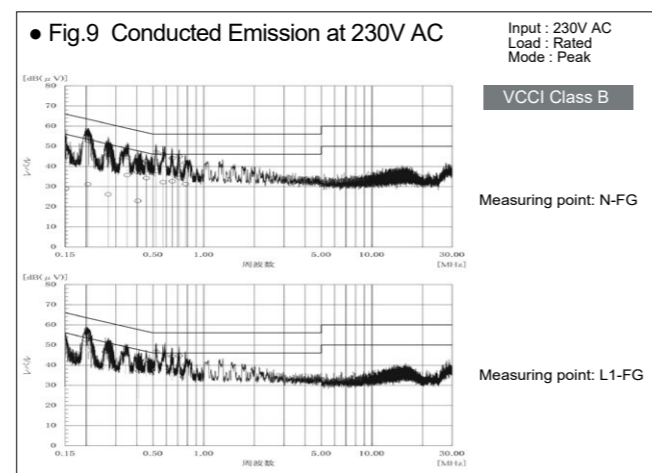
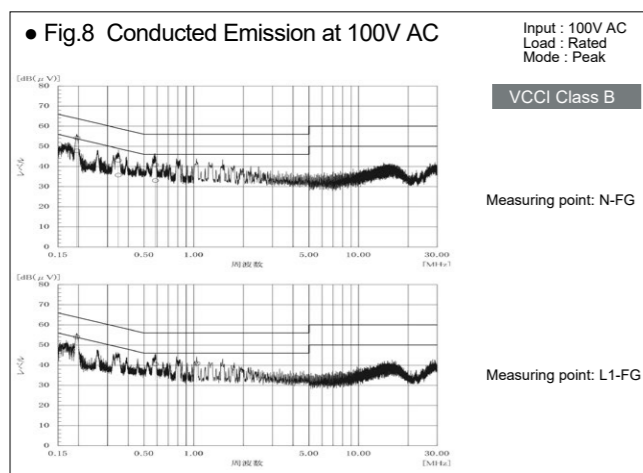
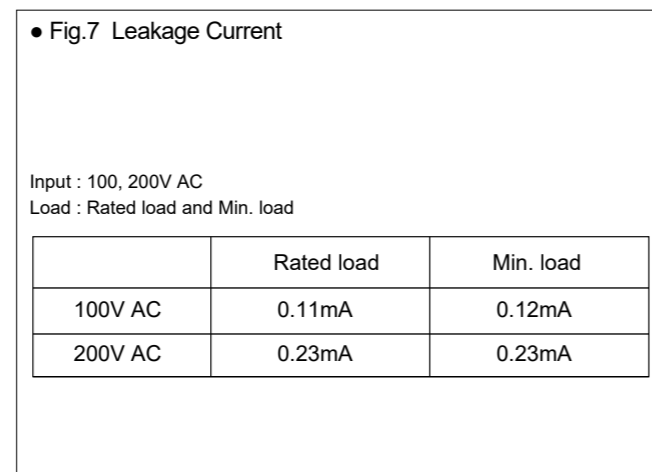
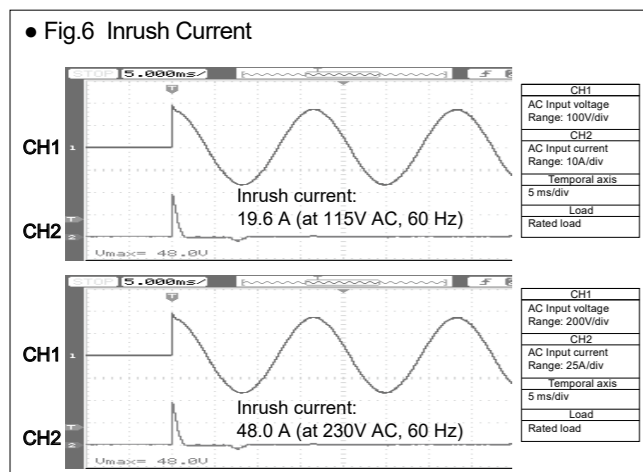
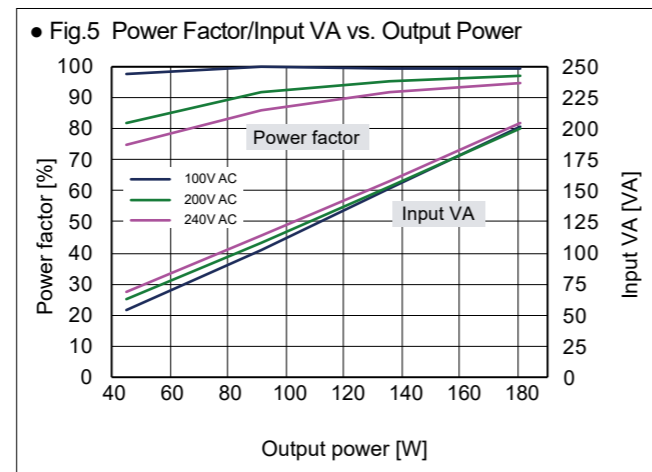
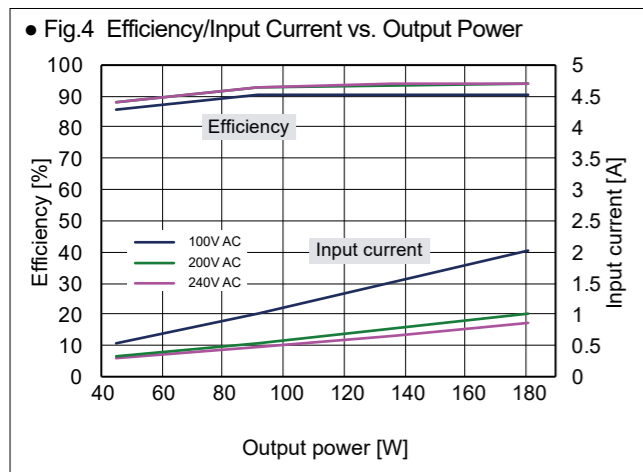
Connection in Series and Parallel

■ Series operation
Series connection is available as in figure (1) and (2) on the right.

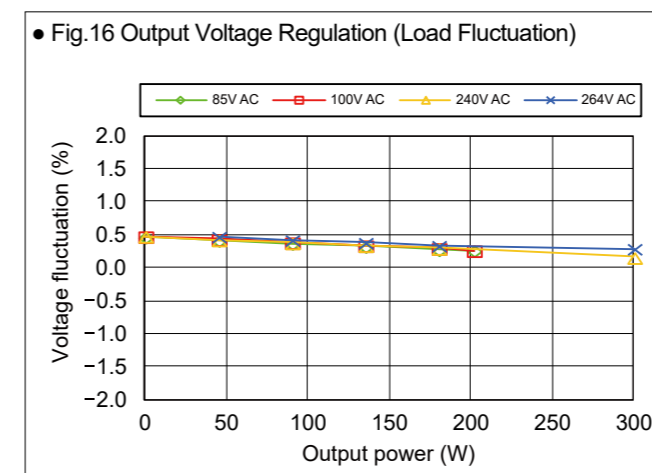
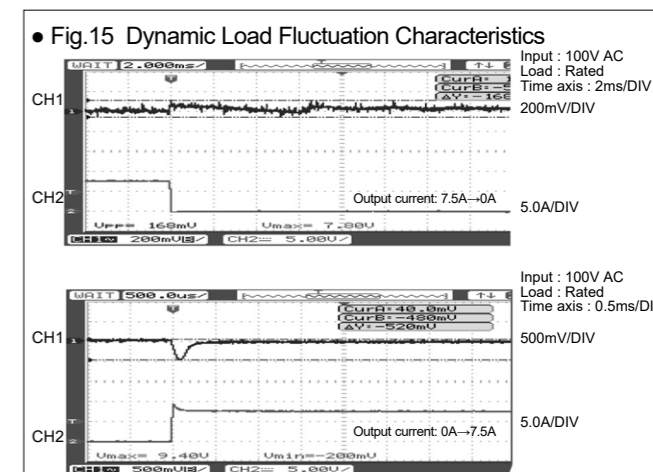
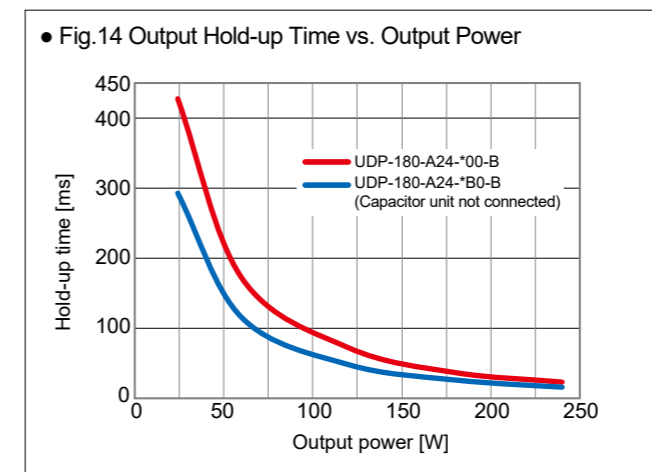
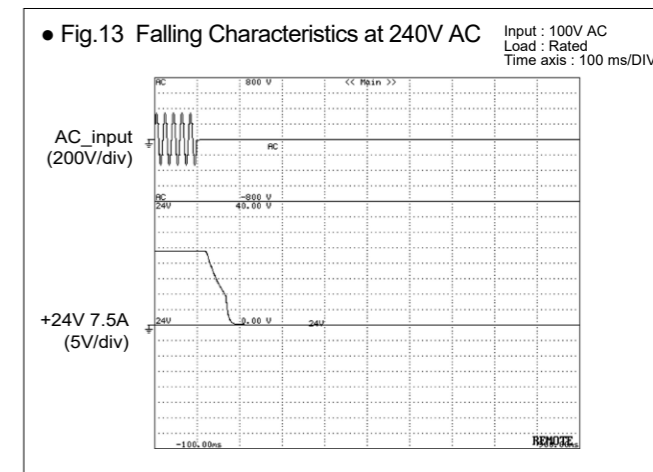
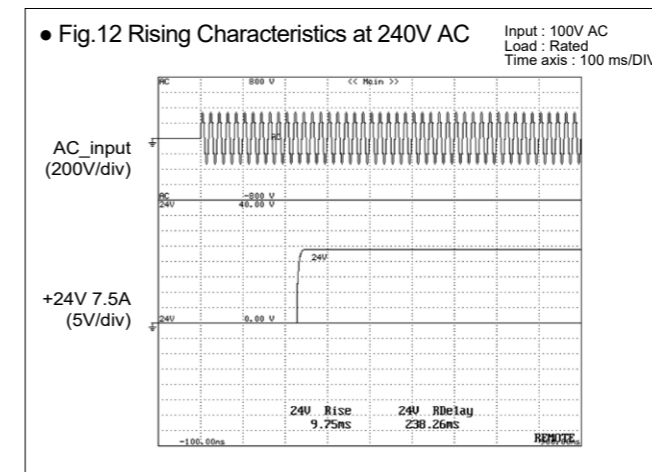
■ Parallel operation
Parallel operation is not possible.



Characteristics Data (Typical features of the product series) **UDP-180-A24** (Examples of actual measurement)

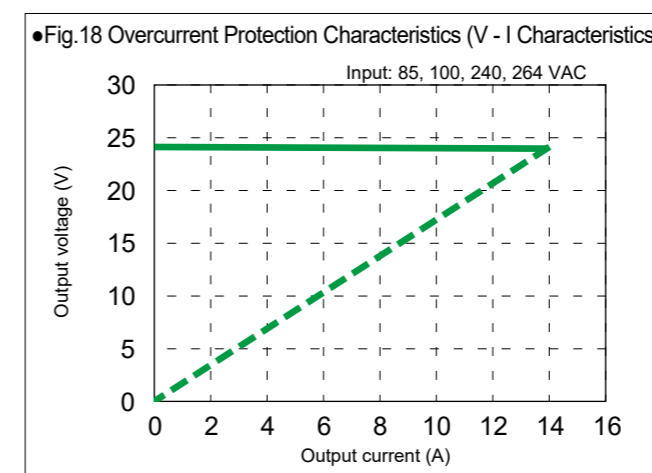


Characteristics Data (Typical features of the product series) **UDP-180-A24** (Examples of actual measurement)



• Fig.17 Ripple and Spike Voltage

Temperature	AC Input voltage	CH1 24V			
		Minimum load		50% load	
		Ripple(mV)	Noise(mV)	Ripple(mV)	Noise(mV)
-25°C	85V	15.5	31.5	118.9	156.7
	100V	15.4	31.5	115.4	140.1
	240V	15.0	31.2	111.0	132.9
	264V	15.0	31.3	111.0	126.9
25°C	85V	15.1	26.8	18.0	32.5
	100V	17.2	21.4	17.3	30.7
	240V	19.5	24.4	17.2	27.3
	264V	12.4	27.2	17.8	27.9
50°C	85V	10.5	21.7	14.2	28.6
	100V	9.5	21.6	13.8	26.1
	240V	10.4	23.3	13.5	23.4
	264V	10.7	23.6	14.3	23.7
75°C	100V	7.8	18.8	8.8	19.5
	240V	9.9	21.8	8.8	19.3
	240V	10.0	21.9	9.1	19.4
	264V	12.5	22.4	12.5	22.4



Single Output Power Supply UDP-240 series

Single Output Power Supply UDP-240 series

High efficiency 94%!! Output power 240W
DIN-rail compatible power supply



RoHS Directive

Single Output
Continuous 240W
Peak 400.8W

Input/Output terminal type	Model	Output voltage	Output current *1	Output power *1
European terminal (with service life indicator)	UDP-240-A24-E0X-B	+24V	10A (16.7A)	240W (400.8W)
Screw terminal (service life indicator)	UDP-240-A24-T0X-B	+24V	10A (16.7A)	240W (400.8W)

Model name coding
UDP-240-A-***-**-***

① Series name	⑤ Input/Output terminal type	⑦ Service life indicator	⑨ DIN-rail
② Output power	E:European terminal	0:Without service life indicator	Blank:Without DIN-rail bracket
③ Arrestor	T:Screw terminal	X:With service life indicator	B:With DIN-rail bracket
A:With arrestor	⑥ Connector for backup (DS01A)	⑧ Modification	
④ 24:24V	0:without connector		
	B:with connector		

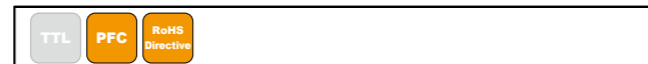
*1 Values in () above show peak current and power.

Features

- Service life indicator is available.
- It is not necessary to install an external noise filter because of low noise (supports VCCI Class B).
- The built-in arrestor to avoid/mitigate the risk of lightning damage
- Able to start-up at -40°C environment
- The PCB is coated as standard specification.
- European terminal type and screw terminal type are available.
- Equipped with a variable resistor to adjust output voltage
- Backup for blackout

Safety standard	UL	CSA	EN	CE	CCC
Reliability grade	HFA	FA	HOA	OA	

Function



Input

AC input	85-264V AC (Worldwide range)
----------	------------------------------

* DC input type (UDP-240-HV/24-E00) is available.

Dimension

W×H×D (mm)	with DIN-rail bracket 41×124×117.5
------------	------------------------------------

High efficiency 94%*
 (*At 230V AC input, 200W load)

400W peak power, approx. 170% higher than continuous rated power

General Specification (Items are provided at normal temperature and humidity unless otherwise specified.)

Items	Specification	Measurements conditions, etc.		
AC Input	Rated Voltage	100-240VAC (85*~264VAC)	Worldwide range *See <Fig.1> Low input voltage derating below.	
	Input Frequency	50-60Hz	Frequency range 47-63Hz	
	Efficiency	115VAC	92% typ	At rated output
		230VAC	94% typ	*Characteristic data: Fig.4
	Power Factor	115VAC	99% typ	At rated output
		230VAC	91% typ (A24-*0*), 93% typ (A24-*B*)	*Characteristic data: Fig.5
Inrush Current	20A typ (115VAC), 41A typ (230VAC)	*Characteristic data: Fig.6	Power thermistor system at cold start (25°C)	
Input Current	115VAC	2.3A typ	At rated output	
	230VAC	1.2A typ	*Characteristic data: Fig.4	
Output	Rated Voltage	+24V		
	Continuous Rated Output	10A	At rated input	
		240W	Refer to <Fig.3> output derating.	
	Peak Current/Power	16.7A	*Refer to rated input/output voltage and <Fig.2>	
		400.8W*	*Follow Peak output power condition below.	
	Factory Setting	24V±2%	At continuous rated output	
	Adjustable Voltage Range	22.8V (95%)-28.8V (120%)		
	Static Input Regulation	94mV max.		
	Static Load Regulation	150mV max.		
	Temperature Regulation	0.02%/°C max.		
Max. Ripple Voltage	0-70°C	120mVp-p max.	Connect 150mm max. lead wire to output connectors, and then connect a 10uF electrolytic capacitor with a 0.1uF ceramic capacitor in parallel to the other ends of the wires to measure by an oscilloscope with 100MHz frequency band.	
	-10 to 0°C	160mVp-p max.		
	-20 to -10°C	240mVp-p max.		
Max. Spike Voltage	0 to 70°C	150mVp-p max.		
	-10 to 0°C	180mVp-p max.		
	-20 to -10°C	300mVp-p max.		
Protection	Over Current	OC point (A)	101% min. of peak rated current	
	Protection	Method	Blocking oscillation *Characteristic data: Fig.18	
		Recovery	Automatic recovery	
	Over Voltage	OVP point (V)	30.0-36.0V	
Method		Output shutdown (latch lock)		
Recovery	Reclosing of AC input			
Environment	Operating Temp./Humidity	-20 to 70°C (able to start-up at -40°C)/20-90% *1	*Refer to <Fig.3> output derating. There shall be no condensation	
	Storage Temp./Humidity	-30 to 85°C/10-95%	There shall be no condensation	
	Vibration	To endure the acceleration of 2G, vibration frequency of 10 to 55Hz and 10 sweep cycles in each X, Y, Z direction (in each 1 hour).	JIS-C-60068-2-6 at no operation	
	Mechanical Shock	Lift one bottom edge 50mm high with the opposite edge placed on a test bench, and let it fall. Repeat 3 times on the other three edges as well, and no malfunction shall be observed.	JIS-C-60068-2-31 at no operation	
Insulation	Dielectric Strength	1.5kVAC/1minute between input and output *2	Cut-off current 10mA	
		1.5kVAC/1minute between input and FG *2	Cut-off current 10mA	
	Insulation Resistance	500VAC/1minute between each output/FG	Cut-off current 100mA	
Leakage Current	50MΩmin. between input/output/FG	At 500VDC		
EMC	Line Noise Immunity	±2000V (pulse width of 100/1000nS, cycle period of 30 to 100Hz, Normal/Common mode with Positive/Negative polarity for 10 minutes)	There shall be no fluctuation of DC output or malfunction.	
	Electrostatic Discharge	EN61000-4-2 compliant	Apply to FG and case. There shall be no malfunction, nor failure.	
	Radiated, Radio-Frequency Electromagnetic Field	EN61000-4-3 compliant		
	Fast Transient Burst	EN61000-4-4 compliant		
	Lightning Surge	EN61000-4-5 compliant		
	Radio Frequency Conducted Immunity	EN61000-4-6 compliant		
	Power-Frequency Magnetic Field Immunity	EN61000-4-8 compliant		
	Voltage dips/Regulation	EN61000-4-11 compliant		
Others	Conducted Emission	VCC-B, FCC-B, CISPR32-B, EN55032-B compliant *Characteristic data: Fig.8, 9	At rated input/output	
	Harmonic Current Regulations	IEC61000-3-2 (edition 2.1) classA, EN61000-3-2 (A14) classA compliant	At rated input/output	
	Safety Standards	UL62368-1, CSA62368-1 (c-UL), UL508 compliant, CE Marking (LVD,EMCD) approved		
	SEMI Standard	PSE (ordinance clause 2) compliant *3	Support rated 240W max.	
Cooling System	SEMI-F47 compliant			
Output Grounding	Convection cooling			
Output Hold-up Time	Capacitor grounding			
Reliability Grade	20ms typ (A24-*0*), 15ms typ (A24-*B*) *	*Characteristic data: Fig.14 * Without DS01A		
Weight	FA (Industrial equipment grade to use double-sided PCB with plated through hole)	Following our standard		
Warranty	700g typ	With DIN-rail bracket		
	Three years after delivery. If the defect is our responsibility, the defective unit shall be repaired or replaced at our cost.	Except for operation out of the specification.		

*1 When startup is performed at -15°C or lower, it may take several seconds until output voltage becomes stable. Before using this product, evaluate it using an actual machine.

*2 The original dielectric strength between the input and output terminals is 3 kV AC for 1 minute. However, because an arrestor is mounted between the input terminal and frame ground (FG), the actual dielectric strength between them is 1.5 kV AC for 1 minute.

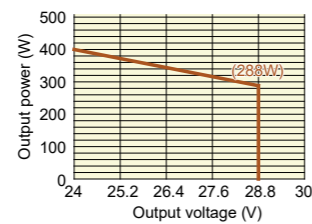
*3 UDP-240-A**-*B* (backup model for momentary power failure) is compliant.

<Fig.1> Low input voltage derating	Peak output power condition
<p>Follow the derating below to derate rated current/power.</p>	<ul style="list-style-type: none"> •Duty ratio of peak current shall be 30% or less. •Energized period of peak current shall be 10 seconds or less. •In the case that the ambient temperature is 50°C or higher with convection cooling, the energized period of peak current shall be 5 seconds or less. •The value resulting from the formula below shall not exceed the continuous rated current, I_o, after derating specified in the clause, "Output derating" on the following page. $\sqrt{(I_p^2 \times D) + (I_m^2 \times (1-D))} \leq I_o$ <p> I_p = Peak current value I_m = Peak current value D = Duty cycle, t/T t = Pulse width of peak current T = Cycle I_o = Continuous rated current specified in output derating. </p> <p>(Note) If the temperature of the power thermistor for limiting inrush current does not rise enough (and its resistance value is too large), such as when the normal average load power is small, the output voltage at peak output might drop about 100 ms. If this might cause any problem, please check the output voltage waveform while the power supply is installed on an actual device at operation.</p>

General Specification (Items are provided at normal temperature and humidity unless otherwise specified.)

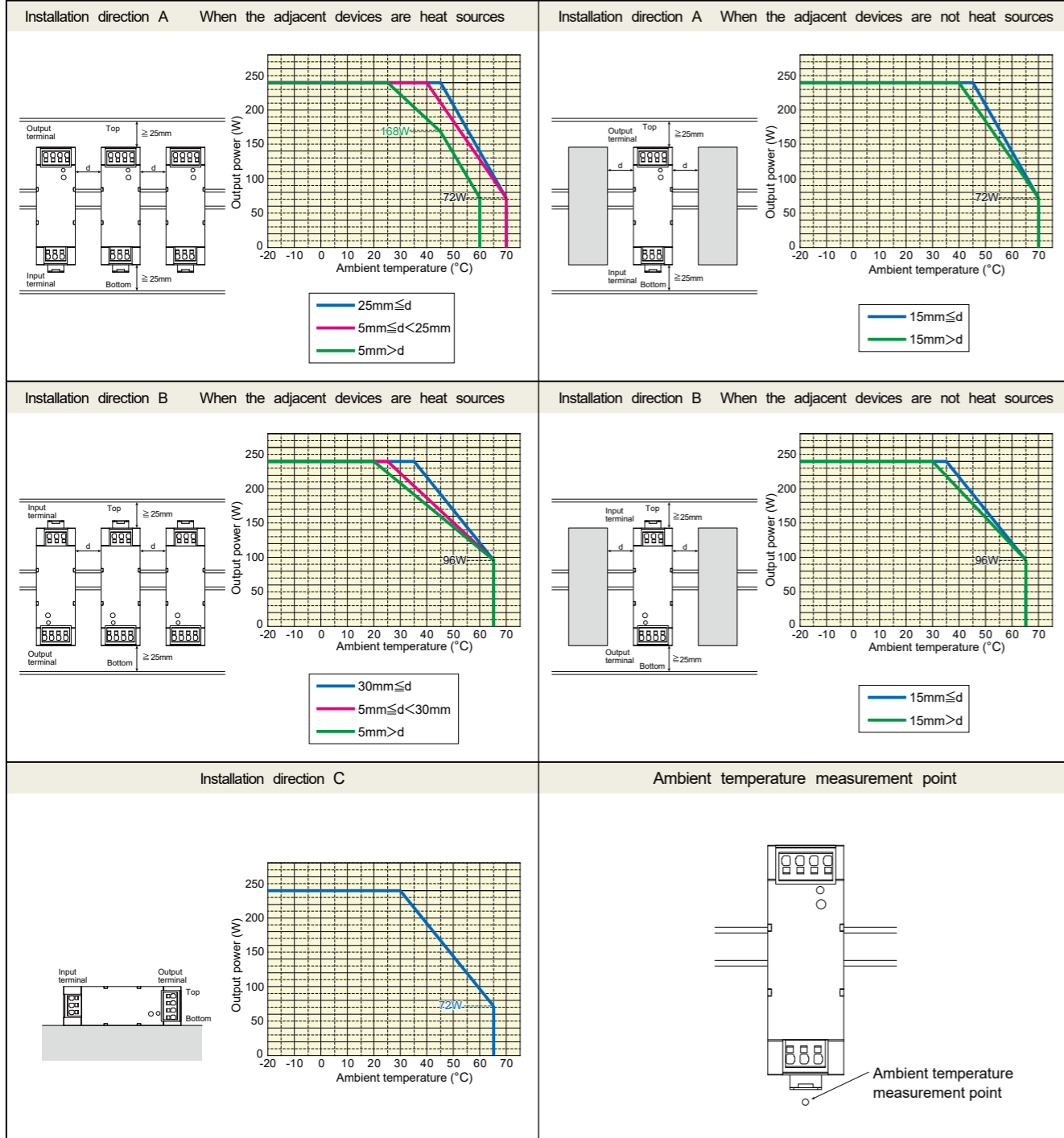
<Fig.2> Peak output derating

Use this product by reducing the peak power according to the preset output voltage, as shown in the derating diagram shown below.



<Fig.3> Installation/Output derating

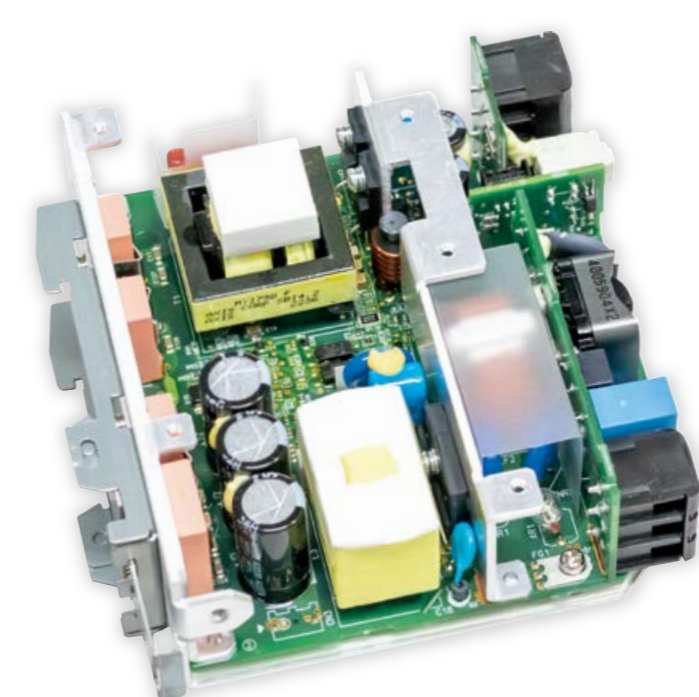
Follow the derating diagram below for output according to ambient temperature and installation direction. When installing on a DIN-rail, make sure that there is at least 25 mm space above and below the product. In addition, derate the output according to the distance between two adjacent products as shown in the derating diagram shown below. The ambient temperature during installation on a DIN-rail means the temperature at the position where convecting air enters the power supply. * The heat source is assumed to be the power supply of the same model operating at the same power.



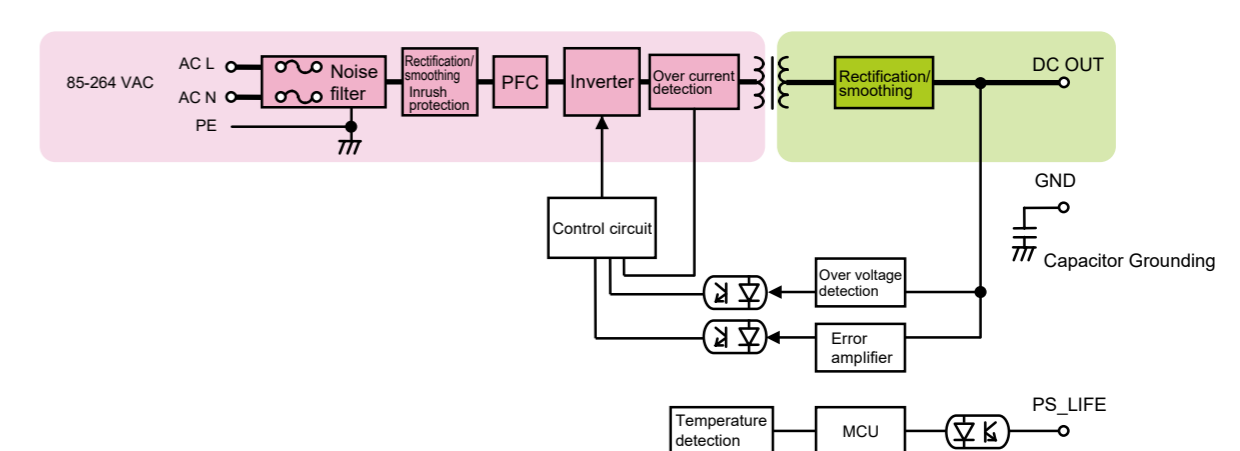
Signal Output Specification

Items	Specification	Note
Output Signal Service life indicator signal (PS_LIFE signal) (PS_LIFE LED)	When the estimated remaining life of the electrolytic capacitor decrease by 20%, or when the total operating time (excluding non-powered periods) reaches 15 years, it outputs "OPEN," and the LED illuminates in red.	This function is not intended to guarantee product lifespan but serves as a signal to indicate the approximate timing for product replacement. It notifies based on factors such as the degradation of the electrolytic capacitor and does not cover failures caused by other factors. Even if no signal is output, replace the power supply within approximately 15 years from the date of purchase. After AC input is applied, the service life timer signal outputs "OPEN" and the LED illuminates in red for approximately 0.1 seconds from the output voltage rise. This is to confirm that the service life timer function is operating correctly and is not an indication of the recommended replacement time. When it becomes time for replacement, it continuously outputs "OPEN" and the LED remains red while the power is on.
Output Signal Circuit	<p>Signal Circuit</p>	

Internal structure

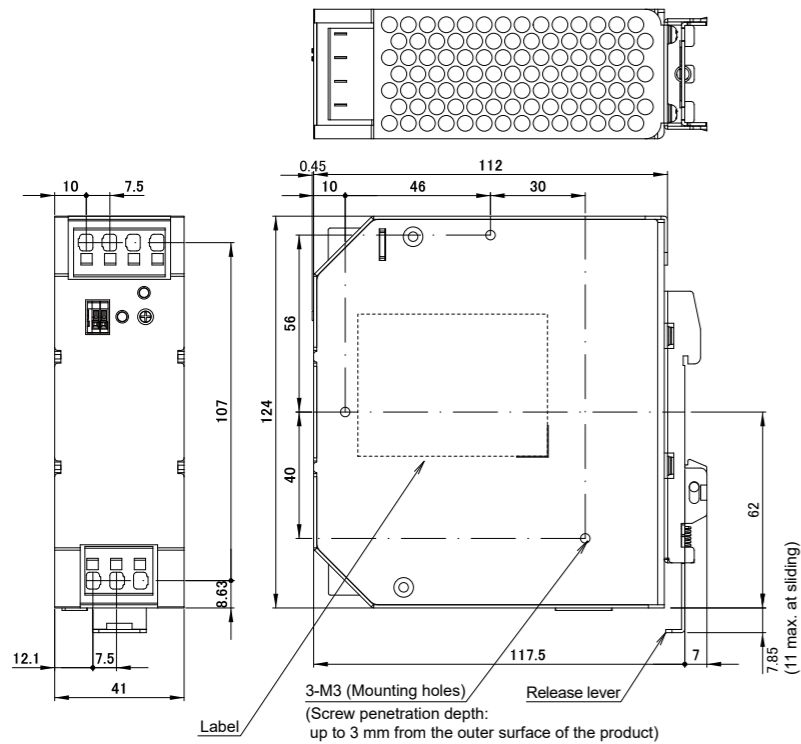


Block Diagram



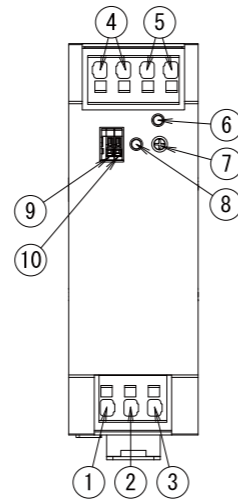
Outline Drawing

European terminal (UDP-240-A**-E0X-B)



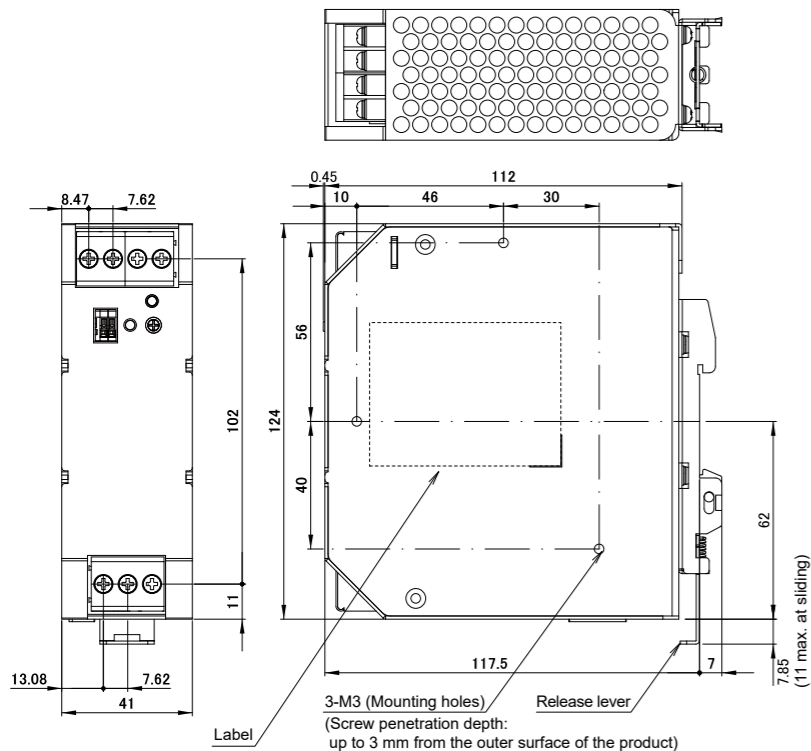
Contents: manufacture's name, production number, model name, rating and others

*Connector pin allocation



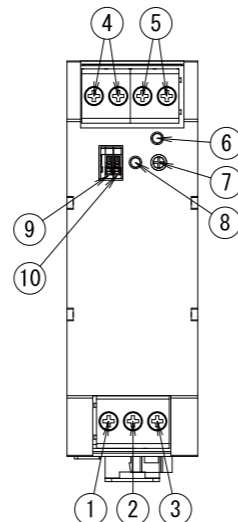
No.	Name	Function
①	AC (L)	Input terminal
②	AC (N)	Input terminal
③	PE	Protective ground terminal
④	+VOUT	+ Output terminal
⑤	-VOUT	- Output terminal
⑥	PWR_OK	Output voltage confirmation LED
⑦	ADJ	Variable resistor to adjust output voltage
⑧	PS_LIFE LED	Service life indicator LED
⑨	+PS_LIFE	+ Service life indicator signal terminal
⑩	-PS_LIFE	- Service life indicator signal terminal

Screw terminal block (UDP-240-A**-E0X-B)



Contents: manufacture's name, production number, model name, rating and others

*Connector pin allocation



No.	Name	Function
①	AC (L)	Input terminal
②	AC (N)	Input terminal
③	PE	Protective ground terminal
④	+VOUT	+ Output terminal
⑤	-VOUT	- Output terminal
⑥	PWR_OK	Output voltage confirmation LED
⑦	ADJ	Variable resistor to adjust output voltage
⑧	PS_LIFE LED	Service life indicator LED
⑨	+PS_LIFE	+ Service life indicator signal terminal
⑩	-PS_LIFE	- Service life indicator signal terminal

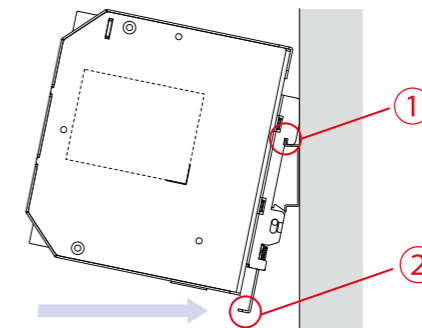
●Dimensional tolerance: ± 1 (± 0.5 for mounting dimension)

Options (Sold separately)

Battery unit				
Photos	Model	Category	Size	Backup time *
	DS02A-L24/2.5L-B	Battery unit	(W×D×H=41×124×117.5mm)	
* Backup time is a reference value at initial use. It is not a guaranteed value.				

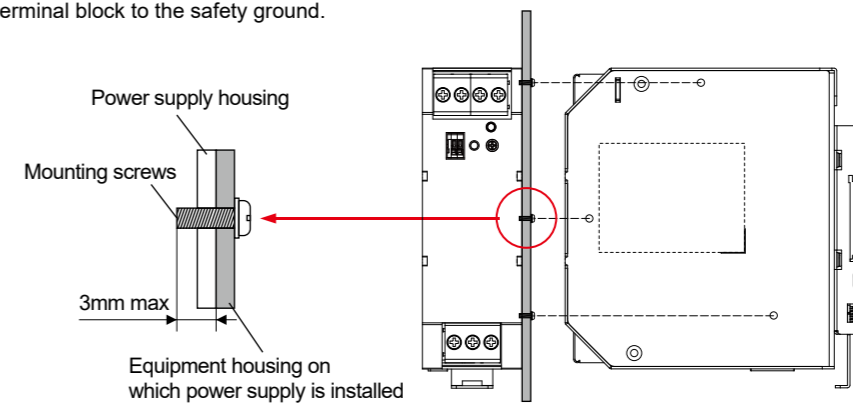
Attach to or Detach from a DIN-Rail

To attach the product to a DIN-rail, hook part 1 (shown below) first and then push the product in the direction indicated by the arrow until it snaps in. To detach the product from a DIN-rail, pull down part 2 first and then remove the product.



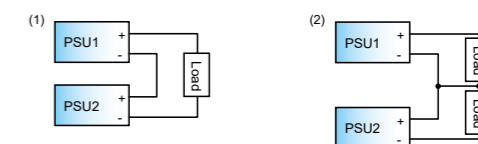
Power Supply Mounting Screws and Grounding

When using the power supply mounting holes, secure the power supply to all the three holes. Use 3-mm-diameter screws to secure the power supply. Be sure to connect the protective ground terminal on the input terminal block to the safety ground.

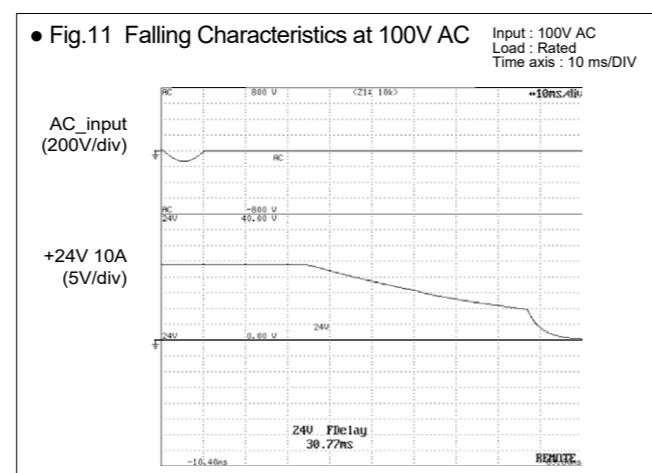
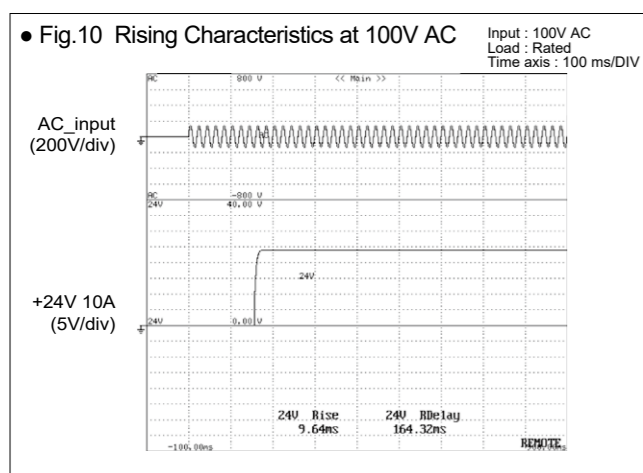
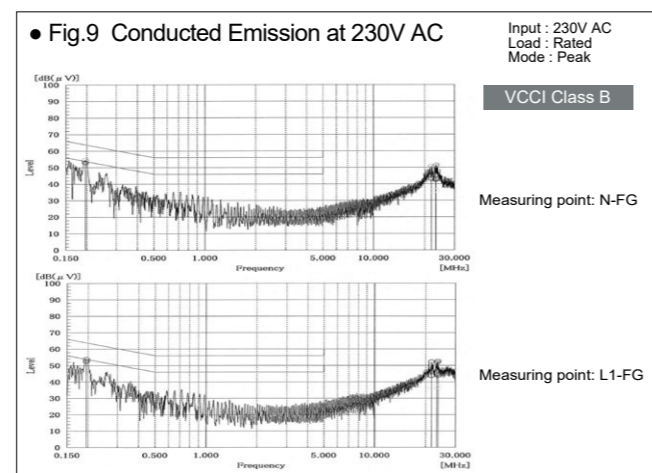
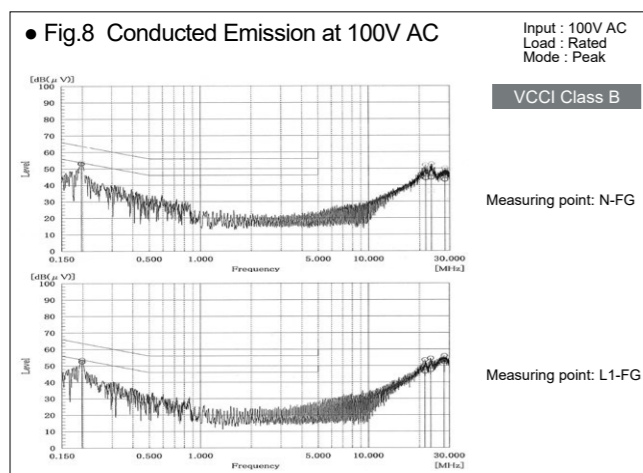
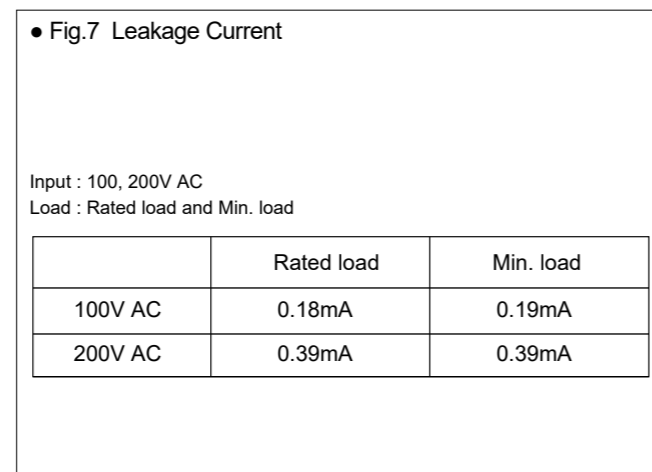
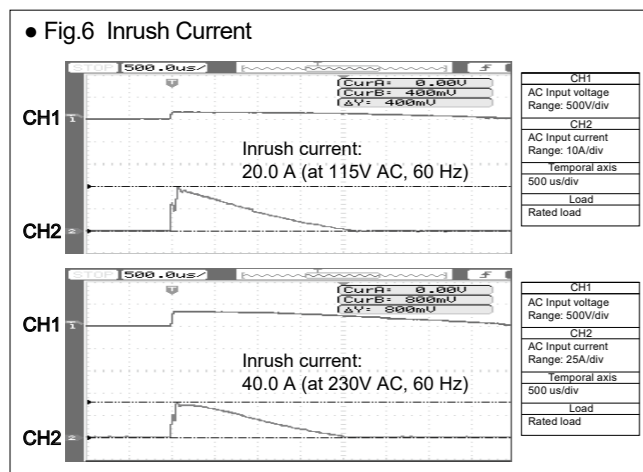
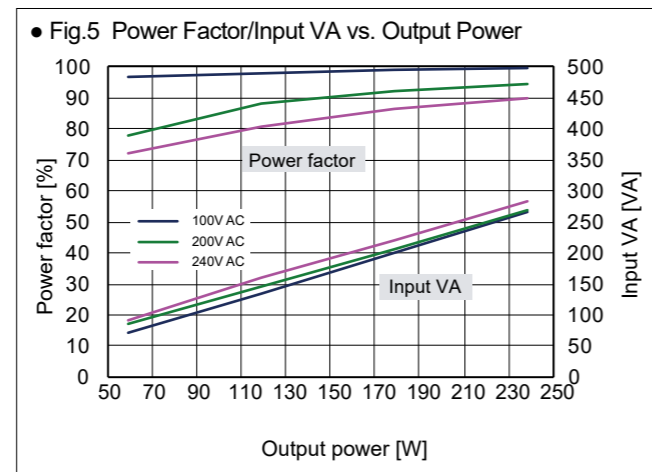
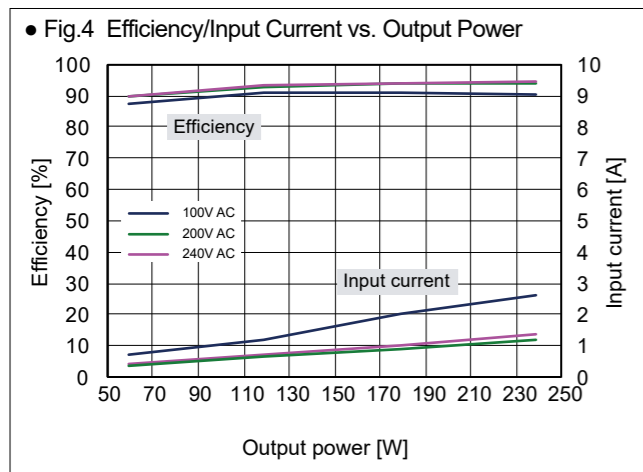


Connection in Series and Parallel

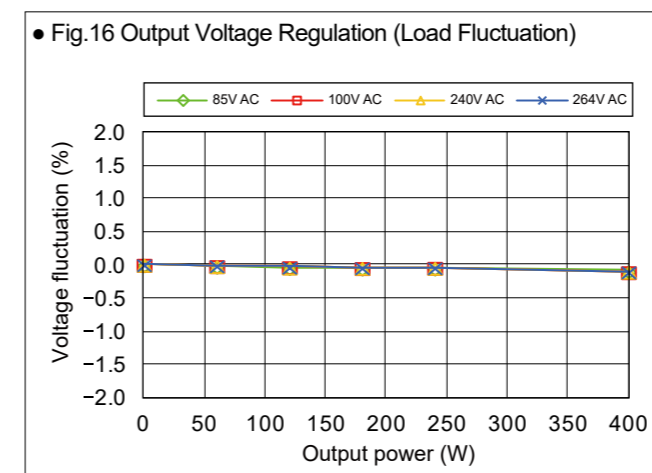
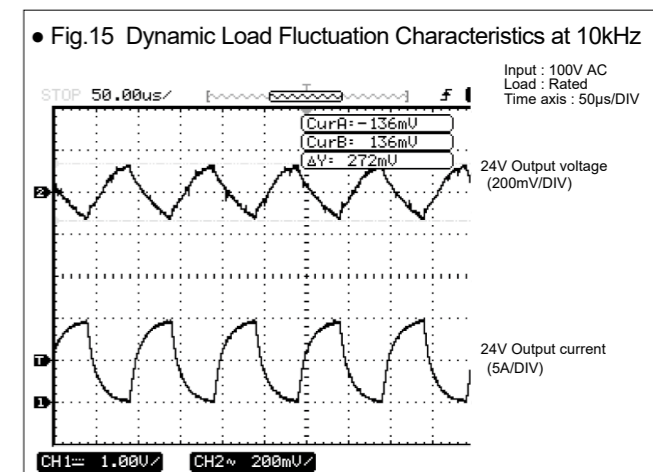
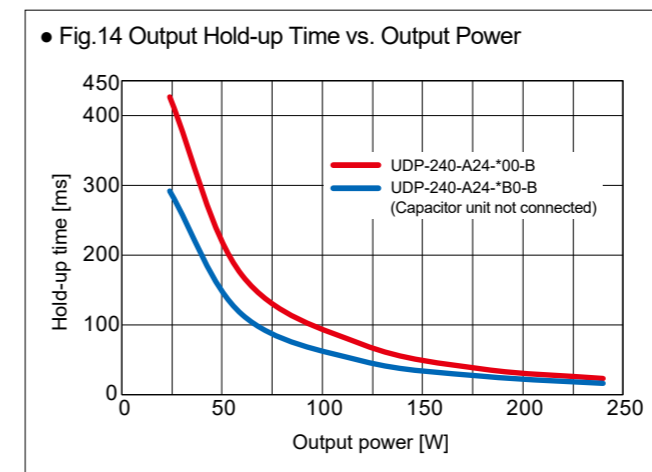
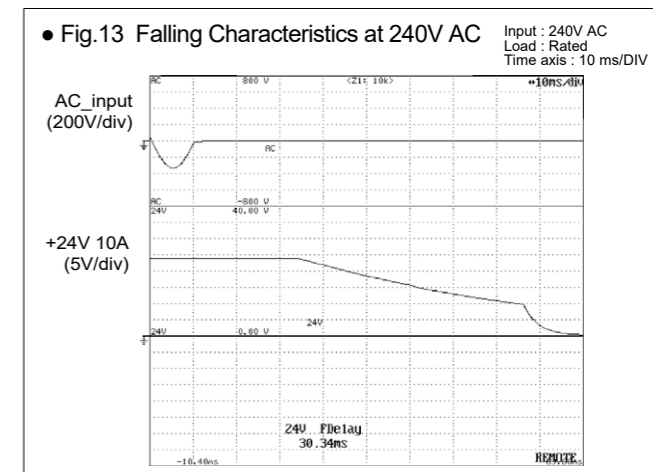
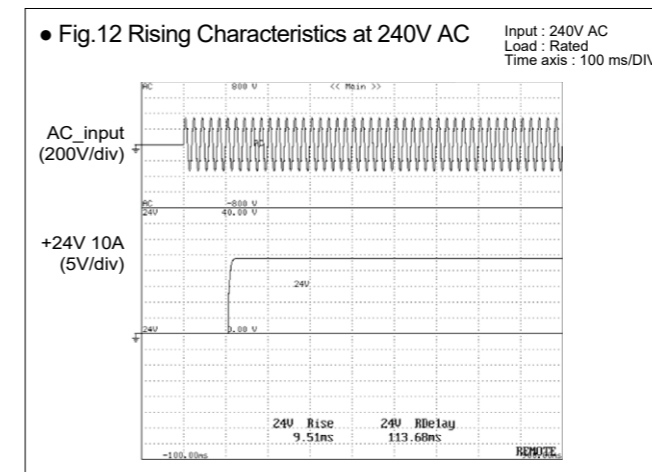
- Series operation
Series connection is available as in figure (1) and (2) on the right.
- Parallel operation
Parallel operation is not possible.



Characteristics Data (Typical features of the product series) **UDP-240-A24** (Examples of actual measurement)

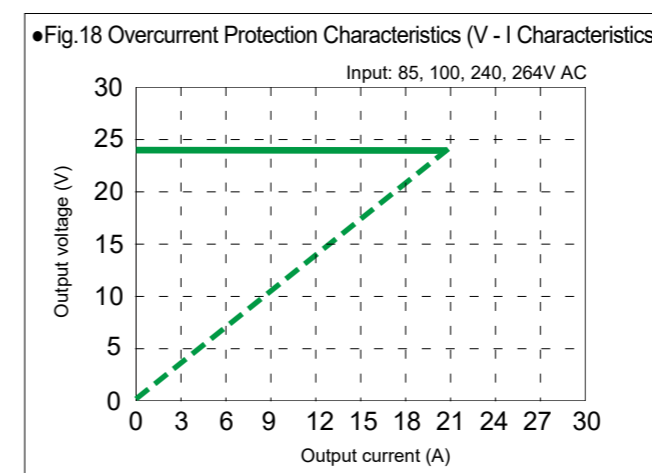


Characteristics Data (Typical features of the product series) **UDP-240-A24** (Examples of actual measurement)



• Fig.17 Ripple and Spike Voltage

Temperature	AC Input voltage	CH1 24V					
		Minimum load		50% load		Rated load	
		Ripple(mV)	Noise(mV)	Ripple(mV)	Noise(mV)	Ripple(mV)	Noise(mV)
-25°C	85V	5.6	29.2	29.0	49.7	70.9	110.1
	100V	5.4	25.2	28.1	48.4	64.2	100.3
	240V	5.2	22.4	25.5	48.7	49.9	86.5
	264V	5.5	22.0	24.4	42.7	47.4	88.1
25°C	85V	4.3	21.8	8.1	31.0	18.7	53.4
	100V	4.4	22.7	8.1	31.2	19.2	52.5
	240V	4.0	22.4	7.8	30.7	20.3	51.4
	264V	4.0	22.2	7.8	30.9	20.3	52.8
50°C	85V	3.2	14.2	7.2	29.7	19.3	48.4
	100V	3.9	19.4	7.3	29.6	18.7	49.5
	240V	3.8	19.8	7.2	29.9	17.5	47.8
	264V	3.8	18.9	7.2	31.2	17.7	51.7
75°C	85V	1.6	4.7	2.9	4.4	3.8	5.9
	100V	1.6	4.5	2.9	4.6	3.9	6.0
	240V	1.4	3.8	3.0	4.3	3.8	5.7
	264V	1.4	4.1	2.9	4.4	3.8	5.7



Backup Unit DS02A-L24/2.5L

Backup Unit DS02A-L24/2.5L



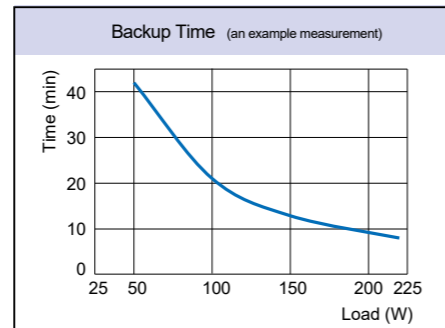
Model	Description
DS02A-L24 / 2.5L-B	
Model name coding DS02 A - L24 / 2.5L - B ① ② ③ ④ ⑤ ⑥	① Series name ② Modification ③ Lithium-ion battery ④ Output voltage ⑤ Capacity ⑥ DIN-rail Blank: Without DIN-rail bracket B: With DIN-rail bracket

Compatible Power Supply

- UDP-120-A24-***-*
- UDP-180-A24-***-*
- UDP-240-A24-***-*

Backup Time (Measured with UDP-240-A24-E00)

(Please note that the value shown is an initial reference not guaranteed.)



Features

- Lithium-ion battery is adopted.
- DIN-rail compatible model
- UL(c-UL)62368-1 compliant

General Specification (Items are provided at normal temperature and humidity unless otherwise specified.)

Items	Specification	Measurement condition, etc.
Battery	Lithium-ion battery	
Nominal Battery Power Voltage	18VDC (3.6V 5 series)	
Rated Capacity	2500mAh	Factory setting capacity is less than 30%
Backup Output Voltage	23V -5%, +2%	
Backup Output Current	Continuous 9.2A	
DC Input	23.8-28V	The output voltage of the UDP shall be within the range on the left.
Charge Voltage	20.5V typ	
Charge Current	0.5A typ	
Backup Time	7min or more (At load current 9.2A)	At 18V battery voltage Typical value after full charge at the temperature of using a fresh battery and 25°C. If the voltage (capacity) decreases due to self-discharge, the discharge time becomes shorter.
Discharge Cut-off Voltage	15V typ	The battery voltage monitoring circuit forcibly stops the battery discharge to prevent over-discharge of the battery.
Operating Temp. / Humidity	10 to 45°C*10 to 90%	No condensation
Storage Temp. / Humidity	Storage within 1 year: -20 to +20 °C / humidity 10-95% Storage within 90 days: -20 to +40 °C / humidity 10-95% Storage within 30 days: -20 to +50 °C / humidity 10-95%	No condensation *1
Vibration	Displacement amplitude: 0.075mm (10-55Hz), Sweep cycles: 10, Test duration: 45 min in each X, Y, Z direction	Follow JIS-C-60068-2-6 at no operation
Mechanical Shock	Lift one bottom edge 50mm high with the opposite edge placed on a test bench, and let it fall. Repeat 3 times on the other three edges as well, and no malfunction shall be observed.	Follow JIS-C-60068-2-31 at no operation
Weight	750g typ.	
Reliability Grade	FA	Original design category
Warranty	One year after delivery: If any defects belong to us, the defective unit shall be repaired or replaced at our cost. Except for internal battery.	Except for errors caused by operation not specified in this specification.

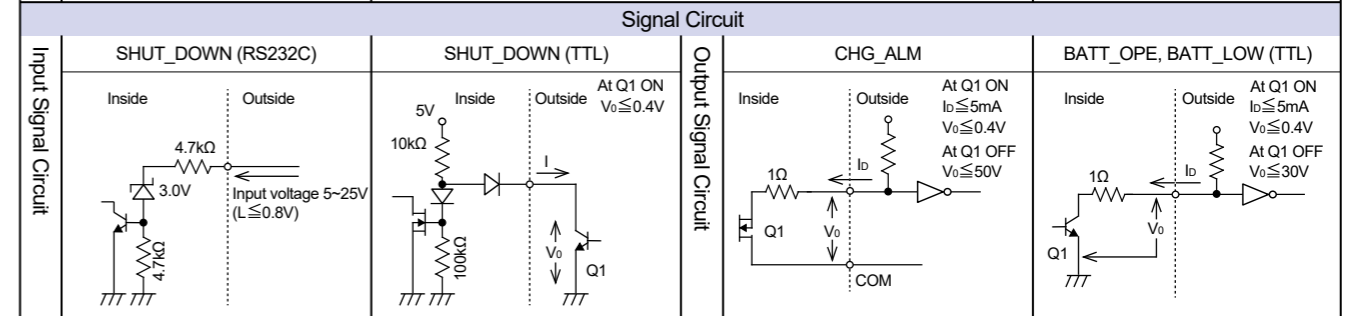
*1 Recharging once at least per year (or 6 months if available) is required for 6 months or longer storage. When recharging is not conducted beyond the period, the battery may not recover its capacity completely. Approximately 4 hours of charging time may be required in such a case.

*2 When a backup unit is connected to the power supply, about 20W of power is consumed due to the charging operation of the backup unit, etc. Please reduce the output load of the power supply when the backup unit is connected.

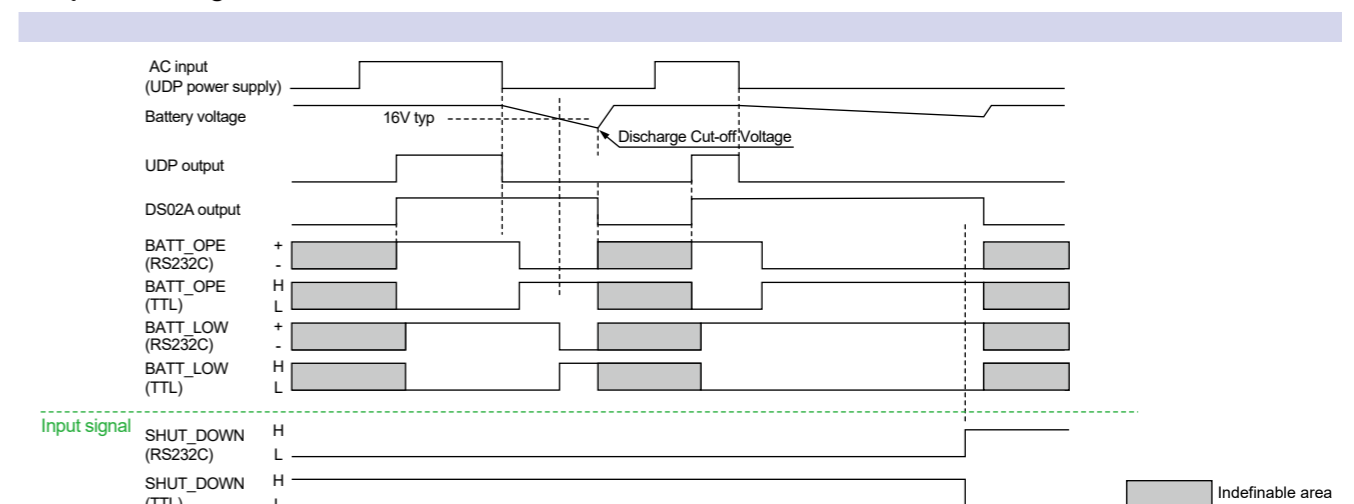
*3 When using the product in a high temperature environment, the charging temperature protection will be activated and charging will be temporarily stopped, which may result in a longer charging time. Also, please note that charging will stop at low-temperature environment.

General Specification (Items are provided at normal temperature and humidity unless otherwise specified.)

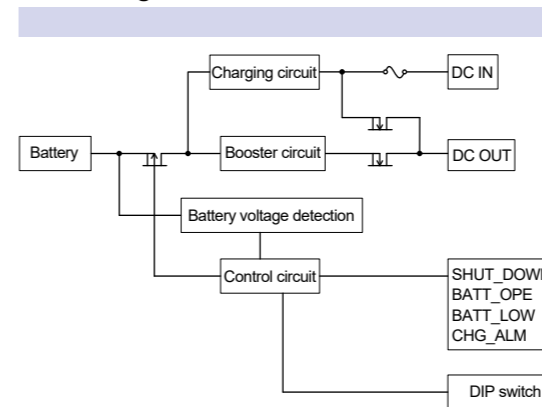
Items	Specification	Note
Input Signal	Backup stop signal for RS232C (SHUT_DOWN)	The backup operation is stopped when 'Positive voltage (5-25V)' is input during backup operation. * Negative voltage is acceptable up to -11V.
	Backup stop signal for TTL (SHUT_DOWN)	The backup operation is stopped when 'L' is input during backup operation.
Output Signal	Charging notification signal (CHG_ALM)	'L' signal is delivered when charging a battery.
	Backup operation signal for RS232C (BATT_OPE)	'Negative voltage' is delivered when operating backup. Using equivalent to ADM232AARN (Analog Devices)
	Backup operation signal for TTL (BATT_OPE)	'H' is delivered when operating backup.
	Low battery voltage signal for RS232C (BATT_LOW)	'Negative voltage' is delivered when battery input terminal voltage falls down to 16V typical. Using equivalent to ADM232AARN (Analog Devices)
Low battery voltage signal for TTL (BATT_LOW)	'H' is delivered when battery input terminal voltage falls down to 16V typical.	



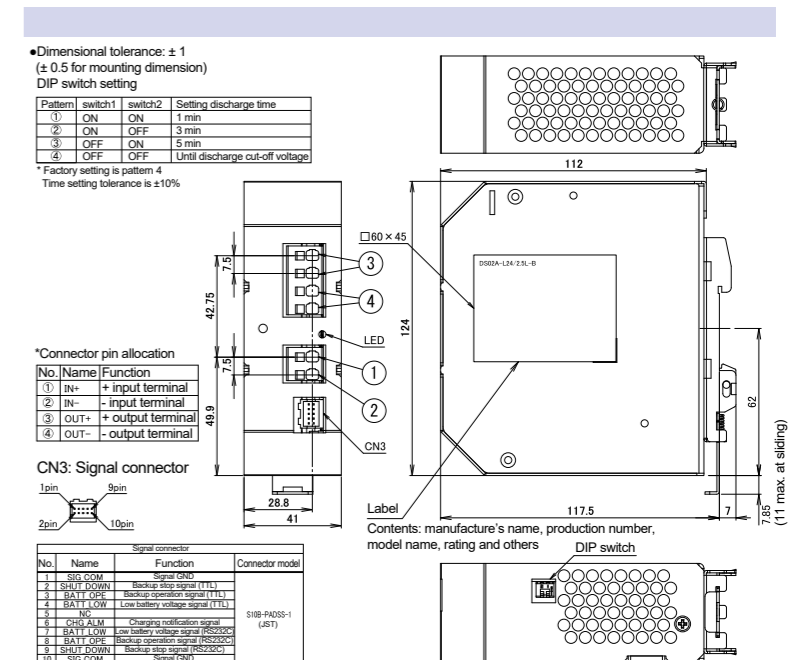
Sequence Timing Chart



Block Diagram



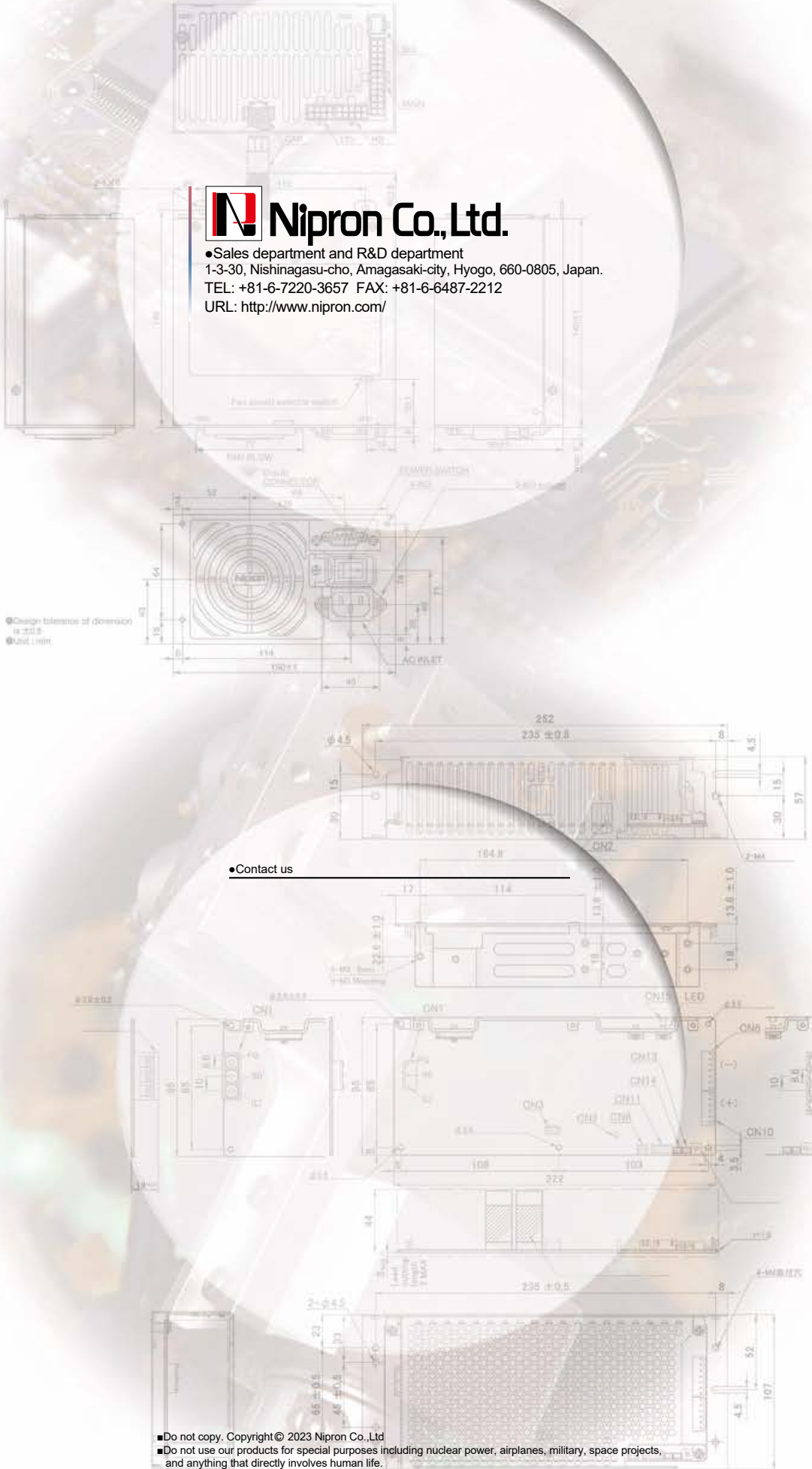
Outline Drawing





Nipron Co., Ltd.

●Sales department and R&D department
 1-3-30, Nishinagasu-cho, Amagasaki-city, Hyogo, 660-0805, Japan.
 TEL: +81-6-7220-3657 FAX: +81-6-6487-2212
 URL: <http://www.nipron.com/>



●Design tolerance of dimension is ±0.5
 ●Unit: mm

●Contact us

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