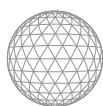


# Compact & Reliable Power Supplies

Flexible installation allows mounting in four directions

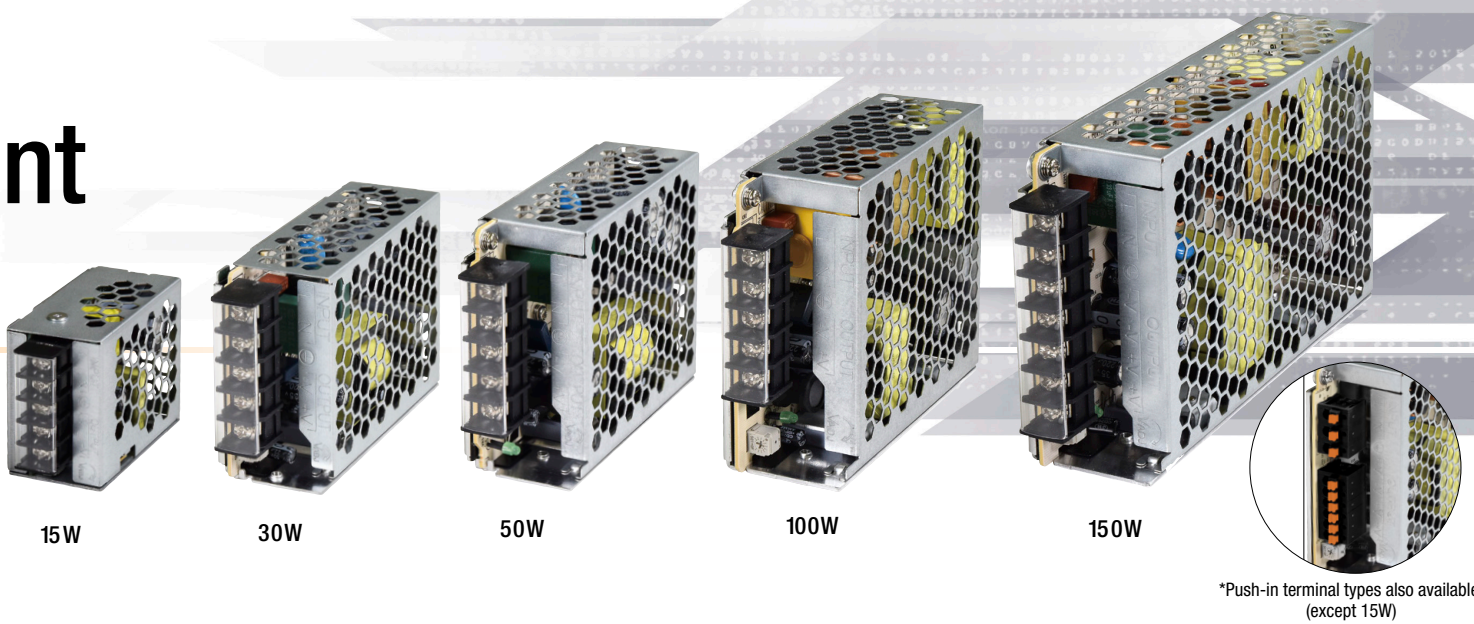


**APEM**  
an IDEC company



# Suitable for downsizing of equipment

## Compact & efficient switching power supplies



Compact

Suitable for downsizing of equipment  
(Image: 15W type)

Compact size

Actual size

Operating Temperature

Operates in a wide temperature range from  $-25$  to  $+70^{\circ}\text{C}$ . Suitable for use in a wide temperature range from cold to hot environment.

Wide temperature range

Push-in connection

One step wiring.  
Safe and efficient push-in connection.

Safety Standards

Suitable for global use and various industries.

Warranty period 5 years

Conditions apply to:  
Operating temperature  $40^{\circ}\text{C}$ , load rate 60%, standard mount  
For details on warranty, see page 11.

Easy access

QR codes are printed on the product enabling easy access to the latest instruction manuals.

Mounting examples

Direct mount

When PS3V-050AF is mounted (standard mount) with PS9Z-3E3B mounting bracket

DIN rail mount

When PS3V-030AF is mounted (standard mount) with PS9Z-3E3C mounting bracket

Flexible mounting

Mounts in 4-directions

A mount (standard mount)

B mount

C mount

D mount

Applications

As a manufacturer of factory automation products, we provide total solutions and related PLCs & HMI products

Warehouse storage

Operates in temperatures ranging from  $-25$  to  $+70^{\circ}\text{C}$ . Ideal for use in various storage facilities such as freezers and refrigerators.

Control panels in facilities such as buildings

Complies with safety standards for various facilities other than factories.

Safety equipment at station platforms

Vibration-resistant and maintenance-free (no retightening of screws). Push-in improves efficiency in limited spaces.

Control panels at plant factories

IDECC's reliable technology enable stable power supply and its compact size allows installation in small equipment.

Other examples

- Machine tools
- Semiconductor manufacturing equipment
- Mold injection machines
- Food and packaging machines
- Multilevel parking garage
- Car facilities
- Logistics and transport facilities
- Agricultural facilities
- Energy-related facilities, others



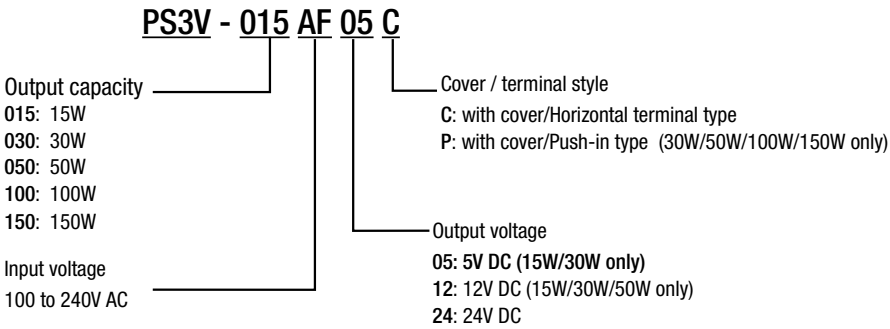
PS3V Switching Power Supplies

PS3V

Package quantity: 1

Output capacity	Horizontal terminal type	Push-in terminal type	Input voltage	Output voltage	Output current
	Part no.	Part no.			
15W	PS3V-015AF05C	—	100 to 240V AC	5V	3.0A
	PS3V-015AF12C	—		12V	1.3A
	PS3V-015AF24C	—		24V	0.63A
30W	PS3V-030AF05C	PS3V-030AF05P		5V	6.0A
	PS3V-030AF12C	PS3V-030AF12P		12V	2.5A
	PS3V-030AF24C	PS3V-030AF24P		24V	1.3A
50W	PS3V-050AF12C	PS3V-050AF12P		12V	4.5A
	PS3V-050AF24C	PS3V-050AF24P		24V	2.3A
100W	PS3V-100AF24C	PS3V-100AF24P		24V	4.5A
150W	PS3V-150AF24C	PS3V-150AF24P		24V	6.5A

Part no. configuration



Accessories

Name	Applicable model	Part no. (Ordering no.)	Package quantity	Remarks
L-shaped mounting bracket (*1)	PS3V-015AF	PS9Z-3N3A	1	L-shaped mounting brackets for PS3X switching power supplies can be used.
	PS3V-030AF	PS9Z-3E3B		
	PS3V-050AF			
	PS3V-100AF			
DIN rail mounting bracket	PS3V-015AF	PS9Z-3N4B	1	DIN rail mounting brackets for PS3X power supplies can be used.
	PS3V-030AF	PS9Z-3E4C		
	PS3V-050AF	PS9Z-3E4D		
	PS3V-100AF			
	PS3V-150AF			

\*1) PS3X L-shaped mounting brackets (PS9Z-3N3B) cannot be used.  
L-shaped mounting bracket is not available for PS3V-150AF. PS9Z-3N3B L-shaped mounting brackets cannot be used for PS3V-150AF.

DIN rail/End clip/Tools

Specify the Ordering no. when ordering.

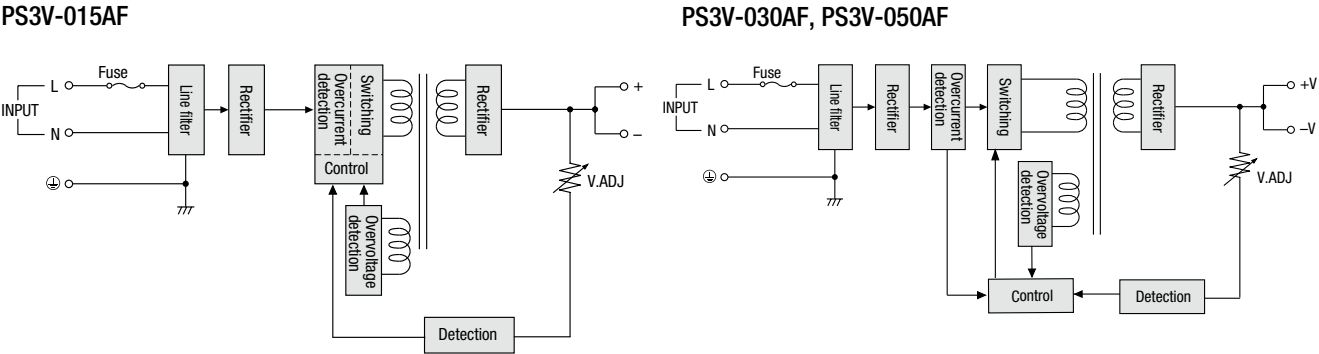
Name	Part No.	Ordering No.	Package quantity	Remarks
35mm DIN rail	BAA1000	BAA1000PN10	10	Material: Aluminum Weight: 200g Length: 1,000mm
End clip	BNL5	BNL5PN10	10	Weight: 15g Material: Steel Plating: Trivalent zinc chromate M4 screw used
	BNL6	BNL6PN10		Weight: 15.2g Material: Steel Plating: Trivalent zinc chromate M4 screw used
Crimping tool (for ferrules) 	S3TL-CR06D	S3TL-CR06D	1	Applicable ferrule: With/without insulated cover Crimping shape 
Auto-adjust stripping tool 	S3TL-ST06	S3TL-ST06	1	PVC-insulated thin stranded and solid wires 0.08 to 6mm <sup>2</sup> (28AWG to 10AWG)
Insulated driver 	S3TL-D04-25-75	S3TL-D04-25-75	1	Blade size (dimensions: mm) 

Specifications

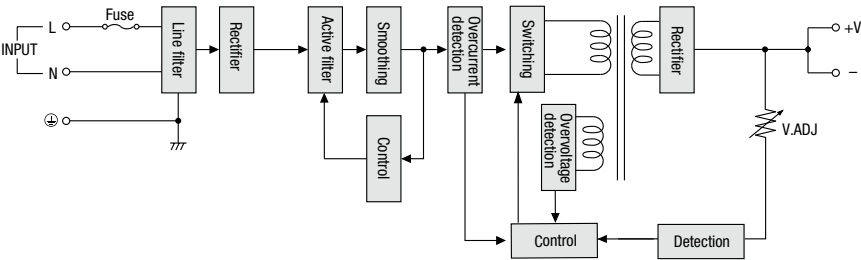
Part no.		[15W] PS3V-015AF 05C / 12C / 24C	[30W] PS3V-030AF 05□ / 12□ / 24□	[50W] PS3V-050AF 12□ / 24□	[100W] PS3V-100AF24□	[150W] PS3V-150AF24□		
Input conditions	Rated input voltage		100 to 240V AC					
	(Voltage range) (*1)		85 to 264V AC (Single phase 2 wire)					
	Frequency		47 to 63Hz					
	Input current (at rated output)		100V: 0.32A (typ) 230V: 0.2A (typ)	100V: 0.66A (typ) 230V: 0.35A (typ)	100V: 1.1A (typ) 230V: 0.6A (typ)	100V: 1.3A (typ) 230V: 0.6A (typ)	100V: 1.9A (typ) 230V: 0.9A (typ)	
	Inrush current (Ia = 25°, cold start)	at 100V AC	40A typ.	18A typ.	18A typ.	18A typ.	18A typ.	
		at 230V AC	60A typ.	45A typ.	45A typ.	45A typ.	45A typ.	
	Leakage current		120V: 0.5mA max., 240V: 1mA max.					
	Efficiency (TYP.) (at rated output)	5V	77% (100VAC) 76% (230VAC)	77% (100VAC) 77% (230VAC)	—	—	—	
		12V	82% (100VAC) 81% (230VAC)	83% (100VAC) 83% (230VAC)	84% (100VAC) 84% (230VAC)	—	—	
24V		84% (100VAC) 83% (230VAC)	85% (100VAC) 84% (230VAC)	87% (100VAC) 87% (230VAC)	85% (100VAC) 88% (230VAC)	85% (100VAC) 88% (230VAC)		
Power factor (TYP.) (at rated output)		—	—	—	0.98 (100V AC) 0.9 (230V AC)	0.98 (100V AC) 0.95 (230V AC)		
Output conditions	Output voltage/Current		5V / 3A 12V / 1.3A 24V / 0.63A	5V / 6A 12V / 2.5A 24V / 1.3A	— 12V / 4.5A 24V / 2.3A	— — 24V / 4.5A	— — 24V / 6.5A	
	Adjustable voltage range		±10% (Front, adjustable using V.ADJ volume)					
	Output holding time (at rated output)	5V	15ms typ. (100V AC) 120ms typ. (230V AC)	18ms typ. (100V AC) 110ms typ. (230V AC)	—	—	—	
		12V	120ms typ. (230V AC)		—	—		
		24V	20ms typ. (100V AC) 130ms typ. (230V AC)		17ms typ. (100V AC) 125ms typ. (230V AC)	35ms typ. (100V AC) 35ms typ. (230V AC)	24ms typ. (100V AC) 24ms typ. (230V AC)	
	Start time		650ms max. (at rated input/output)					
	Rise Time		300ms max. (at rated input/output)	200ms max. (at rated input/output)				
	Constant voltage accuracy	Input fluctuation	0.4% max.					
			Load fluctuation				1% max.	
			Temperature fluctuation				0.05%/°C max. (−10 to +50°C)	
		Ripple (including noise)	−25 to −10°C	5V: 8%p-p max. 12V: 6%p-p max. 24V: 4%p-p max.	5V: 8%p-p max. 12V: 6%p-p max. 24V: 4%p-p max.	12V: 6%p-p max. 24V: 4%p-p max.	24V: 4%p-p max.	
			−10 to 0°C	5V: 5%p-p max. 12V: 2.5%p-p max. 24V: 1.5%p-p max.	5V: 5%p-p max. 12V: 2.5%p-p max. 24V: 1.5%p-p max.	12V: 2.5%p-p max. 24V: 1.5%p-p max.	24V: 1.5%p-p max.	
			0 to 50°C	5V: 2.5%p-p max. 12V: 1.5%p-p max. 24V: 1%p-p max.	5V: 2.5%p-p max. 12V: 1.5%p-p max. 24V: 1%p-p max.	12V: 1.5%p-p max. 24V: 1%p-p max.	24V: 1%p-p max.	
	Supplementary functions	Overcurrent protection		105% min. (auto reset) (*2)				
		Overvoltage protection		120% min. (intermittent, auto reset)	Output off at 120% min, reset when re-input			
Operation indicator		LED (green)						
Dielectric strength	Between input and output terminals		3000V AC, 1 minute					
	Between input and ground terminals		2000V AC, 1 minute					
	Between output and ground terminals		500V AC, 1 minute					
Insulation resistance		100MΩ min. 500V DC megger (at 25°C, 70% RH) (between input and output terminals, between input and ground terminals)						
Operating temperature		−25 to +70°C, (no freezing, output derating available)						
Operating humidity		20 to 90% RH (no condensation)						
Storage temperature		−25 to +75°C (no freezing)						
Storage humidity		20 to 90% RH (no condensation)						
Vibration resistance		10 to 55 Hz, 2G constant, 2 hours each in 3 axes						
Shock resistance		200M/s², 11ms, 1 shock each in 6 axes						
Expected life (reference value) (*3)		8 years min. (rated input, load factor 50%, operating temperature +40°C, standard mounting)						
EMC	EMI	EN61204-3 Class B						
	EMS	EN61204-3 (Industrial)						
Safety standards		EN62368-1 (TÜV), IEC 62368-1 UL61010-1, UL61010-2-201, CSA C22.2 No.61010-1, CSA C22.2 No.61010-2-201, UL62368-1, CSA C22.2 No.62368-1-14 (Recognition)						
Dimensions (mm) (terminal part except protrusion)		50.8H×34W×65D	68.5H×34.5W×95.5D	80H×36W×99D	93H×39W×108D	95H×39W×159D		
Weight (approx.)		135g	190g	230g	380g	510g		
Terminal screw (horizontal type)		M3	M3.5					

\*1) Not subjected to safety standards. Output delay also available.  
\*2) If overload continues for over 30 seconds, the internal elements may be damaged.  
PS3V-015AF is equipped with a thermal shutdown function. When thermal shutdown operates, auto reset does not function until the temperature inside the power supply drops.  
\*3)Calculation of the expected life is based on the actual life of the aluminum electrolytic capacitor.  
The expected life depends on operating conditions.

Block diagram

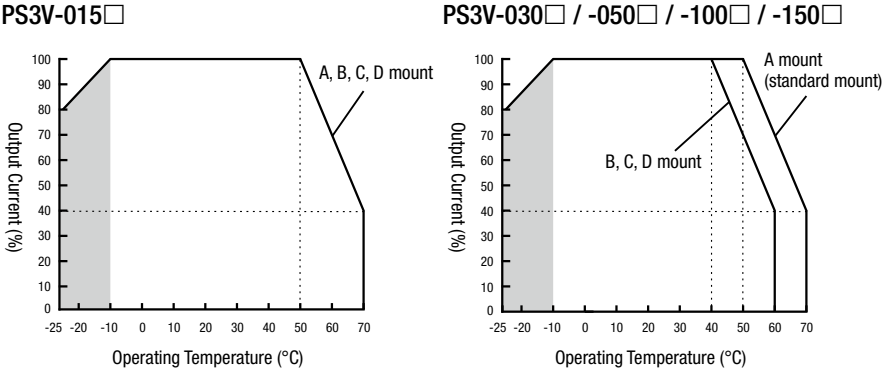


PS3V-100AF, PS3V-150AF



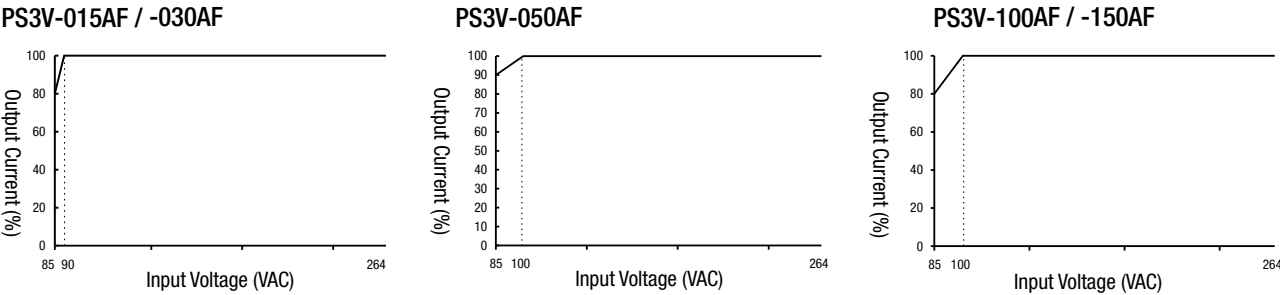
Characteristics

Output current - Operating temperature characteristics (Output derating)  
\*Conditions: Natural air cooling (operating temperature is the temperature around the power supply)



• Areas indicated with may take time for the output voltage to stabilize.

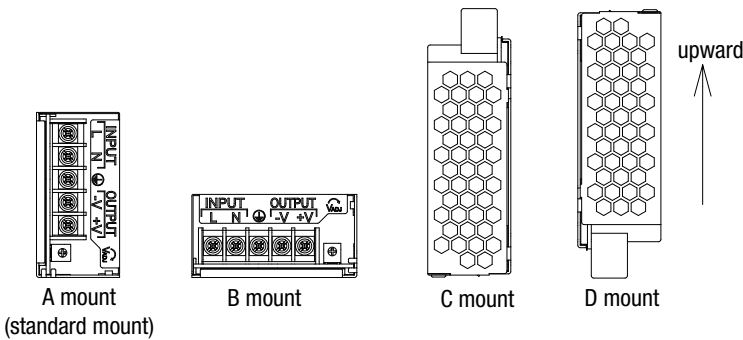
Output current - Input voltage characteristics (Output derating) (Ta=25°C)



Operating temperature by safety standards

UL / c-UL / TÜV	A mount	50°C
	B mount	40°C

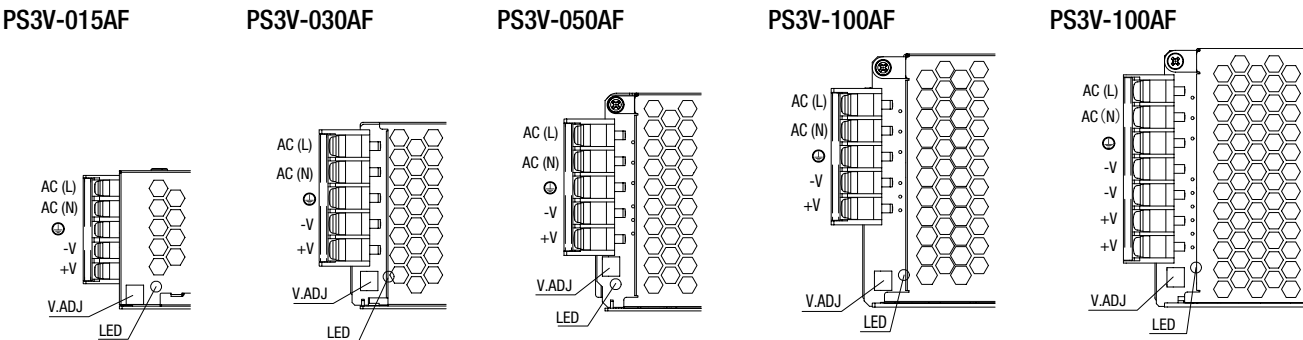
Mounting direction



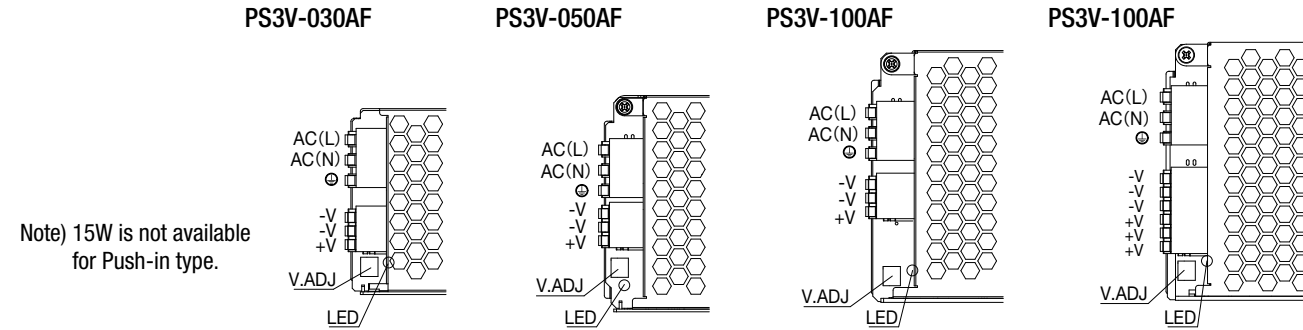
Parts Description

Note) Note the terminal arrangement when wiring.

Horizontal terminal type



Push-in terminal type



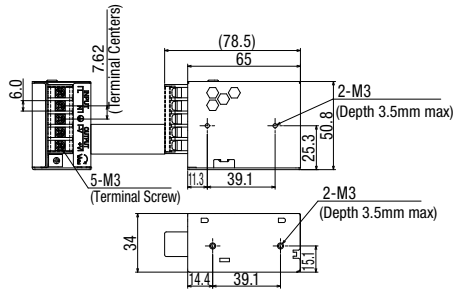
Note) 15W is not available for Push-in type.

Marking	Name	Description	Marking	Name	Description
AC(L), AC(N)	AC input terminal	Accepts a wide range of voltage and frequency.	V.ADJ	Output voltage adjustment volume	Allows adjustment within ±10%. Turning clockwise increases the output voltage.
⊕	Ground terminal	Be sure to connect the terminal to a proper ground.	LED	Operation indicator	Lights on when the output voltage is on.
+V, -V	DC output terminals	Output terminal			

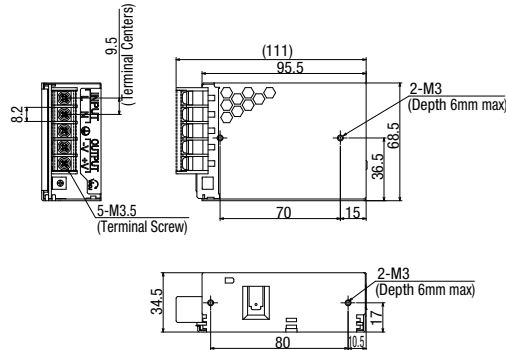
Dimensions

Horizontal terminal type

PS3V-015AF C



PS3V-030AF C



All dimensions in mm.  
General tolerance: ±1 mm

## 9



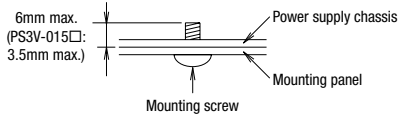
Instructions

For details on mounting, wiring, and circuit examples, see the instruction manual from the below URL.  
URL: <https://product.idec.com/?product=PS3V>



Notes for installation

- 1. When mounting the PS3V, see page 7.
- 2. See page 7 and 8 for mounting hole layout.
- 3. Use M3 or M4 screw as mounting screws. The tightening torque of the mounting screw is 0.49N·m.



- 4. Do not close the openings of the switching power supply. Ensure proper heat dissipation by convection.
- 5. Maintain a minimum of 20 mm clearance around the switching power supply.
- 6. When derating of the output does not work, provide forced air-cooling.
- 7. Make sure to wire the ground terminal correctly.
- 8. Use copper wire only. In addition, refer to the below table to select wire types and number of wires.

Terminal	Wire size (Allowable current)	Wire type
Input	AWG18 to 14	Copper, solid/stranded
Output	AWG18 to 14 (AWG18-7A, AWG16-10A, AWG14-15A)	

- Cross section - AWG18: 0.82mm<sup>2</sup>, AWG16: 1.31mm<sup>2</sup>, AWG14: 2.08mm<sup>2</sup>
  - See page 11 for Push-in type
9. Recommended tightening torque of terminal screws: 0.8 N·m (PS3V-015□: 0.5N·m)

Adjustment of output voltage

The output voltage can be adjusted within ±10% of the rated output voltage by using the V.ADJ control. Turning the V.ADJ clockwise increases the output voltage. Turning counterclockwise decreases the output voltage. Note that overvoltage protection may function when output voltage is increased.

Overcurrent protection

The output voltage drops automatically when an overcurrent flows, resulting in intermittent operation. Normal voltage is automatically restored when the load returns to normal condition. However, overcurrent for a prolonged period of time or short-circuit causes the internal elements to deteriorate or break down.

Overvoltage protection

- PS3V-015□:  
Voltage limit and auto-recovery method. The switching power supplies operate normally when voltage returns to normal.
- PS3X-030□, -050□, -100□, -150□:  
The output is turned off or intermittent operation when an overvoltage is applied. When the output voltage has dropped due to an overvoltage, turn the input off, and after one minute, turn the input on again.

Insulation/Dielectric test

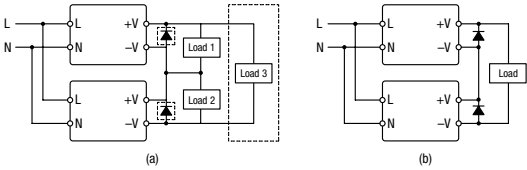
When performing an insulation/dielectric test, short the input (between AC) and output (between + and -). Do not apply or interrupt the voltage suddenly, otherwise surge voltage may be generated and the power supply may be damaged.

Noise

Small acoustic noise inside the PS3V may be heard depending on the input voltage and load, but the performance of the PS3V is not affected.

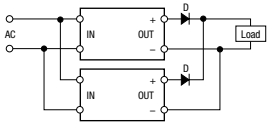
Series operation

The following series operation is allowed. In (b) series operation, connect Schottky barrier diodes. Choose (a) series operation when using the PS3V as positive and negative output power supply. Insert a Schottky barrier diode for loads such as operational amplifier where outputs of two power supplies may be connected in series (Load 3). Select a Schottky diode in consideration of the rated current.



Parallel operation

Parallel operation is not possible to increase the output capacity, because the internal elements and load may be damaged. Backup operation is a connection method of two switching power supplies in parallel for emergency. Normally one switching power supply has a sufficient output. If one switching power supply fails, another one operates to continue the output. Make sure that the sum of power consumption by load and diode is not greater than the rated wattage (rated voltage × rated current) of one switching power supply. The current of the diode that is used must be more than double the output current of PS3V. Take heat dissipation into consideration.



Rust and scratches on metal parts

Hot-dip galvanized steel and bonderized steel are used for the PS3V. Rust on the edge and scratches on the surfaces may be developed depending on the storage condition, but the performance of the PS3V is not affected.

Accessories and wiring for Push-in terminals

Wire size and recommended ferrules (Push-in terminal type only)

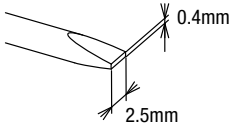
Ferrules with insulated covers

	Applicable Wire (Stranded Wire)		Wire Strip Length (mm)	Part No. (Ordering No.)
	AWG	mm <sup>2</sup>		
For 1 wire	18	0.75	12	S3TL-H075-16WW
	17	1.0	12	S3TL-H10-16WY
	16	1.5	12	S3TL-H15-16WR
For 2 wires	18	0.75	21	S3TL-J075-19WWS

Recommended tools (Optional. See page 4 for details)

Name	Part No. (Ordering No.)
Crimping tool	S3TL-CR06D
Auto-adjust stripping tool	S3TL-ST06
Insulated screwdriver	S3TL-D04-25-75

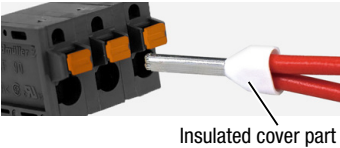
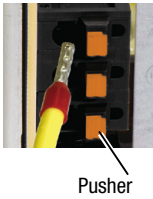
Note) Use a flat blade screwdriver with a blade size of 0.4×2 to 2.5 mm.



Wiring procedure

Wiring

- (1) Insert the solid wire or stranded wire with ferrule into the terminal entrance.
    - \* If the shape of the ferrule becomes trapezoidal after the clamping, insert the ferrule with the long side of the clamped part parallel to the pusher.
    - \* When inserting stranded wires directly, make sure that the pusher is pressed down and there are no loose wires.
- Note) When inserting a ferrule terminal with two wires, insert the insulated cover part vertically to the pusher.



- (2) After wiring, tug lightly to make sure that the wire is properly connected.

Removing the wire

- (1) Press the pusher using a insulated screwdriver.
- (2) Remove the wire by pressing the pusher.



Warranty

Warranty

IDEC warranties the PS3V switching power supplies for a period of five years from the date of shipment.

Scope

In the event of a failure caused by our responsibility within the above period, we will replace the product. However, if the product is used under the following conditions, the warranty may not apply even within the warranty period.

1. Average operating temperature (ambient temperature of switching power supply) is 40°C maximum.
2. The load is 60% maximum.
3. Input voltage is the rated input voltage.
4. Standard mounting style

If we are responsible for a failure that occurs during the warranty period described at left, we will repair the product or replace it with an alternative product.

Please note that we will not be liable for any damage caused by the failure of the delivered product. In addition, please note that the warranty does not apply to the following cases.

1. Inappropriate handling, or operation beyond the specifications.
2. Modification or repair by other than IDEC.
3. Failure caused by reasons other than the switching power supply.
4. Failure caused by natural disasters.



**30** COMPANIES



**75** YEARS OF EXPERIENCE



**3,780** EMPLOYEES WORLDWIDE



**100 000 +** REFERENCES

## EMEA SALES & CUSTOMER SUPPORT

Contact our safety specialists at [eu.support@idec.com](mailto:eu.support@idec.com)

### BENELUX

Belgicastraat 7/1  
1930 ZAVENTEM  
Belgium  
BEL: (+32) 27 25 05 00  
NL: (+31) (70) 799 91 51  
[be.sales@apem.com](mailto:be.sales@apem.com)

### FRANCE

55, avenue Edouard Herriot  
BP1  
82303 CAUSSADE Cedex  
(+33) 5 63 93 14 98  
[fr.commercial@apem.com](mailto:fr.commercial@apem.com)

### GERMANY

Gewerbehof Giesing  
Paulsdorferstr. 34, 2. OG  
D-81549 MUNICH  
MUNICH: (+49) 89 45 99 11 0  
HAMBURG: (+49) 40 253054 0  
[de.info@apem.com](mailto:de.info@apem.com)

### ITALY

Via Marconi 147G  
12030 MARENE (CN)  
(+39) 0172 74 3170  
[apem.italia@apem.com](mailto:apem.italia@apem.com)

### SWEDEN

Torshamnsgatan 39  
S-16440 KISTA  
(+46) 8 626 38 00  
[se.info@apem.com](mailto:se.info@apem.com)

### UNITED KINGDOM

Drakes Drive  
LONG CRENDON,  
Bucks HP18 9BA  
England  
(+44) 1 844 202400  
[uk.sales@apem.com](mailto:uk.sales@apem.com)

[idec-emea.com](http://idec-emea.com)

To receive our latest news, subscribe to our bimonthly newsletter:



Follow us on LinkedIn



Follow us on Youtube



**APEM**  
an IDEC company