


DPUS Series

Features

- Slim size (50 mm width)
- Auto/Manual input control available
- Switch between RUN (close)/STOP (open) using terminal inputs
- Phase control for various load control and zero-cross cycle control (variable cycles)
- Built-in fast-acting fuse for internal circuit protection (optional)
- Various alarm outputs: overcurrent alarm, heatsink overheat alarm, load disconnection alarm, thyristor error alarm

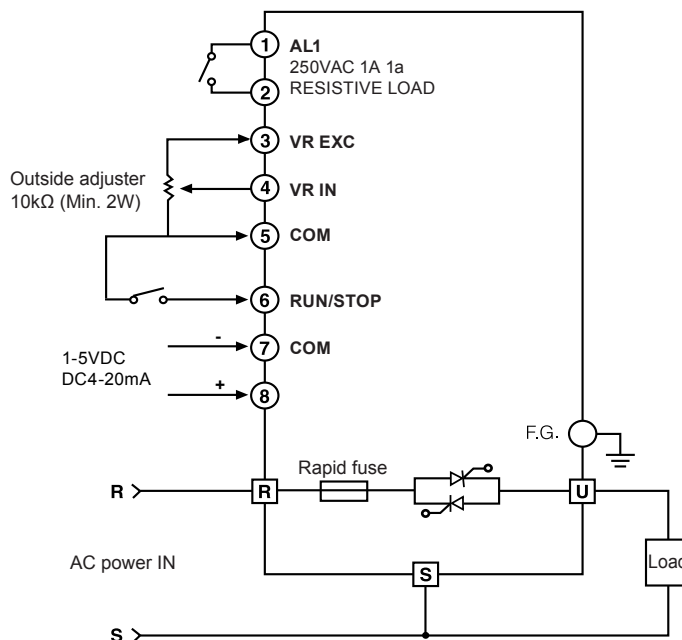
 Please read "Safety considerations" in operation manual before using this unit.



Ordering Information

DPUS	2	025	N	
				Option
			N	Non-fuse
			F	Fuse
				Rated current capacity
		025		25A
				Power supply
	2			220VAC
	3			380VAC
	4			440VAC
				Item
DPUS				Digital Thyristor Power Controller (slim)

Connections



※R, S, U terminals are at the bottom of the unit. For wiring terminals, open the front cover.

Slim Digital Thyristor Power Controllers

Specifications

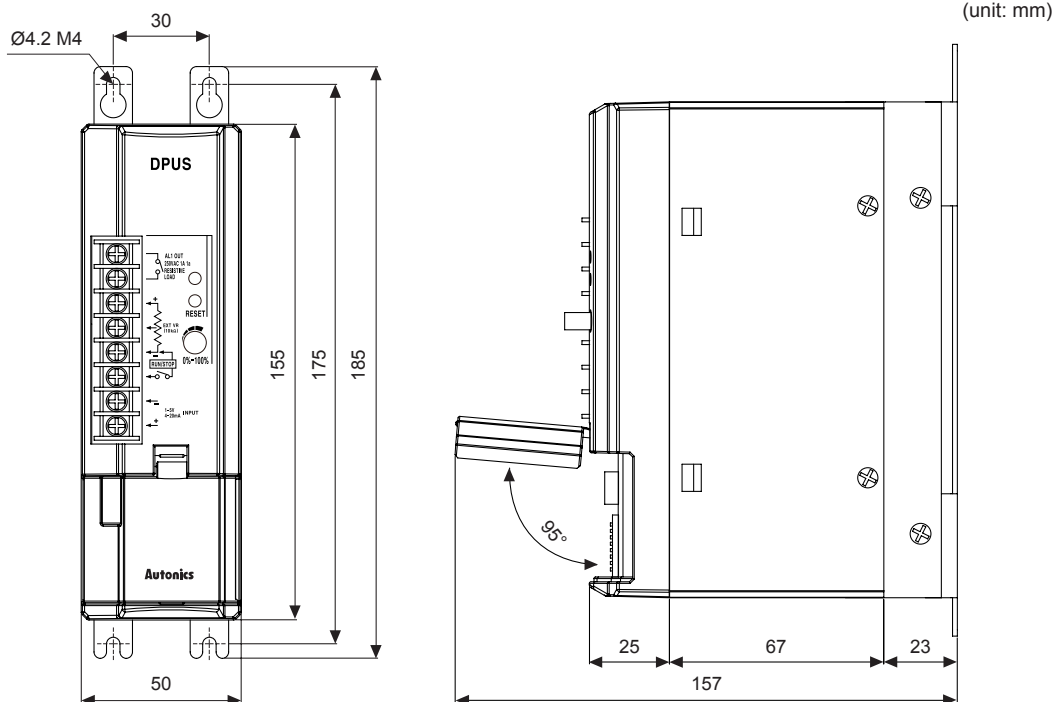
Series	DPUS2-025□	DPUS3-025□	DPUS4-025□
Number of phases	1-phase		
Power supply	220VAC~	380VAC~	440VAC~
Allowable voltage range	90 to 110% of rated voltage		
Rated frequency	50/60Hz (auto recognition), allowable frequency range: ±2Hz (performance guarantee: ±1Hz)		
Rated current	25A		
Power consumption	Max. 5W		
Min. load current	3A		
Output range	• Phase control: 0 to 98% • Variable cycle control: 0 to 100%		
Output accuracy	Within ±10% F.S. of rated voltage		
Control method	Phase control, variable cycle control		
Load	Resistance load		
Indicator	Indicates LED status		
Setting method	Setting by front DIP switches and a rotary switch		
Control input	• Auto: DC4-20mA / 1-5VDC= • Manual: inside adjuster 10kΩ, outside adjuster 10kΩ (min. 2W)		
DIP switch input	Phase control/variable cycle control, voltage/current input, AUTO/MANUAL, ramp operation, over current alarm/current limit, load recognition mode, inside/outside adjuster		
Rotary switch input	Output setting: 10 to 100% over current and load disconnection alarm setting		
Dielectric strength	2,000VAC 50/60Hz for 1 min (between input terminal and power terminal)		
Vibration	0.75mm amplitude at frequency of 5 to 55Hz (for 1 min) in each X, Y, Z direction for 2 hours		
Insulation resistance	Over 200MΩ (at 500VDC megger)		
Noise immunity	±2kV the square wave noise (pulse width 1μs) by the noise simulator		
Environment	Ambient temp.	-10 to 50°C, storage: -20 to 80°C	
	Ambient humi.	30 to 85%RH, storage: 30 to 85%RH	
Approval	CE		
Weight ^{※1}	Approx. 980g (approx. 880g)		

※1: The weight includes packaging. The weight in parenthesis is for unit only.
 ※Environment resistance is rated at no freezing or condensation.

A. Recorders
 B. Indicators
 C. Converters
 D. Controllers
E. Thyristor Power Controllers
 F. Pressure transmitters
 G. Temperature transmitters
 H. Accessories

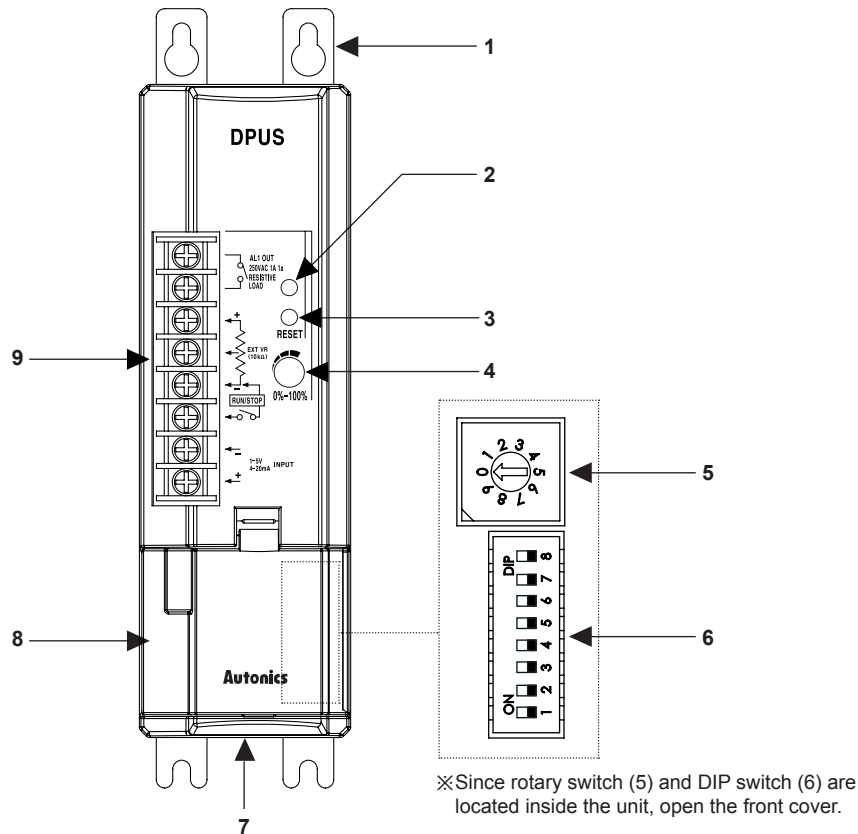
DPU
DPUS

Dimensions



DPUS Series

Unit Description



※ Since rotary switch (5) and DIP switch (6) are located inside the unit, open the front cover.

1. Bracket

Using for mounting this unit on the panel.

2. Status indicator

When Power ON, it turns ON in Orange→Red→Orange→Turn OFF→Green. You can check the status indicator for alarm.

3. RESET button

Using for clear alarm. Press the RESET button and power is resupplied.

4. Inside adjuster (10kΩ)

5. Rotary switch

Set current limit output (10 to 100%). Factory default: 0

Position	1	2	3	4	5	6	7	8	9	0
SV	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%

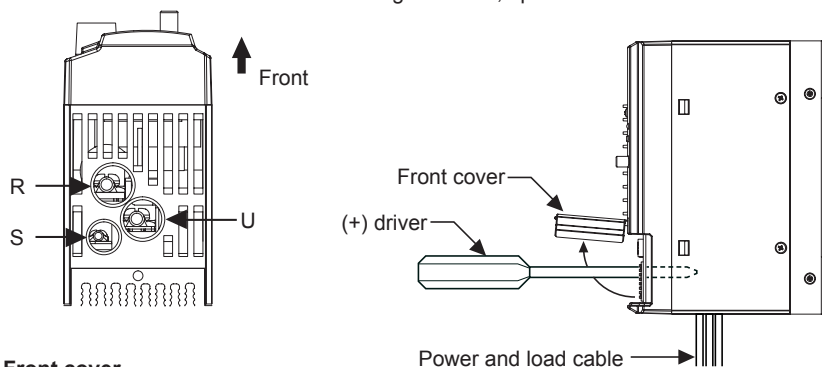
6. DIP switch

Position	1	2	3	4	5	6	7	8
ON	Current input (DC4-20mA)	Phase control	MANUAL	Ramp operation ON	Load recognition mode ON	Current limit	—	Inside adjuster
OFF	Voltage input (1-5VDC)	Variable cycle control	AUTO	Ramp operation OFF	Load recognition mode OFF	Overcurrent alarm	—	Outside adjuster

Factory default: All DIP switches OFF

7. Power input and load connection part

Placed at the bottom of the unit. For wiring terminals, open the front cover.



8. Front cover

Open the front cover, there are the rotary switch, DIP switch, power input part.

9. Terminal block

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Functions

◎ Ramp operation [DIP switch 4 ON]

When controlling the load which has inrush current (platinum, molybdenum, tungsten, infrared lamp, etc) in power ON, or when control input changes rapidly, it prevents the load to increase output gradually within the set time. Regardless of control method setting, Ramp operation increases/decreases input value.
The time for output to reach 0 to 100% (current limit output value) is fixed at 10 sec.

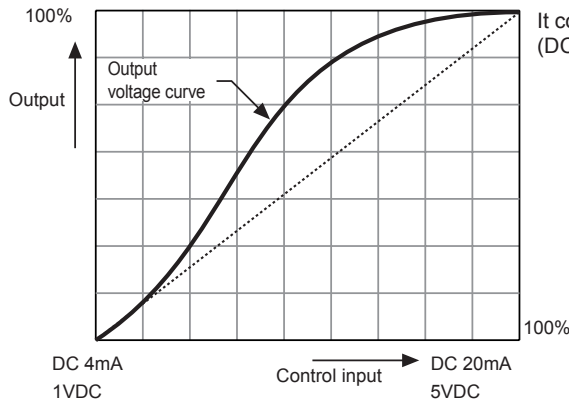
◎ RUN/STOP [5-6 terminals]

It switches RUN (close)/STOP (open) by terminal input. RUN mode operates as the set value by control input. STOP mode is standby status.

◎ Control method

1) Phase control [DIP switch 2 ON]

It controls proportionally a phase angle according to control input with half cycle.

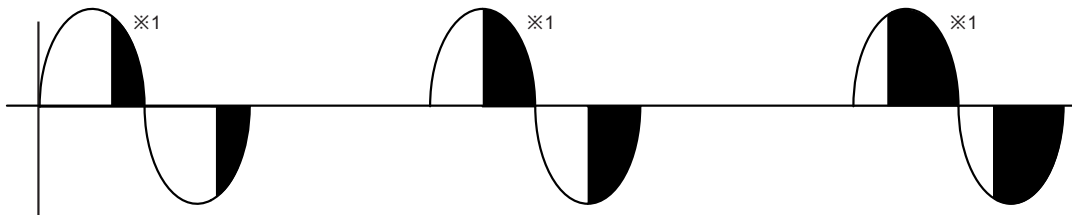


It controls phase angle proportional to control input (DC4-20mA or 1-5VDC) level.

· 25% of control input signal

· 50% of control input signal

· 75% of control input signal



※1: Black parts of output waves are output value as applied to the load.

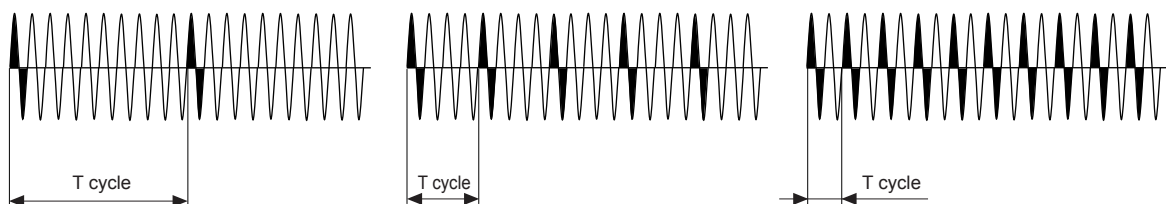
2) Variable cycle control [DIP switch 2 OFF]

It optimizes the number of AC voltage cycles supplied to the load by control input proportionally and controls the subject fast and correctly.

· 10% of control input signal

· 25% of control input signal

· 50% of control input signal



◎ AUTO/MANUAL selection [DIP switch 3 ON/OFF]

- 1) AUTO: Mode for controlling the output by analog input.
- 2) MANUAL: Mode for controlling the output by adjusting inside or outside adjuster as control input adjuster.

Selection	Type		Input impedance	DIP switch
	Current	Voltage		
AUTO input (DIP switch 3 OFF)	DC4-20mA	100Ω	DIP switch 1 ON	
	1-5VDC	13kΩ	DIP switch 1 OFF	
MANUAL input (DIP switch 3 ON)	Inside adjuster	10kΩ	DIP switch 8 ON	
	Outside adjuster	10kΩ	DIP switch 8 OFF	

※For setting by the inside adjuster, do not use the outside adjuster.

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Alarm

Type	Status indicator	Operation	Clear alarm
Overcurrent	Flashes red LED by 0.5 sec	Output stop (SCR OFF)	RESET switch or Power resupply
Heatsink overheat	Flashes red LED by 0.3 sec		
Thyristor error	Flashes green/red LED interval	Current limit output	Automatically clear at alarm clear conditions
Current limit	Flashes orange LED by 0.5 sec	Operation maintain	
Load disconnection	Flashes green LED by 0.5 sec		

◎ Current alarm

Current alarm is available only in phase control mode. Set alarm current value by the rotary switch.

1) Overcurrent alarm (DIP switch 6 OFF):

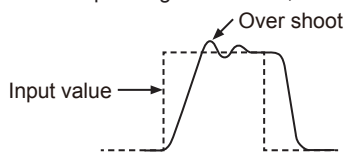
When current reaches to the set current limit value, the set alarm occurs and output stops (flashes red LED by 0.5 sec).

To clear this alarm, re-supply the power or press the RESET key.

2) Current limit (DIP switch 6 ON):

Current limit function limits output to prevent not to flow over the rated current (flashes orange LED by 0.5 sec).

※When operating current limit, it may cause over shoot temporarily.



◎ Heatsink overheat alarm

When the temperature of a heatsink is over 90°C, heatsink overheat alarm occurs (flashes red LED by 0.3 sec).

To clear this alarm, re-supply the power or press the RESET key.

◎ Thyristor error alarm

If current flows over 3A even though output is 0%, element error alarm occurs. When element error alarm occurs, output stops (flashes green/red LED interval). To clear this alarm, re-supply the power or press the RESET key.

◎ Load disconnection alarm [Power OFF after DIP switch 5 ON]

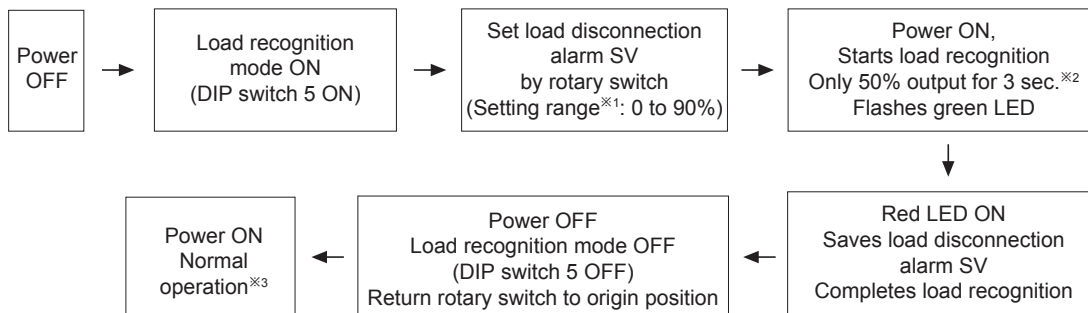
Load disconnection alarm is available after measuring load resistance value by load recognition mode (DIP switch 5 ON).

When load resistance value is over than disconnection alarm SV, alarm occurs (load disconnection alarm occurs regardless of output value) and control operation is maintained (flashes green LED by 0.5 sec).

For output voltage is below 15V or output is 10%, load disconnection alarm does not operate.

When load resistance value is lower than the load disconnection alarm SV, this alarm cleared automatically.

• How to set load recognition mode



※1: When setting as 0, load disconnection alarm does not operate.

※2: Do not use the load which has the problem with 50% output.

※3: When output is lower than the load disconnection alarm SV set by the rotary switch, load disconnection alarm occurs.

Proper Usage

- In order to prevent electric shock, this unit should be grounded. Otherwise, mount the unit on the solid metal conductor which is grounded.
- Install the unit vertically at the well ventilated place.
- Install the unit at the access restriction area.
 - ※Access restriction area: a electric expert with delegated authority or a well trained electric expert only accessible area.
- Be sure that if using this unit over the rated current, it may cause damage to the unit directly.
- Select the proper cable for connecting power and load to flow the rated current enough by the cable standard.
- In order to open the front cover, the power supply should be cut off.
- Before replacing, wiring it, be sure that turn OFF the power of input and load parts and check the safety.
- This product may be used in the following environments.
 - ① Indoors
 - ② Max. altitude: 2,000m
 - ③ Pollution degree 2
 - ④ Overvoltage category II

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MEMO

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