

SHIMADEN THREE-PHASE POWER REGULATOR

SERIES PAC30Z

- Easy Wiring With 2-Phase Control
- Low-Noise Design
- Wide Capacity Selection (18~135A)
- Alarm Output Standard Feature



SPECIFICATIONS

Control input:	4~20mA DC and contact common
Current capacity:	18A, 20A, 30A, 45A, 60A, 90A or 135A
Power Supply:	200~220V, 220~240V, 380~400V or 400~440V AC
Control Mode:	2-phase type zero voltage switching
Control Cycle:	2~4 sec. adjustable
Possible Load:	Constant resistance loads
Power Control Range:	0~95% min.
Output indication:	Green LED
Power Adjuster:	Internal installation as standard (External installation available as option)
Over-Current Protection:	
Circuit protection:	20A, 30A, 45A / 200~240V AC, 18A / 380~440V AC
Rapid fuse type:	60A, 90A, 135A / 200~440V AC, 35A, 45A / 380~440V AC
Alarm Output:	Output terminals 'ON' during over-current
Alarm Output Contact Capacity:	250V AC 1A / inductive load
Cooling Method:	By natural air (18A~90A), fan cooling (135A)
Operating Ambient Temperature Range:	-10~+50°C
Operating Ambient Humidity:	90% RH max.
Insulation Resistance:	500V DC 20MΩ min. between power supply terminals and chassis 500V DC 20MΩ min. between power supply terminals and input terminals
Dielectric Strength:	
200~240V AC type:	1 min. at 2000V AC between power supply terminals and chassis
380~440V AC type:	1 min. at 2500V AC between power supply terminals and chassis
External Dimensions:	See diagram on pages 143.
Weight:	18~45A type: Approx. 5.3kg 60~135A type: Approx. 12.0kg

PAC30Z Series Total Heating Value

Capacity	18A	20A	30A	45A	60A	90A	135A
Heating Value	50W	55W	75W	100W	120W	220W	330W

* Care must be taken for air ventilation.

* Vertical mounting is recommended.

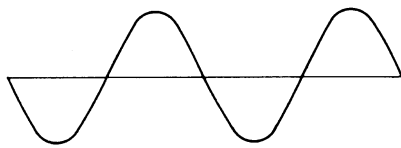
When mounting horizontally, use at 70% maximum of the capacity.

ORDERING INFORMATION

ITEMS	CODE		SPECIFICATIONS				
SERIES	PAC30Z		Time Base Zero Voltage Switching Control				
CONTROL INPUT	5		4~20mA DC or contact signal				
	9		Others (Please consult before ordering.)				
CURRENT CAPACITY			Capacity	200~220V	220~240V	380~400V	400~440V
	018		18A			11.8kVA	12.5kVA
	020		20A	7kVA	7.7kVA		
	030		30A	10kVA	11kVA	19kVA	20kVA
	045		45A	15kVA	16.5kVA	29kVA	30kVA
	060		60A	20kVA	22kVA	39kVA	40kVA
	090		90A	30kVA	33kVA	59kVA	60kVA
	135		135A	45kVA	49.5kVA	88kVA	90kVA
999		Others (Please consult before ordering.)					
POWER SUPPLY	15-		200~220V AC ±10% 50 / 60Hz				
	16-		220~240V AC ±10% 50 / 60Hz				
	17-		380~400V AC ±10% 50 / 60Hz				
	18-		400~440V AC ±10% 50 / 60Hz				
	99-		Others (Please consult before ordering.)				
LOAD CHARACTERISTICS	N		Constant resistance load				
	X		Others (Please consult before ordering.)				
EXTERNAL POWER ADJUSTER	0		None (Internal standard)				
	3		With (B10kΩ)				
	9		Others (Please consult before ordering.)				
CONTROL INDICATOR	0		Without				
	1		With (0~1mA DC, 0~100% scale)				
REMARKS	0		Without				
	9		With (Please consult before ordering.)				

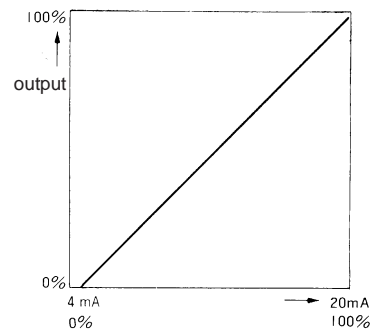
OUTPUT WAVE FORM & INPUT / OUTPUT CHARACTERISTICS

Output Wave Form



Very small wave form distortion and noise generation

Input / Output Characteristics (4~20mA DC)



Input and output characteristics are linear as above.

POWER CONTROL PRINCIPLE

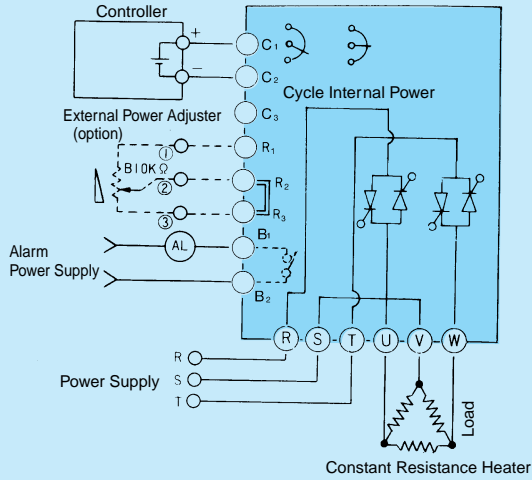
Control Mode	Control System	Output Terminal Calculation	Indicator Deflection	Noise
Zero voltage switching	Time proportional control of load power	<p>T: Proportional cycle (2~4 sec.) Time-proportional = $\frac{t}{T} \times t$ Power = $\frac{t}{T} \times \text{Load power}$</p>	<p>Intermittent deflection (ON-OFF Output)</p>	Almost none
Phase angle control	Voltage / current control	$3\text{-phase power} = \sqrt{3} \times \text{Voltage} \times \text{Current}$	<p>Continuous deflection</p>	Little

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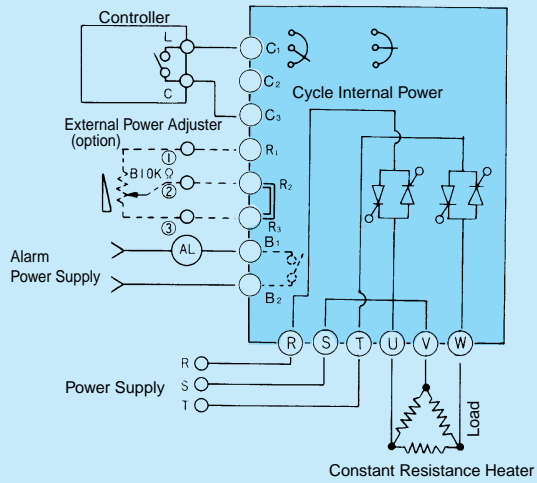
WIRING EXAMPLE

20, 30, 45A / 200~240V AC
18A / 380~440V AC

•Current Input Type

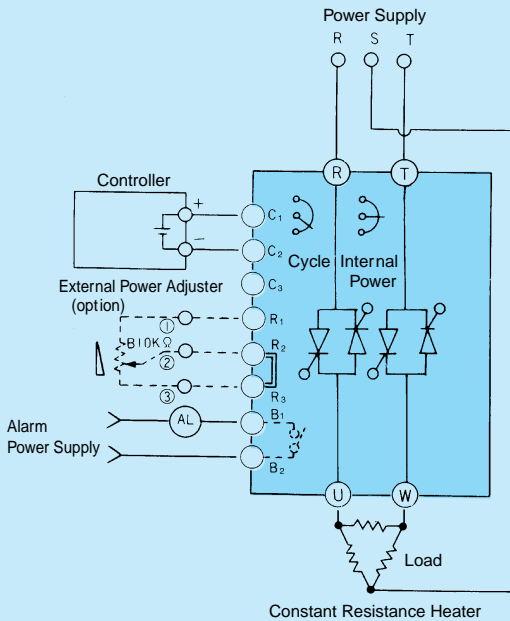


•Contact Input Type

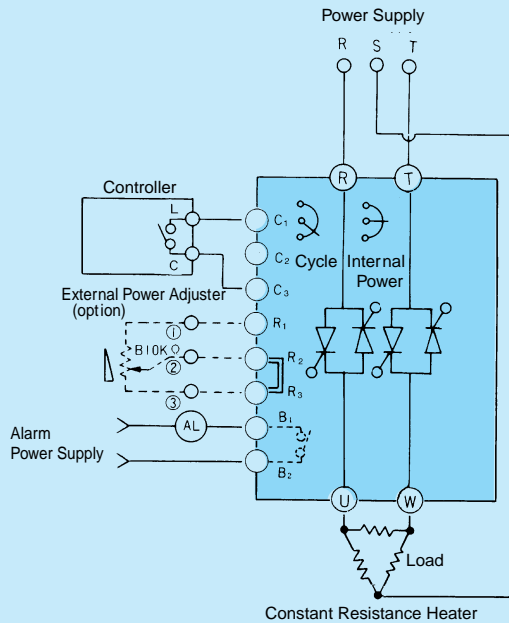


60, 90, 135A / 200~440V AC
30, 45A / 380~440V AC

•Current Input Type



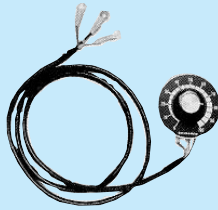
•Contact Input Type



Note: When an external power adjuster is not used, short-circuit R₁ and R₂ with a short piece as shown above. When an external power adjuster is used, remove the short piece and connect the power adjuster.

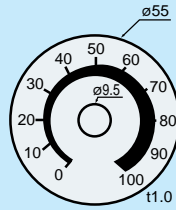
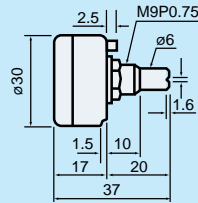
EXTERNAL POWER ADJUSTER & OUTPUT METER

External Power adjuster

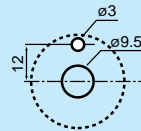


B10kΩ
1W with 1 meter lead wire

Dimensions

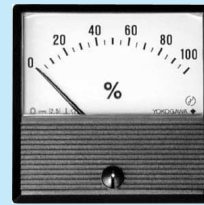


Panel Cutout



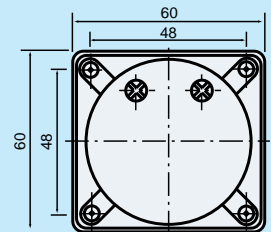
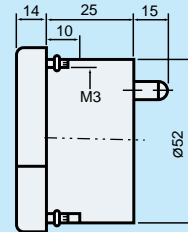
Output Meter Dimensions

Output Meter



- Scale: 0~100%
- Sensitivity: 1mA / full scale
- Indication: 0~100% of load operation

External Dimensions

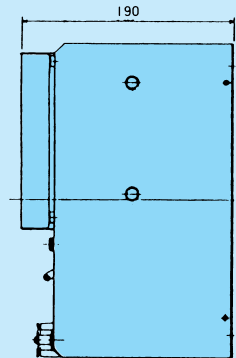
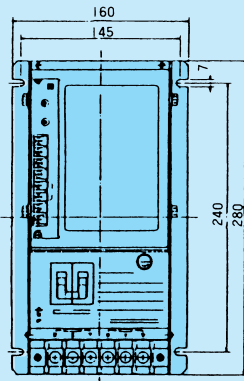


Unit: mm

EXTERNAL DIMENSIONS

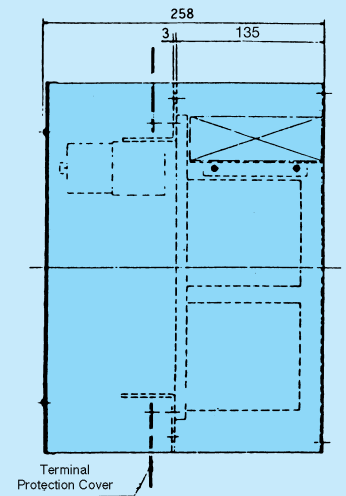
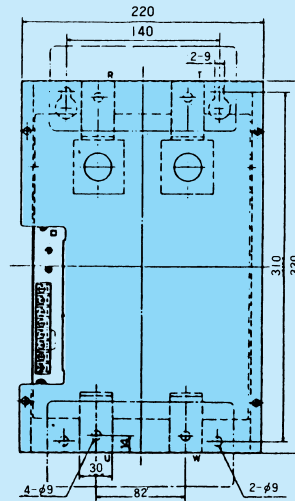
Circuit Protector Type

- 20, 30, 45A / 200~240V
 - 18A / 380~440V
- External dimensions: 280 (H) x 160(W) x 190(D) mm
Mounting hole pitch: 240(H) x 145(W) mm



Rapid Fuse Type

- 60, 90, 135A / 200~440V
 - 30A, 45A / 380~440V
- External dimensions: 330 (H) x 220(W) x 258(D) mm
Mounting hole pitch: 310(H) x 140(W) mm



Unit: mm

 **Warning**

- This product is designed for controlling the power of a heater or similar equipment used in a general industrial facilities. (It is not to be used for any purpose which regulates the prevention of serious effects on human life or safety.)

 **Caution**

- If the possibility of loss or damage to your system or property as a result of failure of any part of the process exists, proper safety measures must be made before the instrument is put into use so as to prevent the occurrence of trouble.



ISO 9001

(The contents of this brochure are subject to change without notice.)

Temperature and Humidity Control Specialists

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