

°C
%RH
SHIMADEN

Series PAC15 SINGLE PHASE POWER REGULATOR



PRODUCT FEATURE

- *Achieves a slim width with a compact integrated structure, and can increase the panel mounting density.*
- *Phase Angle or Zero Voltage Switching*
- *Zero voltage switching method improves controllability by cycle calculation type*
- *Current Capacity: 20 to 100 Amperes*
- *The power adjustment function can be used. [Current input type: internal (standard equipment), contact input type: external]*
- *RoHS Compliance*

SPECIFICATIONS

■ PAC15P

- Control Mode : Phase angle (with soft start)
- Possible Loads : All resistance loads
- Power Supply Cycle : 50/60Hz (Switched by the internal switch: factory set: 50Hz)
- Output Voltage Control Range : 0 to 95% min. 50/60Hz. of inut voltage
- Power Lamp : Green LED lamp

■ PAC15C

- Control Mode : Zero voltage switching
- Possible Loads : Constant resistance loads
- Power Supply Cycle : 50/60Hz. common
- Output Voltage Control Range : 0 to 95% min. of load power
- Power Lamp : Green LED lamp (when load 'ON')

■ COMMON SPECIFICATIONS

- Current Capacity : 20, 30, 45, 60, 80 and 100 Amps.
- Power Supply : 100 to 120V AC±10%
200 to 240V AC±10%
- Control Input : Current = 4 to 20mA DC (Receiving impedance: 100 ohms)
Contact = Zero voltage contact
- Power Adjuster
 - Current input : Internal installation as standard (External installation as option)
 - Contact input : External installation as standard
- Auto/Manual Power Adjuster : Only current input type is available - optional
- Thyristor Element Cooling : Natural air
- Over-Current Protection : None available (Use a fuse for semiconductor)
- Minimum Load : 10% min. of current capacity (no operation at no load)
- Operating Ambient
 - Temperature : -10 to 50°C
 - Humidity : 90% RH (No dew condensation)
 - Elevation : 2000 m above sea level or lower
 - Pollution class : 2 (IEC 60664)
- Storage temperature : -20 to 65 °C
- Applicable standards : RoHS compliance
- Insulation Resistance : 500V DC 20M ohms between power supply terminals and chassis
500V DC 20M ohms between power supply terminals and input terminals
- Dielectric Strength : 1 min. at 2000V AC between power supply terminals and chassis
- Dimensions and Weight : See page 4.

INTERNAL HEAT VALUE

Internal heat value for the PAC15 series with the rated current is as follows.

Voltage is produced between terminals by current flowing to the thyristor. Voltage between terminals multiplied by current (W) turns into Joule heat, resulting in rise in temperature of the thyristor element. Take heat dissipation and ventilation into account.

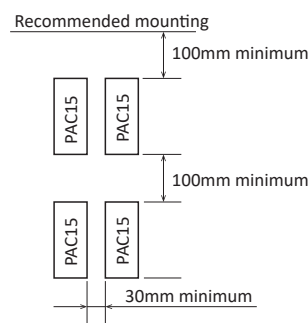
(Heat value conversion formula: 860 kcal = 1000 W)

Rated current (A)	20	30	45	60	80	100
Heat value (W)	24	36	48	60	84	100

*Care must be taken for air-ventilation.

*Vertical mounting is recommended.

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



ORDERING INFORMATION

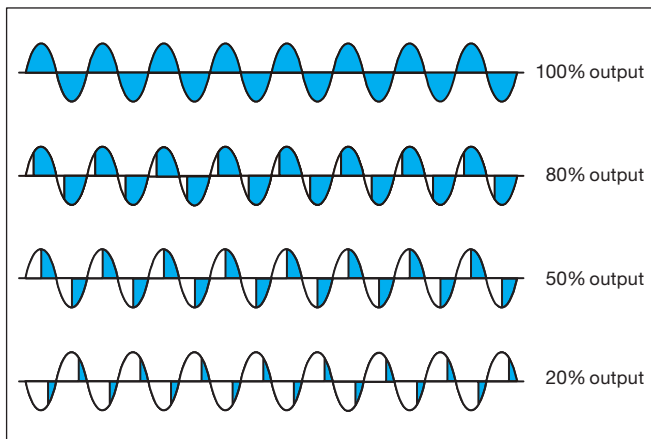
ITEMS	CODE	SPECIFICATIONS	
SERIES	PAC15P	Phase Angle Single Phase Power Regulator (with soft start)	
	PAC15C	Cycle Base Zero Voltage Switching Single Phase Power Regulator	
CONTROL INPUT	0	4 to 20mA DC, Receiving impedance: 100Ω	
	2	Non-voltage contact	
	9	Others (Please consult before ordering.)	
CURRENT CAPACITY	020	20A	
	030	30A	
	045	45A	
	060	60A	
	080	80A	
	100	100A	
POWER SUPPLY	81-	100 to 120V/200 to 240V AC ±10%, 50/60Hz	
	99-	Others (Please consult before ordering.)	
EXTERNAL POWER ADJUSTER	Current Input	N	None (Internal installation as standard)
		P	External power adjuster
		M	Manual power adjuster
		B	Base power adjuster
		W	External power adjuster + manual power adjuster
		Y	External power adjuster + base power adjuster
	Contact Input	P	High power adjuster (standard)
		B	High power adjuster (standard) + Low power adjuster
		X	Others (Please consult before ordering.)
REMARKS	0	Without	
	9	With (Please consult before ordering.)	

All external power adjusters are equipped with a B10kΩ (1W) scale plate, knob, and lead wire of 1m.

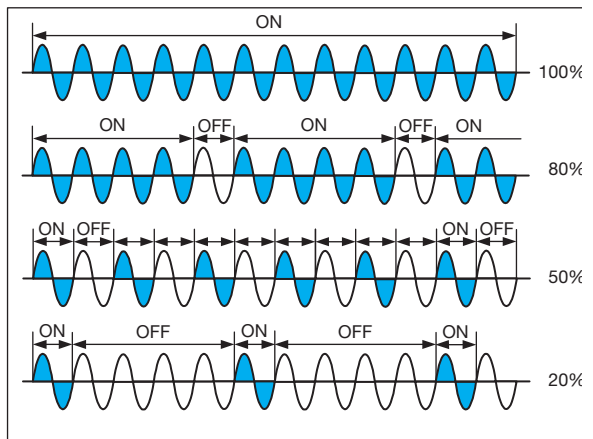
CONTROL MODES & WAVE FORM

The PAC15 series is available in two types, a phase control method and a cycle calculation zero voltage switching control method, which can be selected at the time of purchase.

Phase control system

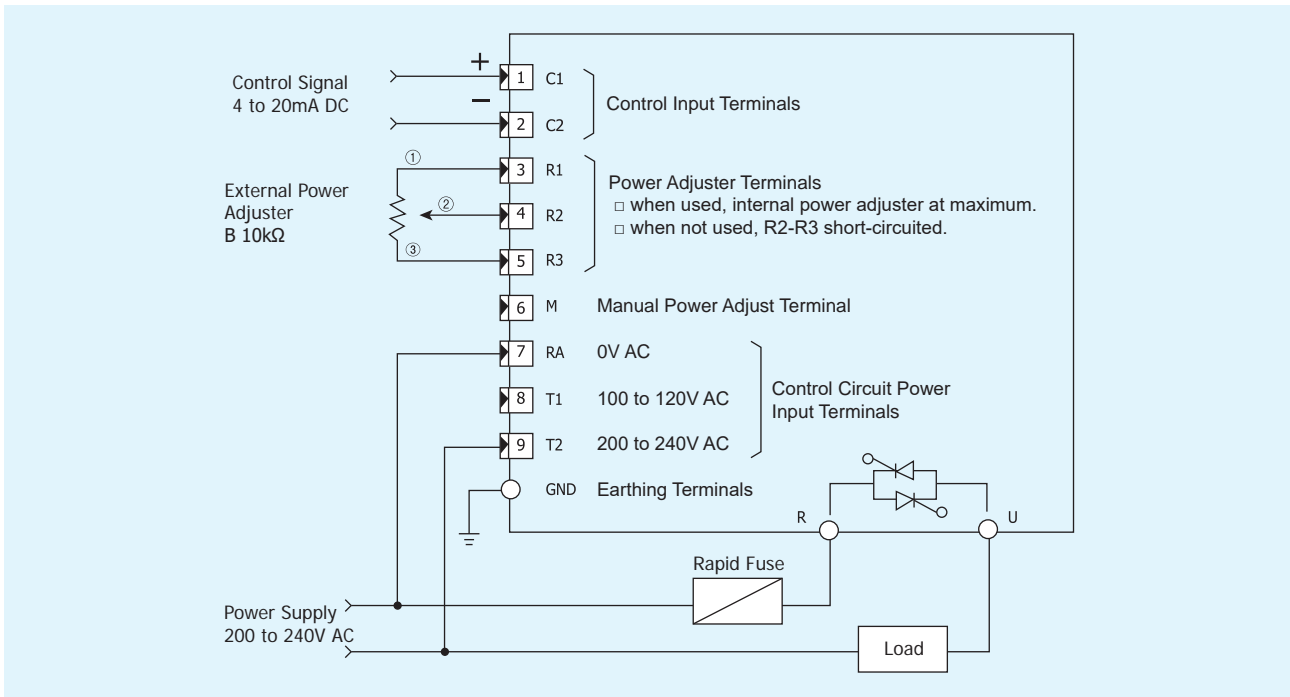


Cycle calculation zero voltage switching control system

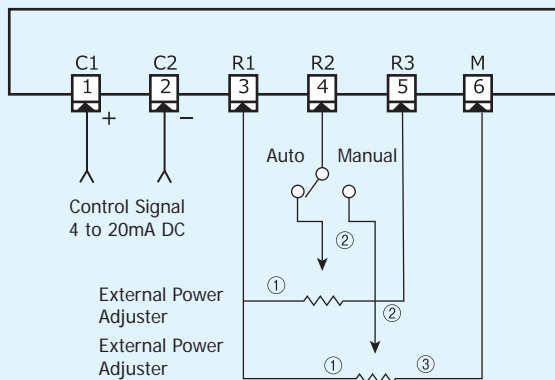


Control system	Phase control system	Cycle calculation zero voltage switching control system
Applicable load	Resistive load, inductive load, etc.	Resistive load
Transformer primary control	Available	Not available
Feedback control	Available	Not available
High harmonic disturbance	Possibility of occurrence	None
Flickering occurrence	None	Possibility of occurrence
Response time	Fast	Slow
Power factor	Low	High

TERMINALS & WIRING (CURRENT INPUT TYPE)

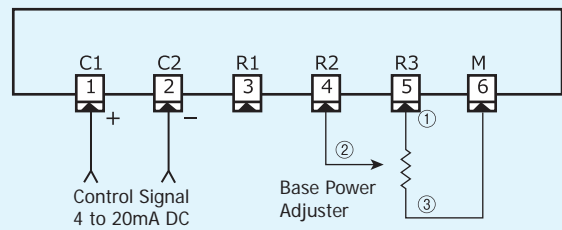


Auto / Manual Selectable



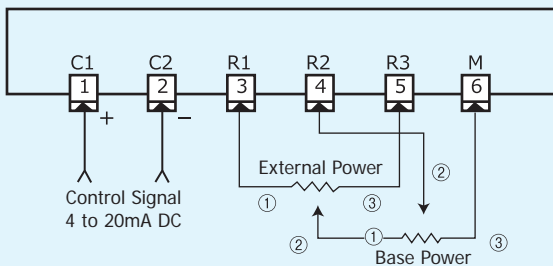
Internal power adjuster = maximum

Base Power Control



Power adjustment can be done with Internal power adjuster

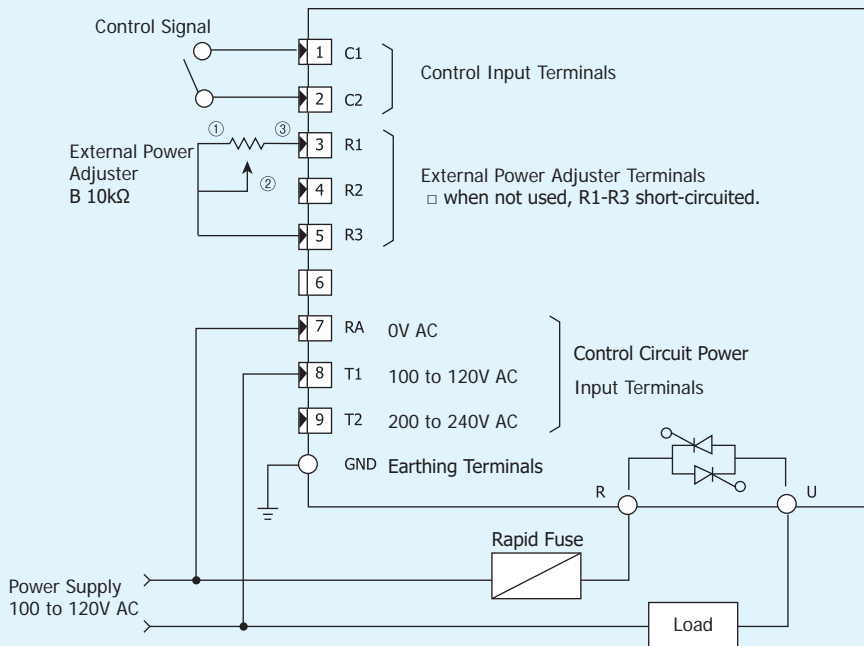
External Power Adjust / Base Power Adjust



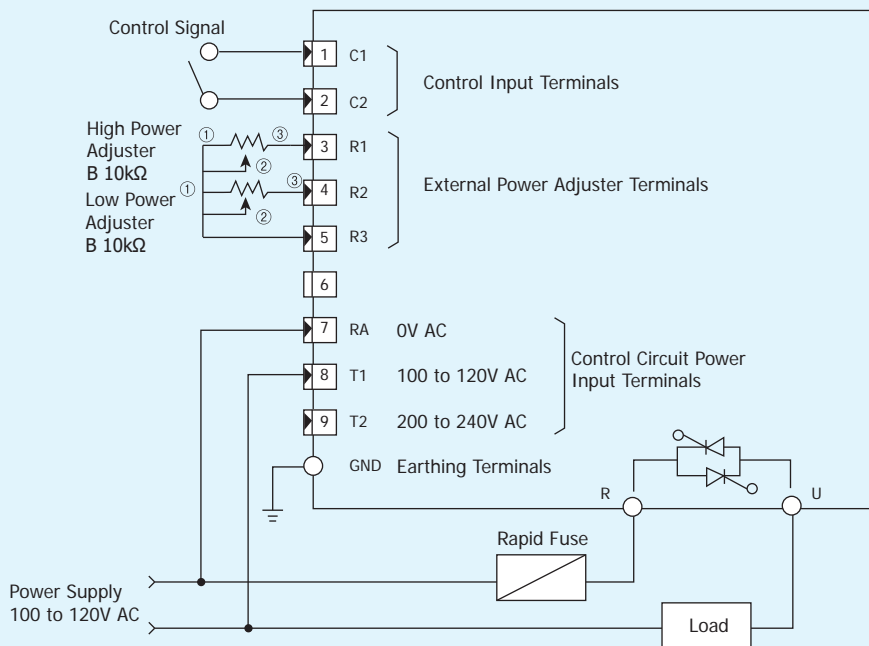
- External power adjuster and base power adjuster correspond with each other.
- Internal power adjuster = at maximum

TERMINALS & WIRING (CONTACT INPUT TYPE)

1. Normal Control



2. High/Low Control

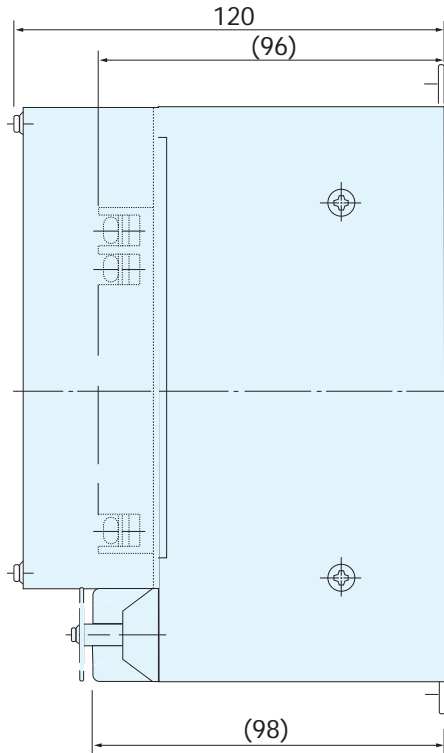
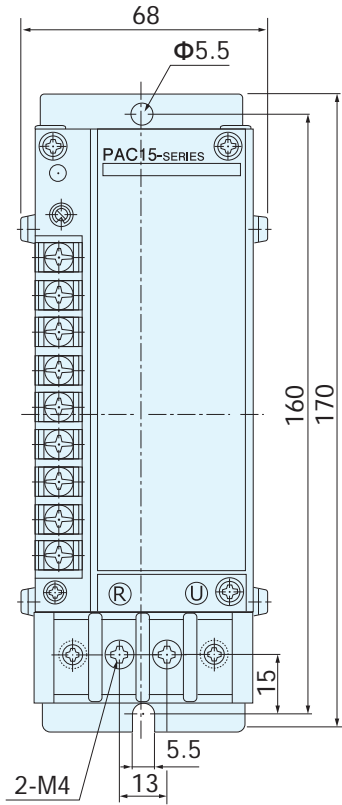


- Output when high power adjust/ contact (C1-C2=ON)
0 to 100% power output control available by high power adjuster.
- Output when low power adjust/ contact=OPEN
- Low Power Output=
High Power Value+Low Power Value-100% (When output of low power is (-), low power output is zero.)

EXTERNAL DIMENSIONS

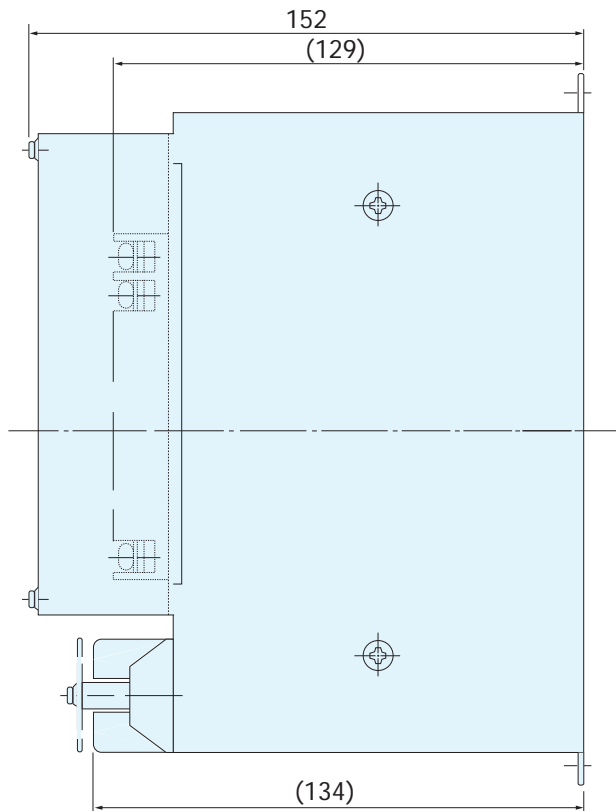
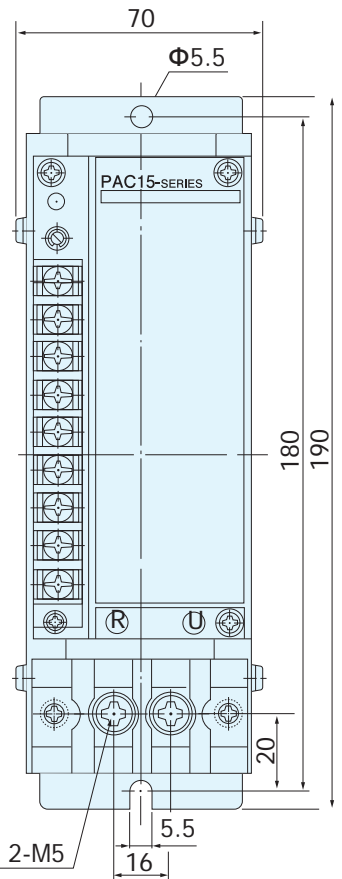
■ **20A & 30A Types**

Weight: Approx. 1.2 kg



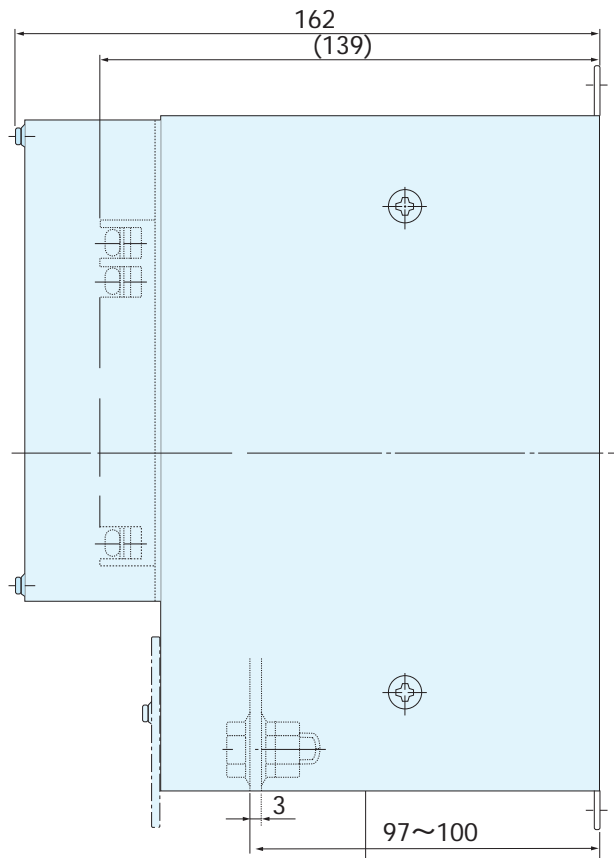
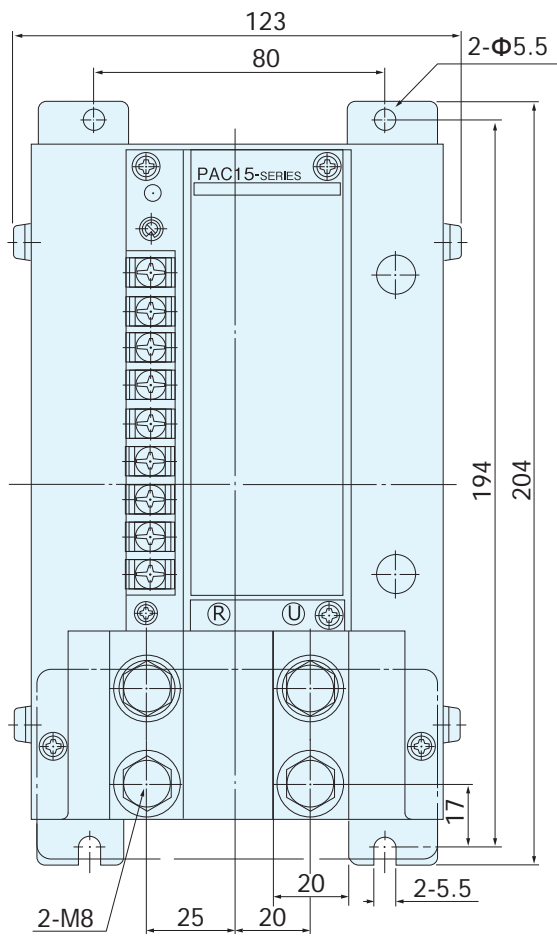
■ **45A & 60A Types**

Weight: Approx. 2.0 kg

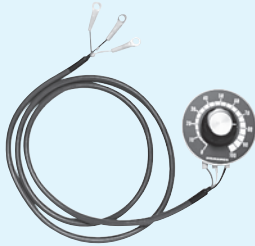


■ 80A & 100A Types

Weight: Approx. 3.4 kg



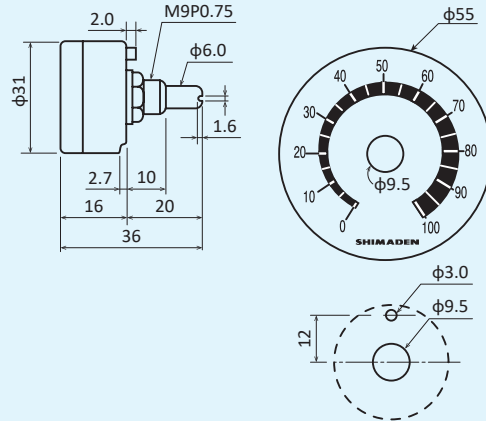
System Input	Phase control/Zero voltage switching control	Lead wire
Current input	QSV002	3 wires
Contact input	QSV001	2 wires



- Resistance value: B10kΩ
- Lead wire length: 1m, With crimping terminal for M4
- 2 wires type when high/low power adjuster is selected

Note: The external power regulator is convenient to operate in a place away from the instrument, but when wiring, do not bundle it with the high-voltage circuit, but wire it apart.

If it is unavoidable to wire together, use a shielded wire and ground at one point.



Unit: mm

Warning

* The PAC04 Series is designed for the control of temperature, humidity and other physical values of general industrial equipment. It is not to be used for any purpose which regulates the prevention of the serious effect on human life or safety.

Warning

* 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.

Head Office & Saitama Factory
ISO 9001/ISO 14001 Certification Obtained

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

Temperature and Humidity Control Specialists
SHIMADEN CO., LTD.
 Head Office: 2-30-10 Kitamachi, Nerima-Ku, Tokyo 179-0081 Japan
 Phone: +81-3-3931-7891 Fax: +81-3-3931-3089
 E-MAIL: exp-dept@shimaden.co.jp URL: https://www.shimaden.co.jp

