

To prevent accidents arising from the misuse of this instrument, please ensure the operator receives this manual. For the operation method of the installed controller, refer to the Instruction Manual for the controller.



Safety precautions

- To ensure safe and correct use, thoroughly read and understand this manual before using this instrument.
- This instrument is intended to be used for industrial machinery, machine tools and measuring equipment. Verify correct usage after consulting the purpose of use with our agency or main office. (Never use this instrument for medical purposes with which human lives are involved.)
- External protection devices such as protective equipment against excessive temperature rise, etc. must be installed, as malfunction of this product could result in serious damage to the system or injury to personnel. Also proper periodic maintenance is required.
- This instrument must be used under the conditions and environment described in this manual. Shinko Technos CO., LTD. does not accept liability for any injury, loss of life or damage occurring due to the instrument being used under conditions not otherwise stated in this manual.

Caution with respect to Export Trade Control Ordinance

To avoid this instrument from being used as a component in, or as being utilized in the manufacture of weapons of mass destruction (i.e. military applications, military equipment, etc.), please investigate the end users and the final use of this instrument. In the case of resale, ensure that this instrument is not illegally exported.



Caution

- This instrument should be used in accordance with the specifications described in the manual. If it is not used according to the specifications, it may malfunction or cause a fire.
- Be sure to follow the warnings, cautions and notes. If they are not observed, serious injury or malfunction may occur.
- The contents of this instruction manual are subject to change without notice.
- Measures must be taken to ensure that the operator cannot touch power terminals or other high voltage sections.
- Turn the power supply to the instrument OFF when cleaning.
- Use a soft, dry cloth when cleaning the instrument.
(Alcohol based substances may tarnish or deface the unit.)
- As the display section is vulnerable, do not strike or scratch it with a hard object or press hard on it.
- Any unauthorized transfer or copying of this document, in part or in whole, is prohibited.
- Shinko Technos CO., LTD. is not liable for any damage or secondary damage(s) incurred as a result of using this product, including any indirect damage.

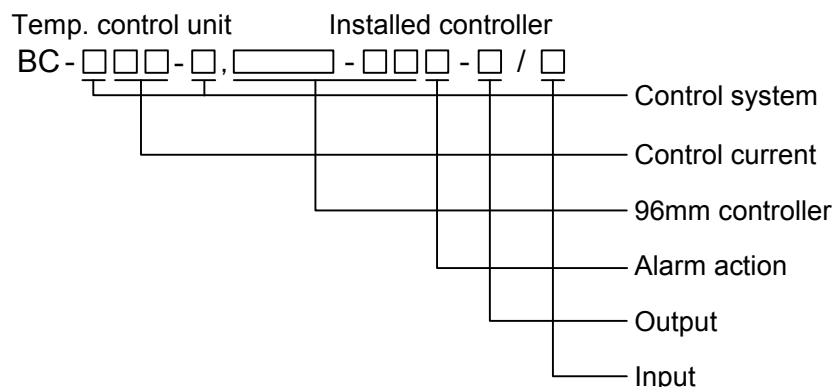
1. Model

1.1 Model

Model	Control current	Control system
BC-115-S	Max 15A	Zero-volt switching system
BC-130-S	Max 30A	Zero-volt switching system
BC-215-H	Max 15A	Phase control system
BC-230-H	Max 30A	Phase control system

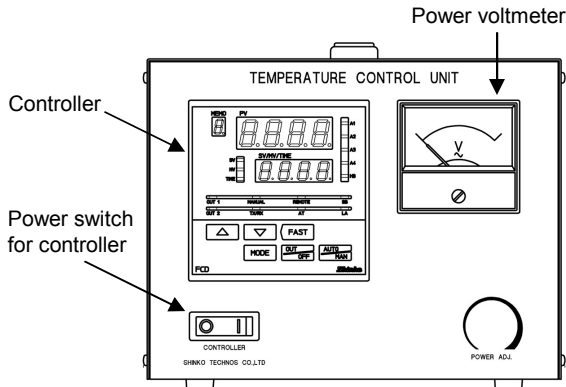
1.2 How to read the model label

The model label is attached to the back of the case.



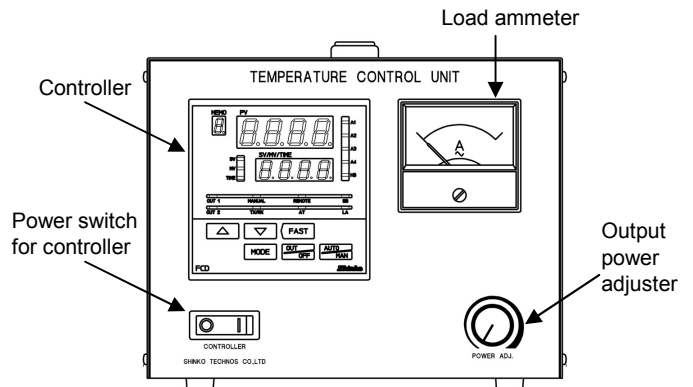
2. Name of sections

BC-100-S series



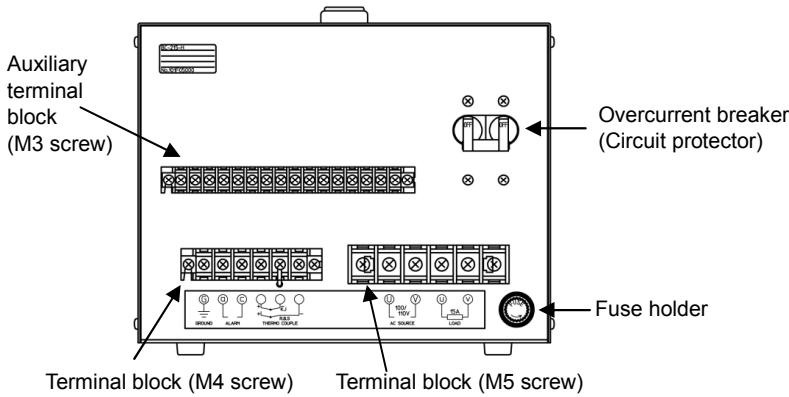
(Fig. 2-1)

BC-200-H series



(Fig. 2-2)

BC-100-S series, BC-200-H series



(Fig. 2-3) Rear view

3. Operation site selection

3.1 Site selection

This instrument is intended to be used under the following environmental conditions (IEC61010-1):

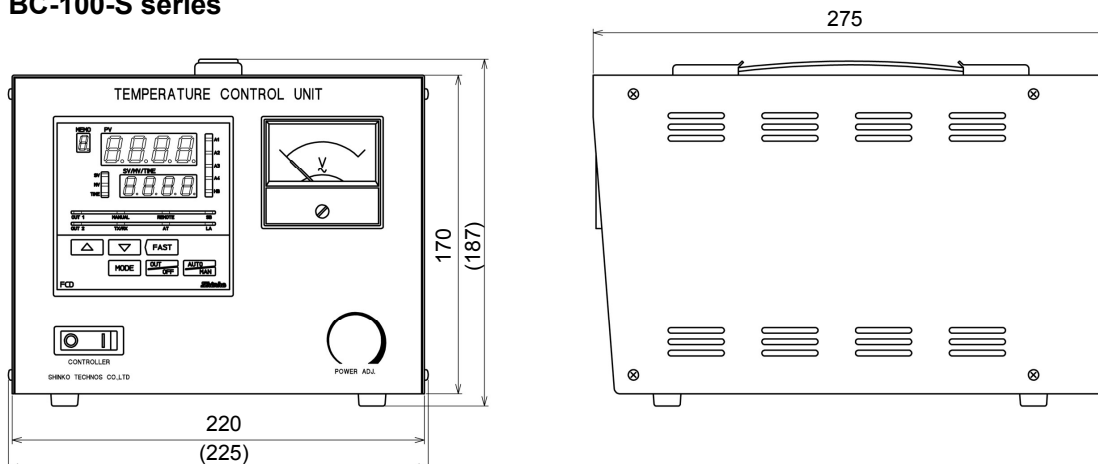
Overvoltage category II, Pollution degree 2

Ensure the mounting location corresponds to the following conditions:

- A minimum of dust, and an absence of corrosive gases
- No flammable, explosive gases
- Few mechanical vibrations or shocks
- No exposure to direct sunlight, an ambient temperature of 0 to 40°C (32 to 104°F) without rapid change, and no icing
- An ambient non-condensing humidity of 35 to 85%RH
- No large capacity electromagnetic switches or cables through which large current is flowing
- No water, oil or chemicals or where the vapors of these substances can come into direct contact with the controller

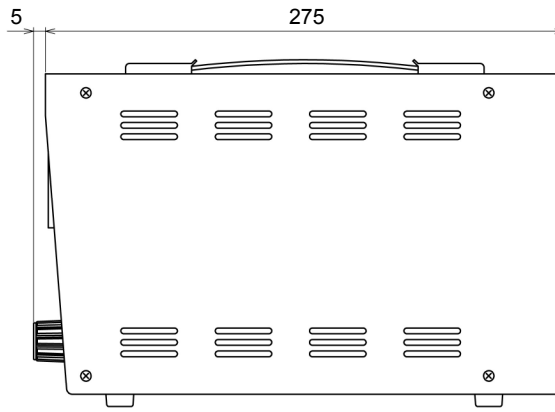
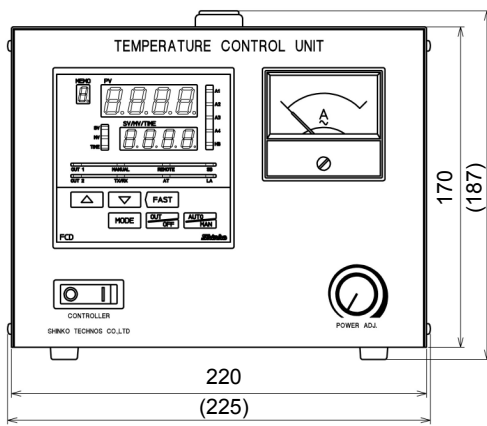
3.2 External dimensions (Scale: mm)

BC-100-S series



(Fig. 3.2-1)

BC-200-H series



(Fig. 3.2-2)

4. Wiring

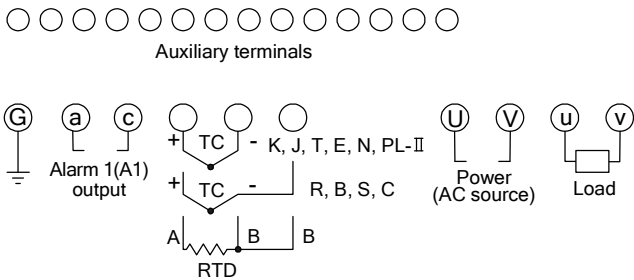


Warning

Turn the power supply to the instrument OFF before wiring or checking.
Working on or touching the terminal with the power switched ON may result in severe injury or death due to Electric Shock.

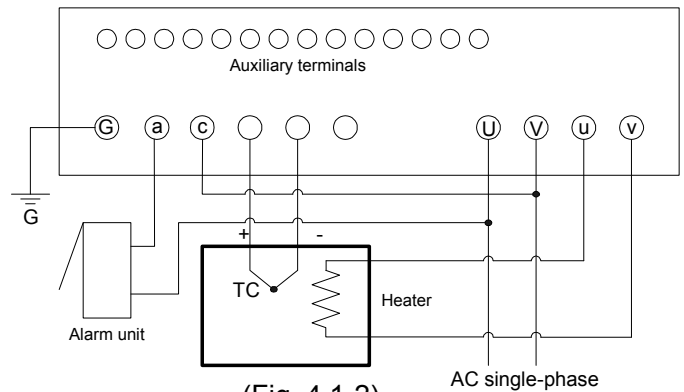
4.1 Wiring arrangement, wiring example

• Wiring arrangement



TC: Thermocouple input
RTD: Resistance temperature detector input
(Fig. 4.1-1)

• Wiring example



(Fig. 4.1-2)



Caution

- The terminal block of this instrument is designed to be wired from the lower side. The lead wire must be inserted from the lower side of the terminal, and fastened with the terminal screw.
- Use sensors in accordance with the input specifications of this unit.
- Keep input wires away from power wires.
- Do not apply a commercial power source to the sensor connected to the input terminals nor allow the power source to come into contact with the sensor.

- (1) Fasten the terminal screws securely, and use a terminal cover for safety.
- (2) Power (AC source) wiring: Wire the power supply in accordance with the current used for "U" and "V".
- (3) Load wiring: Connect a heater, etc. to "u" and "v".
Load current should be within 15A or 30A.
- (4) Alarm 1(A1) wiring: Alarm 1 (A1) terminals "a", "c" have been already connected to Alarm 1 (A1) terminals of the installed controller.
Please connect an alarm unit (buzzer), etc. as in the above wiring example.
- (5) Wiring (internal) for the option on the Auxiliary terminal block (M3 screw) will be conducted only when an option is added.

Note: A specified compensating lead wire has been used for the internal wiring of thermocouple, so do not change the input type of the installed controller.

5. Operation

BC-100-S series

- (1) Check the wiring if it is correct.
- (2) Turn the Overcurrent breaker (circuit protector) at the rear side ON.
- (3) Turn the Power switch for controller ON. Supply voltage is indicated on the Power voltmeter.
While the controller is in warm-up status after power-on, do not operate any key of the controller.
- (4) For the operation method (each set value setting) of the installed controller, refer to the Instruction Manual for the controller.
- (5) Control starts indicating the PV (process variable) and SV (desired value) on the controller.

BC-200-H series

- Before starting operation, the trial run is recommended by setting the output power as low as possible. If load is too small, the output as per specifications might not be obtained. Based on the load current (15A or 30A) of this instrument, connect a load which is between 5 to 10% of these loads and lower than 15A or 30A.
- (1) Check the wiring if it is correct.
 - (2) Set the Output power adjuster to the minimum. (Turn it counterclockwise until it stops at the left side.)
 - (3) Turn the Overcurrent breaker (circuit protector) at the rear side ON.
 - (4) Turn the Power switch for controller ON.
Do not operate any key of the controller while controller is in warm-up status after power-on.
 - (5) For the operation method (each set value setting) of the installed controller, refer to the Instruction Manual for the controller.
 - (6) Turn the Output power adjuster clockwise, and set it to a random point of load current (15A or 30A).
Control starts, indicating the PV (process variable) and SV (desired value) on the controller, and indicating the load current value on the Load ammeter.

6. Specifications

Input	Thermocouple: K, J, R, S, B, E, T, N, PL-II, C, External resistance: 100Ω or less RTD : Pt100, JPT100 3-wire system Allowable input lead wire resistance: 10Ω or less per wire
Accuracy	Depends on the installed controller.
Overcurrent breaker	Circuit protector system for semiconductors
Supply voltage	100/110V AC or 200/220V AC, 50/60Hz
Allowable voltage fluctuation range	Within ±10% of rated voltage
Ambient temperature	0 to 40°C (32 to 104°F)
Ambient humidity	35 to 85% (Non-condensing)
External dimensions	220 x 170 x 275mm (W x H x D)
Material, Color	Coated steel plate, Color: Case (Black), Front panel (Gray)
Weight	Approx. 5.5kg (BC-100-S series), 5.8kg (BC-200-H series)
Accessories	Instruction manual: 1 copy, Instruction manual for the installed controller: 1 copy

7. Troubleshooting

If any malfunctions occur, refer to the following items after checking that power is being supplied to this instrument.

Problem	Presumed cause and solution
The controller power cannot be turned ON.	• Fuse is blown out. Change the blown fuse.
Does not control.	• The Overcurrent breaker is turned OFF. Turn the Overcurrent breaker ON.
Unstable action of the controller	• Refer to the Instruction Manual for the controller.

For all other malfunctions, please contact our main office or dealers.

SHINKO TECHNOS CO., LTD. OVERSEAS DIVISION

Reg. Office: 2-5-1, Senbahigashi, Minoo, Osaka, Japan

URL : <http://www.shinko-technos.co.jp>

E-mail : overseas@shinko-technos.co.jp

Tel : +81-72-727-6100

Fax : +81-72-727-7006