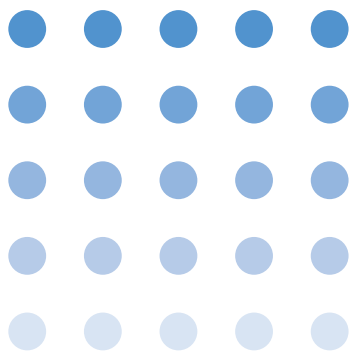




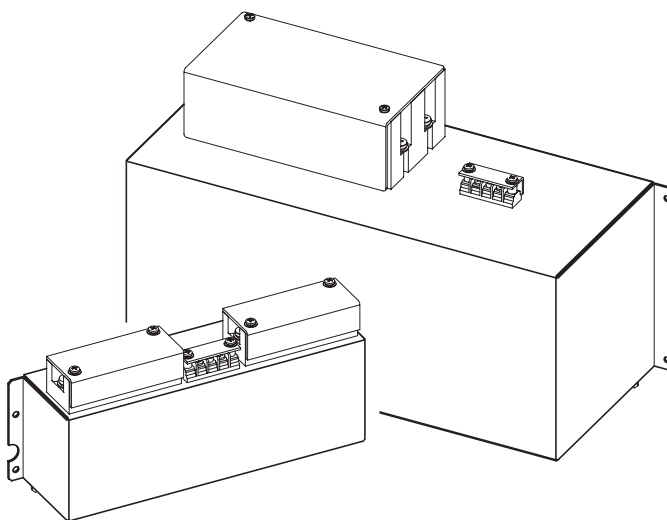
Part No. Z1-003-012, IB005091

Dec. 2003

OPERATION MANUAL

PARALLEL TERMINAL
PCR-LA Series

PT01-PCR-LA PT02-PCR-LA



Use of Operation Manual

Please read through and understand this Operation Manual before operating the product. After reading, always keep the manual nearby so that you may refer to it as needed. When moving the product to another location, be sure to bring the manual as well.

If you find any incorrectly arranged or missing pages in this manual, they will be replaced. If the manual it gets lost or soiled, a new copy can be provided for a fee. In either case, please contact Kikusui distributor/agent, and provide the “Kikusui Part No.” given on the cover.

This manual has been prepared with the utmost care; however, if you have any questions, or note any errors or omissions, please contact Kikusui distributor/agent.

Reproduction and reprinting of this operation manual, whole or partially, without our permission is prohibited.

Both unit specifications and manual contents are subject to change without notice.

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Safety Symbols

For the safe use and safe maintenance of this product, the following symbols are used throughout this manual and on the product. Understand the meanings of the symbols and observe the instructions they indicate (the choice of symbols used depends on the products).



Indicates that a high voltage (over 1 000 V) is used here. Touching the part causes a possibly fatal electric shock. If physical contact is required by your work, start work only after you make sure that no voltage is output here.

DANGER

Indicates an imminently hazardous situation which, if ignored, will result in death or serious injury.



Indicates a potentially hazardous situation which, if ignored, could result in death or serious injury.



Indicates a potentially hazardous situation which, if ignored, may result in damage to the product and other property.



Shows that the act indicated is prohibited.



Is placed before the sign “DANGER,” “WARNING,” or “CAUTION” to emphasize these. When this symbol is marked on the product, see the relevant sections in this manual.



Indicates a protective conductor terminal.



Indicates a chassis (frame) terminal.

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Chapter 1 Product Overview and Part Names and Functions

Gives an overview of this product and specifies the names and functions of its parts.

1.1 Product Overview

These units (PT01-PCR-LA, PT02-PCR-LA) are parallel connection terminals for the PCR-LA Series AC Power Supplies. These units allow the outputs of up to three PCR-LA AC power supplies to be connected in parallel in order to obtain output. The following two types are available, corresponding to the capacities of PCR-LA AC power supplies.

■ PT01-PCR-LA

For the PCR2000LA

■ PT02-PCR-LA

For the PCR4000LA or PCR6000LA

NOTE

- To operate the PCR-LA series AC power supplies in parallel, the optional parallel operation driver PD03M-PCR-LA or PD03S-PCR-LA is required.
-

1.2 Part Names and Functions

1.2.1 PT01-PCR-LA

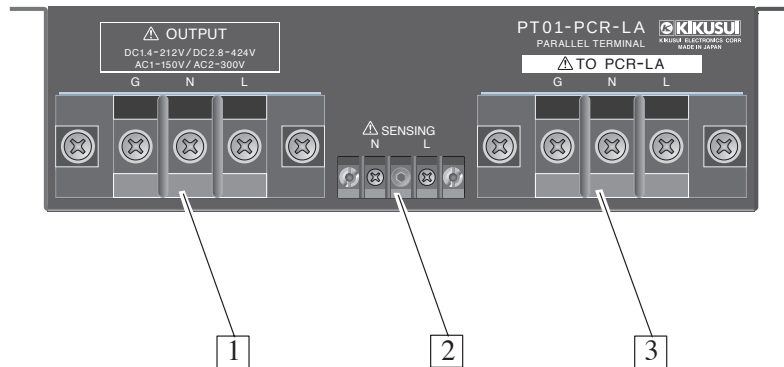


Fig. 1-1 Operating Section

[1] OUTPUT terminal board

This terminal board is used for parallel operations.

[2] SENSING terminal board

Provided with sensing terminals, which are connected to the SENSING terminals of a master PCR-LA AC power supply

[3] TO PCR-LA terminal board

This terminal board is used for connections to multiple slave PCR-LA AC power supplies. Connection to a slave PCR-LA power supply is made by matching terminal symbols (L, N, and G) between this unit and the slave power supply.

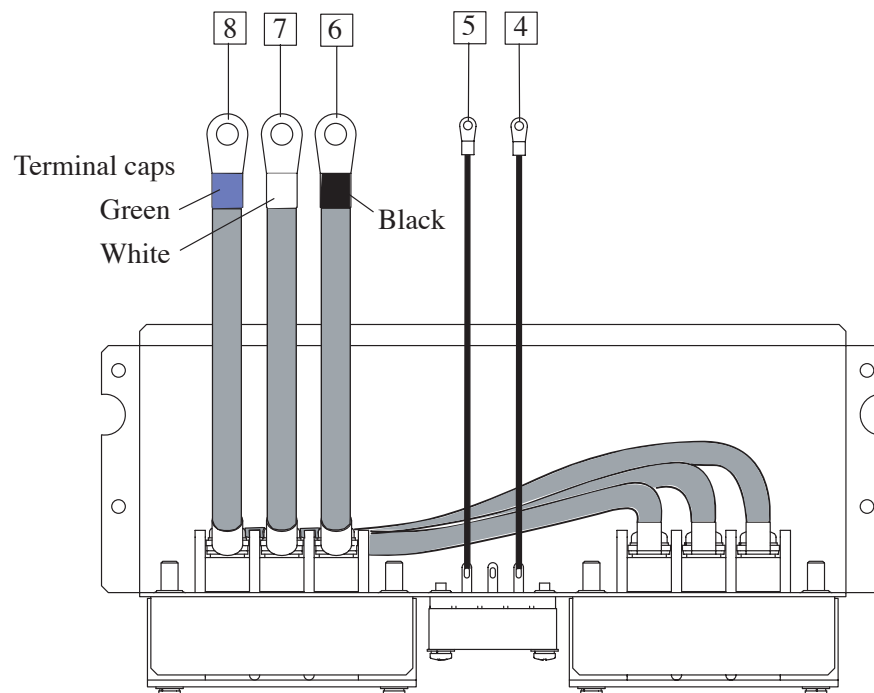


Fig. 1-2 Internal Wiring

[4] Wiring terminal: Thin L

Connected to “L” of the SENSING terminals of the master PCR-LA AC power supply

[5] Wiring terminal: Thin N

Connected to “N” of the SENSING terminals of the master PCR-LA AC power supply

[6] Wiring terminal: Thick black

Connected to “L” of the OUTPUT terminals of the PCR-LA AC power supplies

[7] Wiring terminal: Thick white

Connected to “N” of the OUTPUT terminals of the PCR-LA AC power supplies

[8] Wiring terminal: Thick green

Connected to “G” of the OUTPUT terminals of the PCR-LA AC power supplies

1.2.2 PT02-PCR-LA

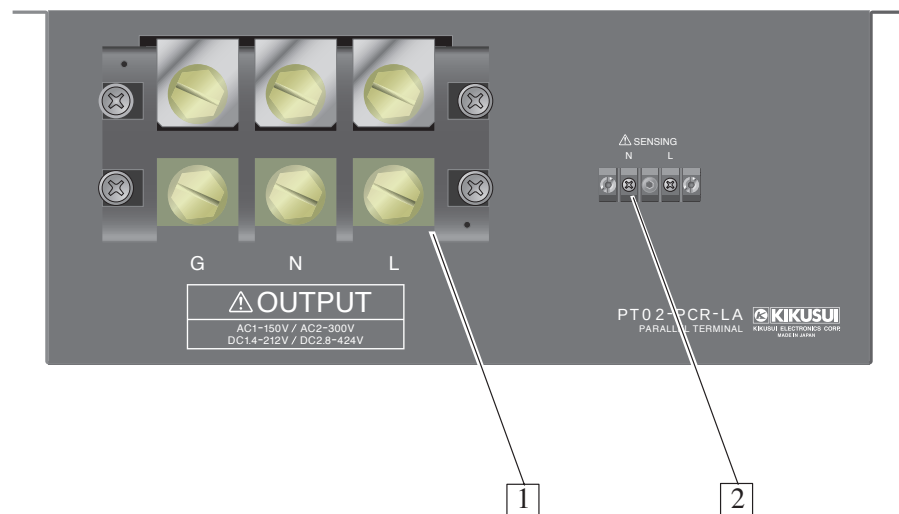


Fig. 1-3 Operating Section

[1] OUTPUT terminal board

Used for parallel operations

[2] SENSING terminal board

Provided with sensing terminals connected to the SENSING terminals of the master PCR-LA AC power supply

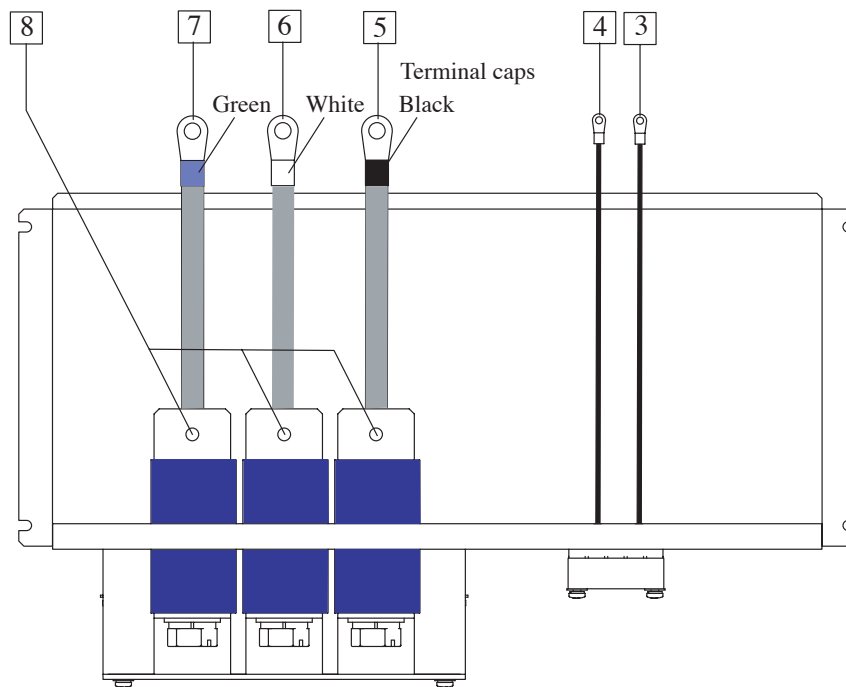


Fig. 1-4 Internal Wiring

[3] Wiring terminal: Thin L

Connected to “L” of the SENSING terminals of the PCR-LA AC power supply

[4] Wiring terminal: Thin N

Connected to “N” of the SENSING terminals of the PCR-LA AC power supply

[5] Wiring terminal: Thick black

Connected to “L” of the OUTPUT terminals of the PCR-LA AC power supply

[6] Wiring terminal: Thick white

Connected to “N” of the OUTPUT terminals of the PCR-LA AC power supply

[7] Wiring terminal: Thick green

Connected to “G” of the OUTPUT terminals of the PCR-LA AC power supplies

[8] Parallel connection terminal holes

These terminal holes (M6) are used for connection to multiple slave PCR-LA AC power supplies. Connection to the terminals of a slave PCR-LA power supply is made by matching terminal symbols (L, N, and G) between this unit and the power supply.

Chapter 2 Connection to PCR-LA AC Power Supplies

Describes necessary procedures, from unpacking of the product to connections to PCR-LA AC power supplies.

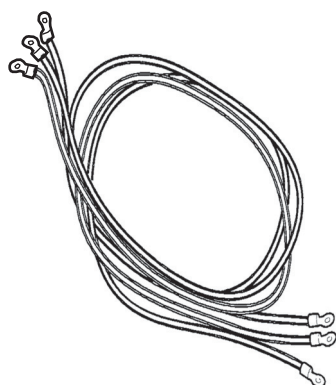
2.1 Check at Unpacking

The product should be checked upon receipt for damage that might have occurred during transportation. Also check if all accessories have been provided.

Should the product be damaged or any accessory missing, notify your Kikusui distributor/agent.

NOTE

- We recommend that all packing materials be saved, in case the product must be transported at a later date.



For the PT01-PCR-LA 5.5 mm²/1 m, 6 wires
Two sets of [91-80-7377 (3 wires)]

For the PT02-PCR-LA 14 mm²/1 m, 6 wires
Two sets of [91-80-7524 (3 wires)]

☐ Power connection cables



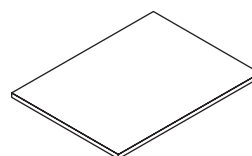
For the PT02-PCR-LA
M6 x 12 [M2-000-721], three pcs.

☐ Mounting screws



For the PT02-PCR-LA
M6 [M5-001-061], three pcs.

☐ Spring washer



[Z1-003-012], 1 copy

☐ Operation Manual

Fig.2-1 Accessories for the PT01-PCR-LA/PT02-PCR-LA

2.2 Connection to the PCR-LA AC Power Supply

Connect this unit to the master PCR-LA AC power supply, which performs parallel operations. The input power cable of the PCR-LA power supply must be connected in advance.

-
- ⚠ WARNING** • Turn OFF the switch on the switchboard, as there is a possibility of electric shock that could result in death or injury.
-

-
- ⚠ CAUTION** • Do not use terminals that have been wired at factory shipment for other purposes.
- Improper terminal screw tightening may result in cable disconnection or an overheated connection, with resulting hazards.
-

2.2.1 PT01-PCR-LA

Connection procedure

1. Turn OFF the switch on the switchboard for the input power connected to the PCR-LA AC power supply.
2. Remove the terminal cover of the PCR-LA AC power supply and connect this unit to the power supply as shown in Table 2-1.
For the names of the terminals of this unit shown in Table 2-1, see Fig. 1-2.
3. Fix the Parallel Terminal to the power supply using the screws (M3) removed in step 2 above (Fig. 2-2).

Table2-1 Cable Connections

	Terminals of the unit	Terminals of the PCR-LA AC power supply
1	Wiring terminal: Thick black	L of the OUTPUT terminal
2	Wiring terminal: Thick white	N of the OUTPUT terminal
3	Wiring terminal: Thick green	G of the OUTPUT terminal
4	Wiring terminal: Thin L	L of the SENSING terminal
5	Wiring terminal: Thin N	N of the SENSING terminal

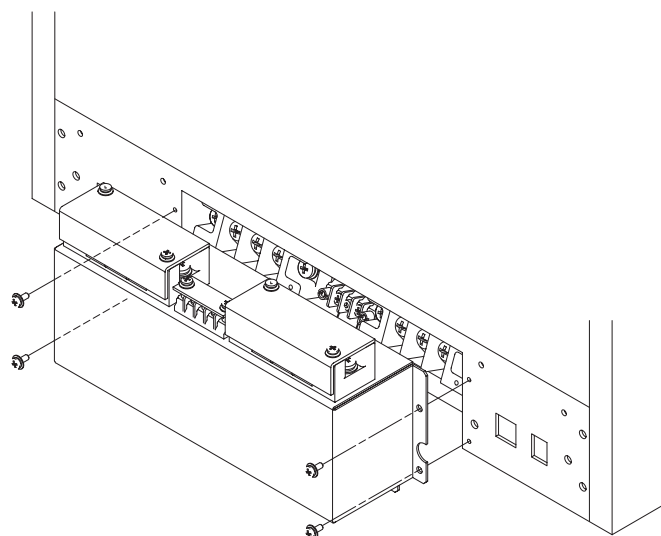


Fig. 2-2 Fixing the Parallel Terminal to the PCR-LA AC Power Supply

2.2.2 PT02-PCR-LA

Connection procedure

NOTE

- For the PT02-PCR-LA, perform the wiring procedure specified in 2.3.2, “PT02-PCR-LA, then fix the unit to the master PCR-LA AC power supply. The power connection cables must be connected in advance to the unit, as the parallel connection holes inside the unit are used.

1. Turn OFF the switch on the switchboard for the input power connected to the PCR-LA AC power supply.
2. Remove the terminal cover of the PCR-LA AC power supply, and connect this unit to the power supply as shown in Table 2-2.
For the names of the terminals of this unit shown in Table 2-2, see Fig. 1-4.
3. Fix the Parallel Terminal to the power supply using the screws (M3) removed in step 2 above (Fig. 2-3).

Table 2-2 Cable Connections

	Terminals of the unit	Terminals of the PCR-LA AC power supply
1	Wiring terminal: Thick black	L of the OUTPUT terminal
2	Wiring terminal: Thick white	N of the OUTPUT terminal
3	Wiring terminal: Thick green	G of the OUTPUT terminal
4	Wiring terminal: Thin L	L of the SENSING terminal
5	Wiring terminal: Thin N	N of the SENSING terminal

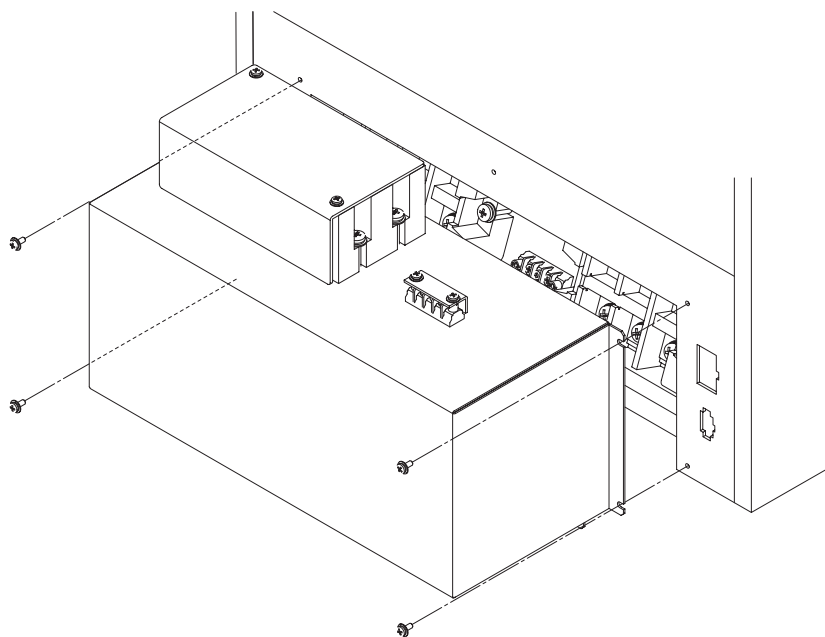


Fig. 2-3 Fixing the Parallel Terminal to the PCR-LA AC Power Supply

2.3 Parallel Connection

For the PT01-PCR-LA, use the TO PCR-LA terminal of the Parallel Terminal for parallel connections. For the PT02-PCR-LA, use the parallel connection holes at the rear of the OUTPUT terminal of the Parallel Terminal. Fig. 2-4 shows the schematic parallel connection diagram.

-
- ⚠ WARNING** • Turn OFF the switch on the switchboard, as there is a possibility of electric shock that could result in death or injury.
-

- NOTE** • Use the provided power connection cables. These cables have sufficient length to permit placement of the PCR-LA AC power supplies with the master power supply at the center.
-

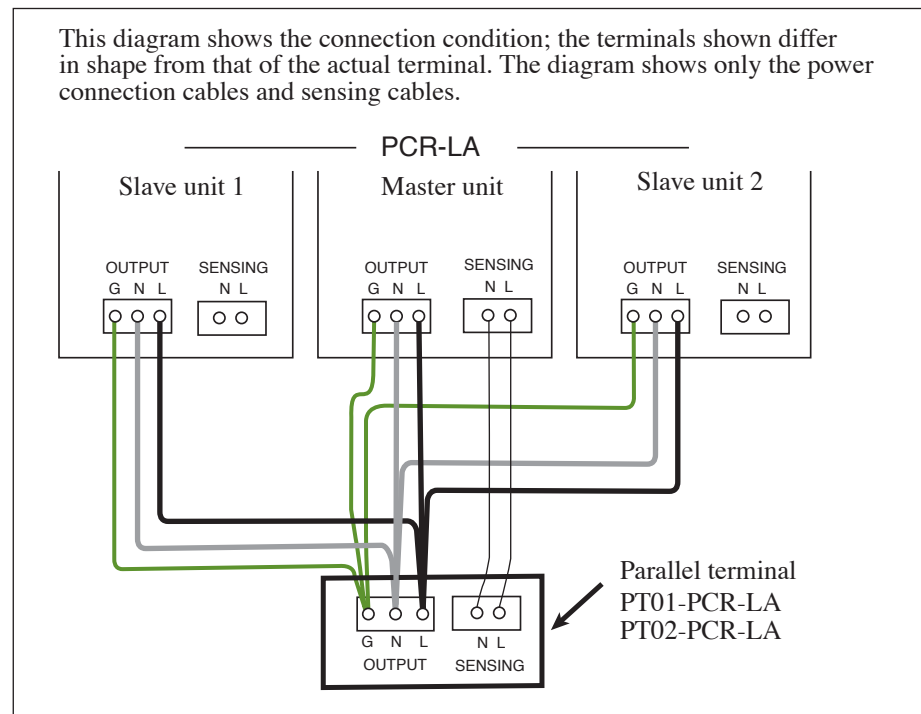


Fig. 2-4 Schematic Parallel Connection Diagram (for Three Power Supplies in Parallel Operation)

-
- ⚠ CAUTION** • Do not use terminals that have been wired at factory shipment for other purposes.
- Be sure to connect the master and slave power supplies, matching their terminal symbols (L, N, and G). Otherwise, a problem may result.
 - Improper terminal screw tightening may result in cable disconnection or an overheated connection, with resulting hazards.
-

2.3.1 PT01-PCR-LA

Connection Procedure

1. Turn OFF the switch on the switchboard for the input power connected to the PCR-LA AC power supplies.
2. Remove the TO PCR-LA terminal cover of this unit.
3. Using the power connection cables provided, connect the TO PCR-LA terminal of the unit to the OUTPUT terminals of the slave PCR-LA AC power supplies. Connection to the OUTPUT terminal of a slave PCR-LA power supply must be made by matching the terminal symbols (L, N, and G) between the unit and the power supply.
4. Reinstall the TO PCR-LA terminal cover to the unit.



- **WARNING** Always install the terminal cover, as there is a possibility of electric shock that could result in death or injury.
- If the TO PCR-LA terminal of the unit is not used, orient and attach the terminal cover to be fixed to the unit so that the terminal screws are covered and protected.

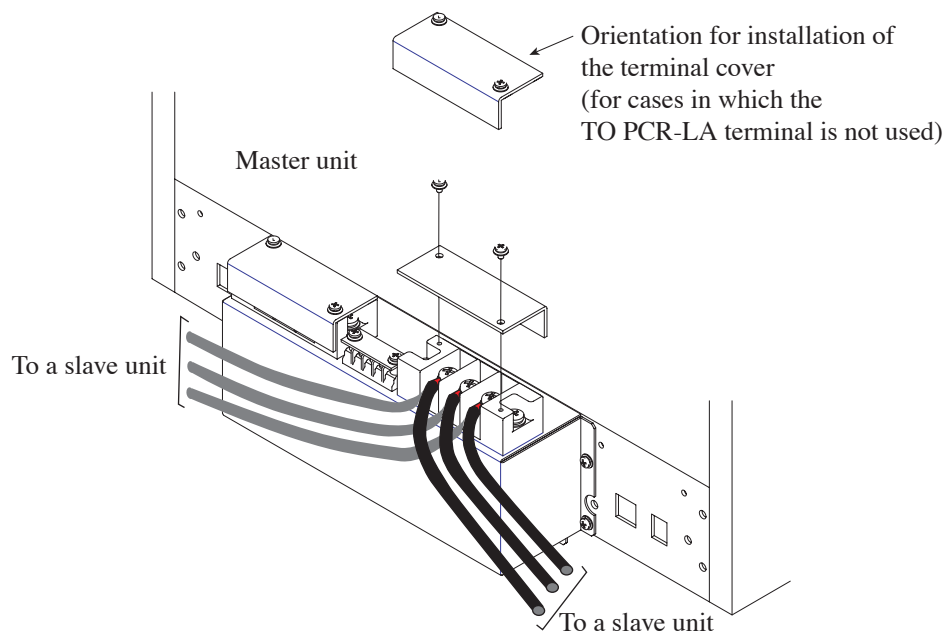


Fig. 2-5 Connection Diagram for the PT01-PCR-LA

2.3.2 PT02-PCR-LA

Connection procedure

1. Turn OFF the switch on the switchboard for the input power connected to the PCR-LA AC power supplies.
2. Using the power connection cables, screws, and spring washers provided, connect the parallel connection terminal holes at the OUTPUT terminals of the PT02-PCR-LA to the OUTPUT terminal of the slave PCR-LA AC power supplies. Connection to the OUTPUT terminals of a slave PCR-LA power supply must be made by matching the terminal symbols (L, N, and G) of the unit and the power supply.

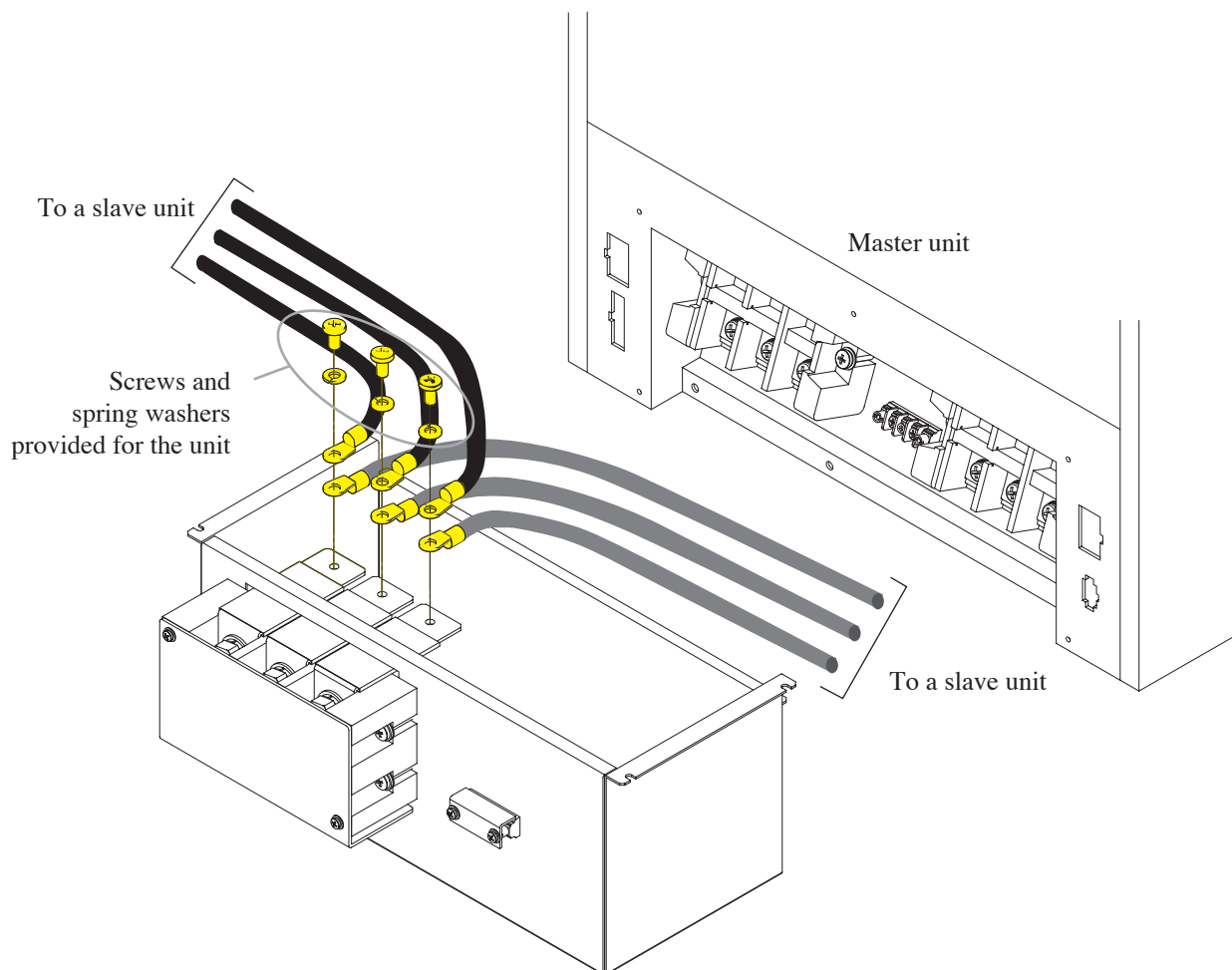


Fig. 2-6 Connection Diagram for the PT02-PCR-LA

2.4 Load Connection

Maximum output current

The table below shows the maximum output current of this unit. The output current differs depending on the models of PCR-LA AC power supplies to be connected in parallel. It also differs depending on the output voltage mode of the PCR-LA AC power supplies and the type or condition of the load. Provide sufficient output power capacity in accordance with the load capacity. For more information, see the PCR-LA Series AC Power Supply Operation Manual.

Table 2-3 Maximum Output Current

Model	PT01-PCR-LA	PT02-PCR-LA
Maximum output current	60 A	180 A

Output cables

Output cables should be provided by the user. Select output cables with sufficient current capacity according to the load current. For the cable ends, use crimping terminals appropriate for the screws shown in the table below.

Table 2-4 Output Terminal Screws

Model	PT01-PCR-LA	PT02-PCR-LA
Output terminal board connection screws	M6	M10

NOTE

- Select a wire diameter of the output cables connected to the OUTPUT terminals such that a sufficient current capacity is secured for the load current. For more information, see the table in 8.2 Requirements of the Input Power Cable, in the PCR-LA Series AC Power Supply Operation Manual.
-

Gives product specifications.

3.1 Specifications

Model		PT01-PCR-LA	PT02-PCR-LA
Maximum output current		60 A	180 A
Output terminal board connection screws		M6	M10
Dimensions (chassis)		230 x 80 x 60 mm	328 x 139.5 x 130 mm
Weight		Approx. 0.7 kg	Approx. 1.8 kg
Ambient temperature/humidity		0 to +40 °C/20 % to 80 % R.H. (No condensation allowed)	
Accessories	Power connection cable	5.5 mm ² /1 m, 6 pcs.	14 mm ² /1 m, 6 pcs.
	Mounting screw	— — — —	M6 x 12, 3 pcs.
		— — — —	Spring washer, 3 pcs.
	Operation Manual		1 copy

3.2 Dimensions

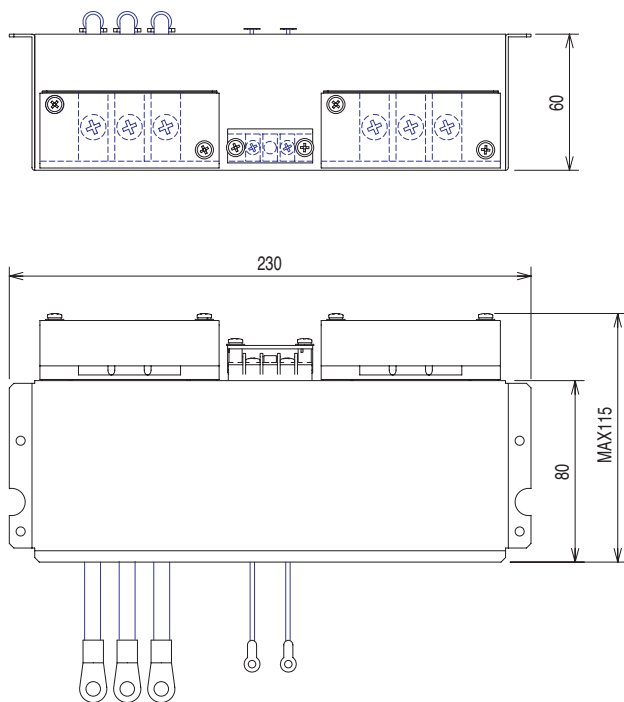
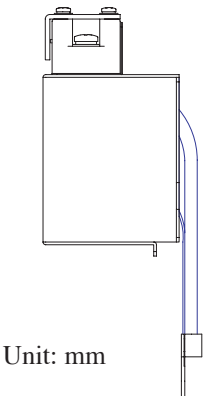


Fig.3-1 PT01-PCR-LA



Unit: mm

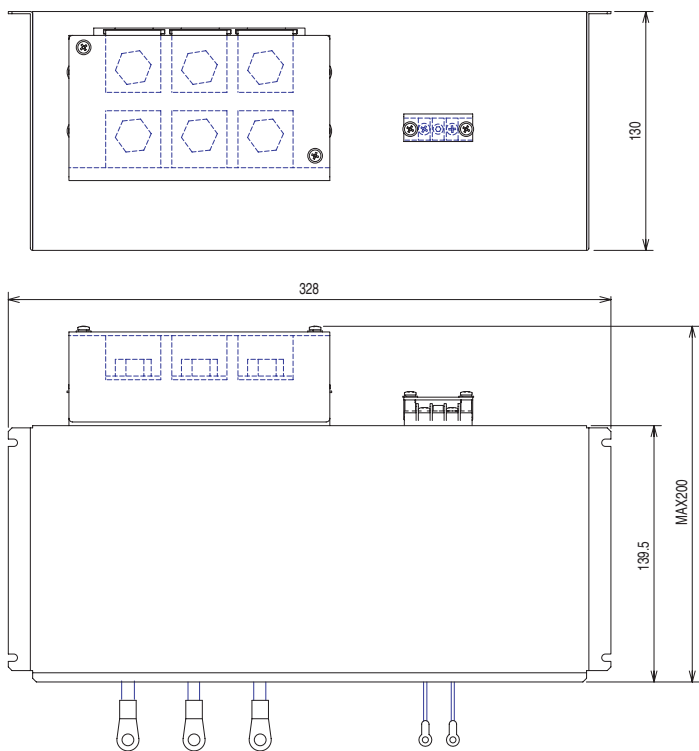
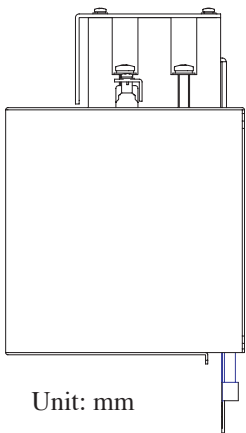


Fig. 3-2 PT02-PCR-LA



Unit: mm

