

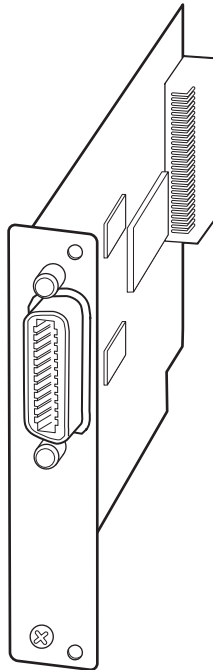
Part No. Z1-002-742, IB003962

Jun. 2008

OPERATION MANUAL

GPIB INTERFACE
PCR-LA Series

IB03-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 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 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.

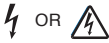
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Both unit specifications and manual contents are subject to change without notice.

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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.

Contents

Safety Symbols - - - - -	I
Chapter 1 General	1-1
<hr/>	
1.1 Outline - - - - -	1-1
1.2 Features - - - - -	1-1
1.3 Hardware Required - - - - -	1-3
1.4 Part Names and Descriptions - - - - -	1-3
Chapter 2 Precautions and Preparation for Use	2-1
<hr/>	
2.1 Check at Unpacking - - - - -	2-1
2.2 Handling Precautions - - - - -	2-2
2.3 Combination with Other Options - - - - -	2-2
2.4 Installing the GPIB Interface Board in a Slot - - - - -	2-3
2.5 Connecting the GPIB Interface Cable - - - - -	2-4
2.6 GPIB Control - - - - -	2-4
2.6.1 Initial Setting - - - - -	2-4
2.6.2 Messages - - - - -	2-4
Chapter 3 Specifications	3-1
<hr/>	
3.1 Specifications - - - - -	3-1
3.2 Dimensions - - - - -	3-2

Provides an overview of the GPIB Interface and describes its features. Also denotes parts names and descriptions.

1.1 Outline

This device (IB03-PCR-LA) is a GPIB interface board for the PCR-LA Series AC power supplies.

Installing the GPIB Interface in a PCR-LA AC power supply allows not only GPIB-based remote control of the power supply, but also significant expansion of the PCR-LA power supply functionality.

1.2 Features

Use of this device allows the following functions to be performed in addition to the PCR-LA power supply's standard functions.

Power Line Abnormality Simulation

This function enables the simulation of interruption, fast voltage dip (dips), or fast voltage swell (pops).

The function is used to test switching power supplies and various pieces of electronic equipment.

Sequence Operation

This function allows the setting of combinations of output voltage, frequency, time, and other factors that have been stored in advance to be retrieved and output in sequence. This action (sequence operation) enables automatic operations.

Sequence operation can be used to test the power supply environment of various devices and pieces of equipment.

Harmonic Current Analysis Function

This function enables analysis of the harmonic components in an output current. (Because the measurement method employed is simplified, it does not conform to IEC or other standards.)

Special Waveform Output

This function allows a PCR-LA AC power supply to output any waveforms other than sine waves. The “peak-clipped waveform” in which the peak of a sine wave is suppressed is provided as standard.

In addition, if user-defined waveform data is transferred to the power supply via the GPIB Interface, the waveform can be output.

This function can be used in chemical experiments and for production equipment.

Output Impedance Setting

The PCR-LA AC power supply has output impedance (output resistance) of nearly $0\ \Omega$; commercial power has impedance (resistance) of several $m\Omega$ to several Ω . When this device is installed, the PCR-LA power supply allows the output impedance to vary. This allows simulation of an environment virtually identical to that of an actual commercial power line.

This function requires the GPIB Interface to set a value. The set value will be valid even when the device is removed from the PCR-LA power supply, as long as the setting conditions of the power supply remain the same.

Measurement of the Power Factor, VA, and Peak Holding Current

The PCR-LA AC power supplies have a variety of measurement functions. Connecting the GPIB Interface to a PCR-LA power supply enables additional measurements of the power factor, VA, and peak holding current.

The peak holding current measurement function is useful for measurement of an inrush current or others.

Output ON/OFF Phase Setting

This function allows output ON/OFF phase setting to be conducted independently.

It can be used if it is necessary to set the output ON/OFF phase during simulation of an inrush current or the like.

This function requires the GPIB Interface to set a value. The set value will be valid even when the device is removed from the PCR-LA power supply, as long as the setting conditions of the power supply remain the same.

AC + DC Mode

This function allows a PCR-LA AC power supply to output voltage waveforms in which the AC voltage is superimposed on the DC voltage. The function can be used in chemical experiments and for production equipment.

Expansion of the Memory Function

The PCR-LA AC power supplies have the function of storing nine sets of voltage and frequency settings in the memory (memory addresses 1 to 9), and reading the data for output as necessary. Installation of this device in a PCR-LA power supply allows a maximum of 99 sets of voltage and frequency to be stored in the memory.

To output the set values stored in the memory, use the PCR-LA power supply or the Remote Controller RC03-PCR-LA or RC04-PCR-LA. Note that the memory numbers that can be read from the PCR-LA power supply or RC03-PCR-LA are 0 to 9 (0: initial setting).

The GPIB Interface allows only data write to memory.

1.3 Hardware Required

To use the GPIB Interface, the following hardware is required.

- A computer used to control this device
(Personal computer, workstation, or the like; provided with a GPIB card)
- GPIB interface cable

1.4 Part Names and Descriptions

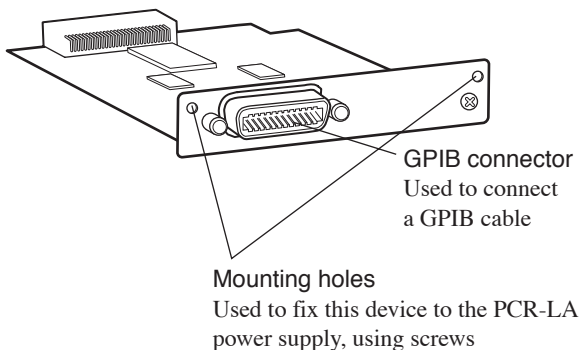


Fig.1-1 IB03-PCR-LA

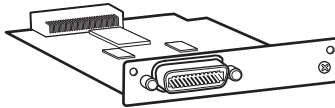
Chapter 2 Precautions and Preparation for Use

Describes the precautions and preparation information that must be understood for use of the GPIB Interface.

2.1 Check at Unpacking

Upon reception of the product, confirm that the package contains the necessary accessories and that the device and accessories have not been damaged during transportation.

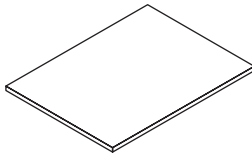
If the device is damaged or any accessory is missing, notify Kikusui distributor/agent.



Interface board (1)

 M3 x 6 mm

Board-mounting screws
(2 pcs.) [M3-101-001]



Operation Manual (1 copy)
[Z1-002-742]

Fig.2-1 Items Contained in the Package

2.2 Handling Precautions

Always observe the following precautions when handling the GPIB Interface board, as its PCB is not protected. Otherwise, a problem may occur.

- **Never touch any of the electronic parts installed in the PCB.**
- **Never handle the device under conditions in which static electricity may accumulate.**
- **After unpacking the GPIB Interface carton, promptly install the interface board in a PCR-LA power supply.**
- **When storing the device, always take anti-electrostatic measures such as storing it in the bag in which it was packaged.**
- **Never drop the device or subject it to other impact.**
- **Do not place the device where it could be exposed to water or other liquid.**

2.3 Combination with Other Options

Note that the GPIB Interface cannot be used together with the Remote Controller (RC03-PCR-LA or RC04-PCR-LA).

-
- NOTE** • The PCR-LA Series AC power supplies incorporate the RS-232C Interface as standard. This RS-232C Interface can be used with the GPIB Interface installed in the PCR-LA power supply concerned. However, it is not possible to use the RS-232C Interface and GPIB Interface simultaneously.
-

2.4 Installing the GPIB Interface Board in a Slot

⚠ CAUTION • Before installing the device in a slot, always turn OFF the POWER switches of the PCR-LA power supply and the computer controlling the GPIB Interface.

1. Unscrew the screws that fasten the SLOT2 cover to remove it.
The slot is located at the upper rear part of the PCR-LA power supply.
Keep the removed cover and screws to ensure that they are not lost.
2. Hold the device by the panel.
3. Orient the device so that the parts-mounted side of the PCB is at the right, and place the PCB in the slot grooves.
4. Carefully insert the device into the slot so that the PCB does not come out of the grooves.
5. Fully insert the device, and check to confirm that the board cannot be pulled out easily.
6. Fix the device to the PCR-LA power supply using the screws provided.

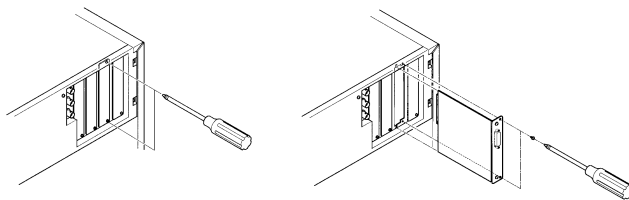


Fig.2-2 Installing the Interface Board

This completes installation of the GPIB Interface.

2.5 Connecting the GPIB Interface Cable

Before connecting the GPIB interface cable to the device, always turn OFF the POWER switches of the PCR-LA power supply and the computer controlling the GPIB Interface.

Align the orientation of the cable plug with that of the connector of the device, and then insert the plug into the connector.

⚠ CAUTION • Moving a PCR-LA power supply with the interface cable connected to the GPIB Interface may apply excessive force to the cable or connector, which could result in breakage. Before moving the PCR-LA power supply, always disconnect the interface cable from the device.

The PCR-LA power supply is heavy; follow the instructions given in the PCR-LA AC Power Supply Operation Manual when moving it.

2.6 GPIB Control

2.6.1 Initial Setting

The GPIB address and response message terminator must be set for the GPIB Interface board.

The settings at factory shipment are as shown below. To set any item to a value other than these, see the PCR-LA AC Power Supply Operation Manual.

Setting at factory shipment

- GPIB address: 1
- Response message terminator: CRLF + EOI

2.6.2 Messages

For messages sent and received between the controller and the GPIB Interface, see the PCR-LA AC Power Supply Operation Manual.

Lists the specifications.

3.1 Specifications

Interface Standards

IEEE Std. 488.1-1987

Interface Functions

Code	Interface functions
SH1	Full source handshake capability
AH1	Full acceptor handshake capability
T6	Talker capability (Basic output, serial polling, and cancellation of a talker through specification of a listener)
L4	Listener capability (Basic input and cancellation of a listener through specification of a talker)
SR1	Full service request capability
RL1	Full remote local capability
PP0	No parallel polling capability
DC1	Full device clear capability
DT1	Full device trigger capability
C0	No control capability
E1	Open collector driver

Insulation Resistance

GPIB connector-to-PCR-LA power supply enclosure (with the GPIB Interface installed)

500 V DC, 30 M Ω or more

Withstand Voltage

GPIB connector-to-PCR-LA power supply enclosure (with the GPIB Interface installed)

1500 V AC for 1 minute

3.2 Dimensions

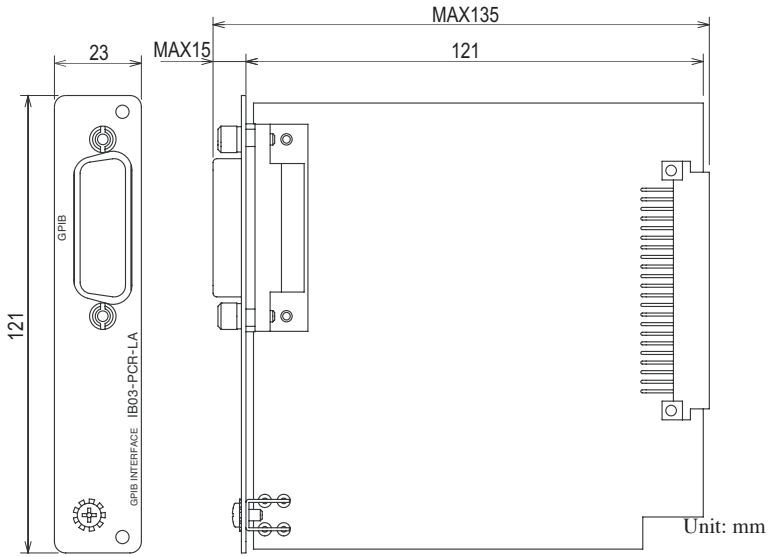


Fig.3-1 IB03-PCR-LA Outer Dimensions

GPIB INTERFACE

IB03-PCR-LA

OPERATION MANUAL