Instruction Guide

- When open this communication pack, please check that the followings are included:

  1. One installation CD
  2. One RS-232 Cable
  3. One User's Manual & Instruction Guide

  If there is any item missing, please contact your local distributor.

- Plug in the instrument. Refer to OPERATION MANUAL "Entering Setup Mode" to set the instrument on factory setting as shown in Table 3-8 "Communication Parameters."

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1. Introduction

The purpose of this software is to enable user of the instrument to do basic remote control measurements through PC. The software will also add to the instrument extra functions of long-term data recording, data logging, wave analyzing, data analyzing, and data printing. For functions not provided by this software, please refer to descriptions listed under Item 8.

Installing this software will not affect the electronic characteristics, the specifications, the functions, and the operations of the instrument. After installing the software, user will have the options of using the instrument by itself or using it with PC through RS-232. For the instrument set up and operations, please refer to the instrument OPERATION MANUAL.

2. Minimum PC Requirement

For smooth operation, user's computer has to be the following:

a. WIN95, WIN98 or WIN2000 operational system
b. Higher than PII/300MHz
c. 32MB memory or larger
d. Faster than X2 CD-ROM
e. One RS-232 Serial Port or more
f. Larger than 5Mbyte disc space
g. Microsoft Excel 97 or 2000

3. Hardware Connecting and Software Installation:

3.1 Hardware Connecting:

※ ***Precaution before connecting:***

a. Before connecting the instrument, make sure the power of the computer and the instrument is off. If the power is on, RS-232 Serial Port might be damaged.
b. Use the instrument RS-232 accessory able to connect. Connecting one end to the instrument and the other end to one of the PC's COM1 to COM4 port. If the instrument accessory cord is not applicable, refer to RS-232 Cable Connection information in [Appendix 1] to buy one or make your own.
c. Secure RS-232 cable and turn on the power for PC and the instrument.

3.2 Software Installation:

a. Insert PC LINK accessory CD disc into CD-ROM. The software will execute installation automatically. If software does not execute automatically, at the bottom of left hand corner, select Start – Execute – Browse – CD-ROM Location select "**setup.exe**" –> **Open File** –> **Execute.**
b. User may decide the software installation location or use the preset location:\Program Files\PC LINK\. Select "Finish" to start installation or select "Cancel" to abort or finish installation.
c. When the installation is completed, select "Finish" to complete the installation process.
d. After installation is completed, user can execute the program immediately without turning on the computer again.

4. Software Uninstalling:

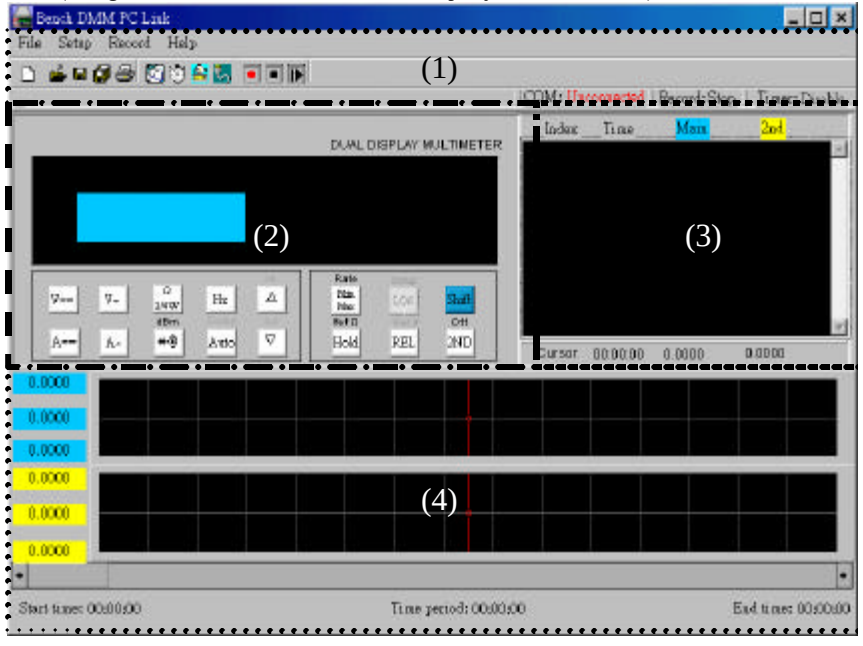
Insert PC LINK accessory CD disc into CD-ROM. The software will execute un-installation automatically. If software does not execute automatically, at the bottom of left hand corner, select Start – Execute – Browse – CD-ROM Location select "**setup.exe**" –> **Open File** –> **Execute.** The screen will display the following picture. User may:

a. Select "Cancel" to abort uninstalling, or

b. Select "Next" to continue uninstalling.
Select "Finish" to complete the uninstalling procedure.

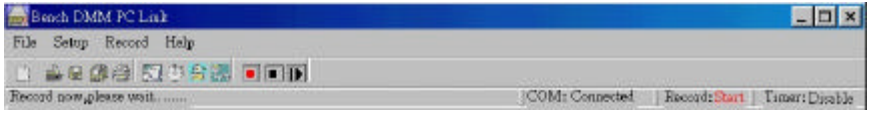
5. Software Environment Introduction:

At the bottom left hand corner of the screen, select **Start** –> **Program** –> **PC LINK** to run the program, and the following display will be shown on the screen:
(To get best result, set screen display at 800X600.)



Display Explanation:

a. Block (1) : Command Block, for related icon, refer to。



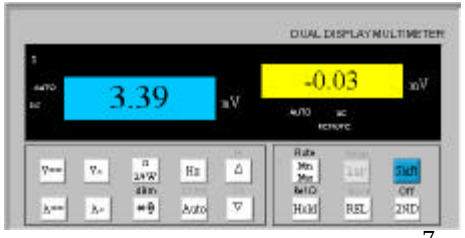
At the bottom of Block (1), the left hand side displays the Executing Status and the right hand side displays the Operating Status.

Executing Status：On record function, the screen will show "Record now, Please Wait ..."

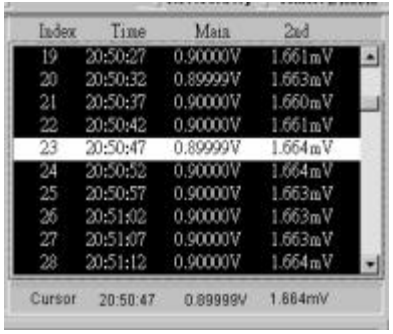
ⓘ ***If user PC takes longer time to operate, wait until "Send Command, Please Wait ..." completely disappear to start the next command. This will avoid computer taking the same command repeatedly.***

Operating Status：

1) **COM PORT** status: If successfully connected, the screen will show "Connected;" otherwise, it will show "Unconnected."
2) **Record** status: If Record is activated, the screen will show "Start;" otherwise, it will show "Stop."
3) **Timer:** If Timer is activated, the screen will show "Enable;" otherwise, it will show "Disable."



b. Block (2) :On software instrument simulating panel, use curser selection to replace pushing buttons.

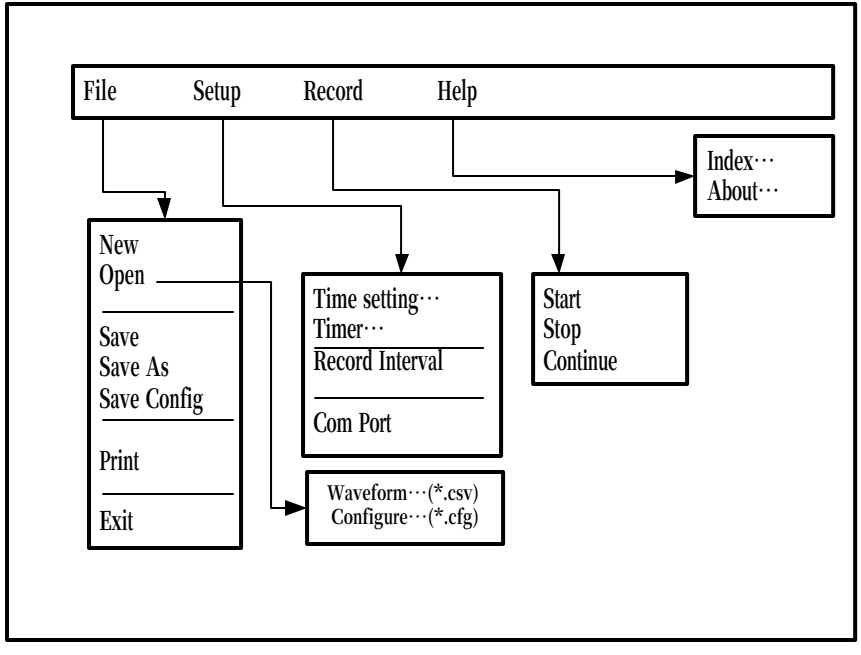


c. Block (3) : Data displaying area displays recorded data and time.

d. Block (4): Wave displaying area displays recorded data in waveform.

At the bottom of block (4): The time displaying area displays starting time, ending time, and the time period in between.

6. Command Block Map:



■ Command Explanation:

- Because the operations of this software is easy to follow, no simplified operation manual is offered.
- The picture next to the command is the icon for the command.

File:

- **New**

  To clear all data recorded.

ⓘ ***Caution! No question such as "Are you sure you want to give up the data?" will be shown before executing this command. The data cleared can not be retrieved.***

- **Open**

  Open File

  a. Open the data file "✻.csv." This file can only be observed, analyzed and printed. No correction or new data adding is possible.

  b. Open the ready to set up file "✻.cfg." This file quickly sets up the instrument to its ready-to-be-used status.

- **Save**

  To save data currently recorded with the file name "Untitled.csv."

- **Save As**

  To save current data user may use file name "*.csv" as supplement file to save. When executing "Save AS", a dialogue box will be available to input file name of user's choice.

ⓘ ***Caution! Function "Save" and "Save As" will save the same name EXCEL file synchronously. On this ground, bide time for these functions.***

- **Save Config.**
  Use "✻.cfg" as supplement file name to save the operation set up. User can save the operation set up most often used to facilitate future fast instrument setting up.
- **Print**
  Print recorded data. When executing this command, a dialogue box is available for user to enter the page number and to print wave or numerical data with file name, date and time.
- **Exit**
  Complete operation and exit. Before exit, a dialogue box will appear to remind user to turn off the system, and ask whether to save the current date. User can decide own file name.

Setup

- **Time setting**
  Display time setting format and can be set as following:
  a. **Absolute time**: Displaying time during recording according to time calculated by the system.
  b. **Relative time**: Displaying time during recording based on first data recorded time starting from zero.
- **Timer**
  Enter the start and the stop time then select "Enable" to activate the timer. The timer uses 24H system, for example, 9:35 and 15 seconds in the morning will be entered as [9:35:15]; 3:45 and 40 seconds in the afternoon will be entered as [15:45:40].

  a. If the absolute time mode is selected, user has to enter the start and the stop time. If the time length set is longer than that for recording 12,000 data, the timer will stop automatically after entering 12,000 data.
  b. If the relative time mode is selected, user has to enter the stop time slot. The time entered is the time length needed or estimated to record. If the time length set is longer than that for recording 12,000 data, the timer will stop automatically after 12,000 data. For example, if recording time is three hours and ten minutes, enter [03:10:00].

After setting up, select “Enable” to activate the timer. The Timer display will show Enable in flashing red color. At this moment all functions will be locked up except for the Timer.

After inactivating the Timer, if want to stop or abort, select “Disable” and turn off the timer. The Timer display will show Disable and the Timer command will be stopped.

During set up process, if want to discontinue, select “Cancel.” The Timer will be keep the not be changed.

- **Record Interval**
  Set data reading time of data retrieved from instrument. User can set maximum data reading time up to 999 seconds per data. The fast data reading time will differ according to Display mode. Record Interval time will be adjusted automatically to get the fastest data reading time according to current Display mode setting. If user wants to know or to alter data reading time, enter "Record Interval" setting dialog box to change the time. The time shown when first enter the dialog box is the fastest data reading time.

Com Port

Set up serial communication port. The first thing after enter Bench DMM PC Link is to connect PC with the instrument. (If only want to analyze or print the recorded data, no connection is necessary.) Bench DMM PC Link offers four ports COM1-COM4 for user selection. User selects the matching port according to the port connected to the PC side. If the selection is correct, the screen will display "Connected." At the same time, the instrument will be reset and be initialized to $5\,^{1}/_{2}$ DCV Single Display Auto mode. The COM in the Operating Status will display "Connected" and the readings on the software instrument display window will be the same as those on the instrument panel.

ⓘ ***If none of the port of COM1–COM4 succeeds, the word "Unconnected" will show. If this happens, follow the checking list below:***

1、 Check if the instrument RS-232 set up complies with : **RS-232=On**、**Baud Rate=9600**、**Data=8bit**、**Parity=none**、**stop bits=1bit**、**Echo=Off**、**Print=Off.** For instrument RS-232 set up, refer to the instrument USER'S MANUAL Entering setup mode.

2、 Check if the RS-232 used is the one comes with the communication pack. Refer to Appendix 1 for detail connection of RS-232 cable.

3. Check if the PC Comport works normally and the RS-232 cable is securely connected.

☝ ***Should unexpected situations happen between PC and instrument, for example uncontrolled data displaying errors, user may select Com Port / to reset the instrument to its initial status.***

Record

- **Start**

  Activate the recording function. When selected, PC will display measurement readings generated by the instrument in numerical and wave formats.

ⓘ ***Caution! After recording started, if select "Stop" icon and then select Start/ icon , recording will start over from the very first data. All data recorded before will be wiped out. Also during recording, by Timer or manually, do not change any set up. If user wants to change any set up, stop recording, finish the new set up and activate the recording function again.***

- **Stop**

Stop recording. After activating the recoding function, select 「Stop/」 icon to stop recording. If want to continue, select 「Continue/」 icon. 「Stop/」 means in this situation, temporary pause only.

- **Continue**

Continue recording. After activating the recording function, select 「Stop/」 icon to stop recording. Select 「Continue/」 icon again to continue recording.

7. Instrument Panel Operation :

- ***Avoid using the same function in the Dual Display mode, for example 1st =DCV + 2nd =DCV, because under the Dual Display mode, the instrument conversion and transmission speed is 1/3~1/5 of that of Single Display.***

- ***To obtain the best waveform performance, we suggest using Auto mode (automatic function change) during recording to avoid waveform performance twisting due to Over Load.***

- ***If want to stop or change measurement function during he Dual Display mode, please refer to the following picture:***

If "2nd" appears on PC (meaning Secondary Display priority control),

select [Shift] + [2nd F] to end Dual Display.

If "2nd" does not appear on PC (meaning Primary Display priority control),

select [2nd F] first then [Shift] + [2nd F].

ⓘ ***When operating under Dual Display mode, readings on primary and secondary displays will be frozen. If want to observe the current measurements, user must activate the recording function.***

8. Operational Differences between Software & Instrument Panels :

a. This software does not support RS-232 setting up and also can not disconnect the REMOTE function from PC; therefore user can not use: 1. [Setup Local] and 2. [Shift] + [Setup Local]

b. This software does not offer [Shift] + [Rel #] (Setting Relative Base), [Shift] + [Range Auto] (Compare Function), and [Shift] + [Hi ▲] [Upper (Hi) limit value] and [Shift] + [Lo ▽] [Lower (LO) limit value].

c. Please do not use [Min Max] function. During recording, the left hand side of Block (4) will display automatically the readings of Max、(Max+Min)/2、Min. Dual Display will slow down the recording speed.

d. This software does not offer calibration function. For calibration, please operate on instrument itself.

- **Operational differences between two panels :**

AC+DC Mode (V、mV、A、mA)

- ***Because software operations can not be done by selecting two keys at the same time with the curser, below is the software AC+DC operational method:***

Select DC →DC mode, then select AC↘ ↗select again AC（DC）to enter AC（DC） mode

AC+DC mode

Select AC →AC mode, then select DC↗ ↘ select again DC（AC）to enter DC（AC）mode

9. Primary & Secondary Combinations Recommended List:

Combinations of Dual Display Setting

First Display \ Second Display	DCV	ACV	DCA	ACA	Hz	Ω	AC+DC Volts	AC+DC Current	⊣◀·◁	dBm
DCV		●	●	●		X	X	X	X	X
ACV			●	●	●	X	X	X	X	X
DCA				●		X	X	X	X	X
ACA					●	X	X	X	X	X
AC+DC Volts	●					X	X	X	X	X
AC+DC Current	●	●	●			X	X	X	X	X
Hz						X	X	X	X	X
Ω						X	X	X	X	X
⊣◀·◁						X	X	X	X	X
DCdBm	●					X	X	X	X	X
ACdBm				●	●	X	X	X	X	X

●： Combination recommended

x： Not sup port

■ Appendix 1：RS-232 Cable Connection

Machine Side			Machine Side	
PIN	Name		Name	PIN
1	/CD	⟷	/CD	1
2	RxD	⟷	RxD	2
3	TxD	⟷	TxD	3
4	DTR	⟷	DTR	4
5	GND	⟷	GND	5
6	/DSR	⟷	/DSR	6
7	/RTS	⟷	/RTS	7
8	/CTS	⟷	/CTS	8
9	RI	⟷	RI	9
9pin D-type Female			9pin D-type Female	