TEXAS INSTRUMENTS

CBL Programs/Applications
To Accompany *CBL™ System Experiment Workbook*

Contents

What's New?

In the past, each activity in *CBL System Experiment Workbook* used one or more TI Basic programs. These files were stand-alone files with .83p file extensions. When performing an activity, you would download all the files you needed into your calculator from the PC using the TI-GRAPH LINK™ program. To use the programs, you would make a selection from the calculator PRGM EXEC menu. In order to use the programs, all the programs had to be in memory at the same time.

The same TI Basic programs have now been modified to work with the TI-83 Plus. Similar stand-alone TI Basic files are still available, but these now have .8xp extensions. The functions that the programs perform are essentially unchanged from the TI-83, but cosmetic changes have been made where necessary.

In addition, for the TI-83 Plus we have provided versions of these programs in the form of an application. Application files have .app file extensions on the PC. You can download applications to the calculator using TI-GRAPH LINK or the Flash Installer provided by TI. (The Flash Installer currently is not available for the Macintosh, so Macintosh users will need to install the standalone programs using TI-GRAPH LINK.) When you load an application into the calculator, it is put in the Flash ROM, so it does not take up space in RAM. To use an application, press APPS and select the application name from the APPLICATIONS menu.

How to Install the Application Using the Flash Installer

The Flash Installer is currently available only for the Microsoft® Windows® platforms (Windows® 3.1, Windows® 95, and Windows NT®).

1. Close all desktop applications that may have been started after you downloaded the flash software. (Another running application could interfere while the flash software is updating your TI-83 Plus.)

2. Make sure the TI-GRAPH LINK cable is firmly connected to the calculator and the computer.

3. Start the flash software installation by double-clicking on the flash software file (cblmath1.exe, for example) on your computer and following the instructions.

The TI-83 Plus may briefly display a "Defragmenting" message. This simply means the calculator is preparing for downloading. While the application is downloading, the TI-83 Plus will display the message "Receiving *CBLExpmt app."

When the installation is complete, the Flash Installer screen will display a message that the installation was successful. The calculator will remain on.

Important: DO NOT interrupt the installation process. If you encounter any errors during the installation, follow the instructions. Error Recovery instructions are also described below.

CBL System Experiment Workbook activities are grouped into one application entitled CBLExpmt.app.

How to Install the Application Using TI-GRAPH LINK™

1. Connect the TI-83 Plus and your computer with the TI-GRAPH LINK™ cable.
2. Turn on the TI-83 Plus and leave it at the Home screen.
3. Start the TI-GRAPH LINK software.
4. Click on the Link menu, then click on Send.
5. Select the directory into which you downloaded the application files, and then select the file you want to load on the TI-83 Plus.
6. Click OK to transmit the file.

How to Start the Application

To use an application, press $\boxed{\text{APPS}}$ and select the application name from the APPLICATIONS menu.

To remove the title screen, press $\boxed{\text{ENTER}}$. To exit the application at any time, press $\boxed{\text{2nd}}$ $\boxed{\text{QUIT}}$.

How to Run the Programs

When you start any application, after you press $\boxed{\text{ENTER}}$ to remove the title screen, you will see a main menu listing the names of the original TI Basic programs available in that application. These names correspond to the names given in *CBL System Experiment Workbook*. In order to run a program mentioned in the activity book, you must run the application, and then select the program name.

To run the program:
- Press the number in front of the program name
  — or —
- Use $\boxed{\blacktriangledown}$ to highlight the program name and press $\boxed{\text{ENTER}}$.

To move around the main menu:
- Use $\boxed{\blacktriangle}$ and $\boxed{\blacktriangledown}$ to move one line at a time.

  — or —
- $\boxed{\text{ALPHA}}$ $\boxed{\blacktriangle}$ or $\boxed{\text{ALPHA}}$ $\boxed{\blacktriangledown}$ to move one screen at a time.

You can quit the application from the main menu by pressing $\boxed{\text{2nd}}$ $\boxed{\text{QUIT}}$ or by selecting the QUIT option listed on the menu.

Once you select a program from the menu, that program begins running. The programs run nearly identically to the way they did on the TI-83. When you quit a program by selecting a QUIT option or the program ends normally on its own, you return to the application main menu, where you may select a new program to run or exit the application. (To exit, press $\boxed{\text{CLEAR}}$ or $\boxed{\text{2nd}}$ $\boxed{\text{QUIT}}$.)

Error Messages

ERR:BREAK

If you press ON while a program is running, you will see a screen with the message ERR:BREAK. This means that you have not only quit the program currently executing, but also exited the entire application and returned to the Home screen.

ERR: MEMORY

The calculator can store up to ten "pages" of applications. These pages can be divided among different applications. Data in the calculator Archive reduces the number of pages available to applications. In order to run a selected program, the application must load the program into RAM, so there must be enough free RAM available. If there is not enough RAM to run the selected program, the application will exit and you will see a screen with the message ERR: MEMORY. You should make more RAM available by deleting or archiving items currently in RAM, and then run the application again. If the application exits normally, or because of a break or out-of-memory error, it automatically removes the TI Basic programs that it loaded into RAM.

Other errors

Other types of errors may occur while you are running a program. If any other type of error occurs, the application will exit and you will see a screen beginning with ERR:, followed by the type of error. Such an error often indicates that the activity was not performed in the proper sequence as described by the activity, or that data collected from the CBL was in error. When such an error occurs, the TI Basic program(s) that the application loaded into RAM are not removed automatically. Since they remain in RAM, the error screen provides a GOTO option. If you select the GOTO option, the calculator will show which line caused the error. This may help in diagnosing the problem.

ERR:DUPLICATE NAME

Before the CBL application runs a selected program, it first checks to see whether a program with that name already exists in the calculator. If a program with the same name already exists and is archived, the application will display an error message and exit. The application cannot create another program with the same name in RAM as one in the archive. You must either delete the existing archived program, rename it, or unarchive it into RAM to be used in place of the built-in application version.

If a program with the same name already exists and is protected, the application will display an error message and exit. The application will not replace a protected program with its own version. You must either delete the existing protected program or rename it.

If a program with the same name already exists in RAM and is not protected or archived, the application will display a menu of options for you to select from.

Option 1:USE IT means that the application will not replace the existing program with its own version, but will instead use the existing version. This may be useful if you encounter an error during a previous program run and alter the program to try to fix the error. You can also modify the original TI Basic program file and load it into your calculator and it will be used in place of the built-in application version. If you select this option, the application will never automatically remove the program.

Option 2: REPLACE IT means that the application will replace the existing program in RAM with its own version. If the application later exits normally, it will also automatically remove its own version from RAM so that nothing remains.

Option 3: REPLACE ALL is the same as Option 2, except that the application will automatically replace any other programs that it uses (in those cases where it uses more than one) if duplicates exist in RAM. This simply keeps the application from presenting the menu to you multiple times.

Option 4: EXIT THIS APP exits the application without changing RAM in any way. You may want to select this option in order to explore what is in the existing program.

How the application differs from the previous stand-alone programs

There is one noticeable difference between the stand-alone versions of the activity programs and the versions built into the application. Many of the stand-alone programs display a graph and quit. The user can view the graph and then sometimes go into TRACE mode to move along the graphed function.

In the application, when the graph is drawn you are *automatically* put into Trace mode. After tracing, you should press the ENTER key to continue running the program. This change was necessary so that you would not have to repeatedly re-start the application. Some of the descriptions in the activity book are written assuming the behavior is that of the stand-alone program. Whenever the activity requires tracing, you should wait until the application automatically puts you in TRACE mode to do that part of the activity. If you need to TRACE later, you can do this by exiting the application, pressing GRAPH to display the last graph, and pressing TRACE to enter TRACE mode, which will still be functional.

How to Delete an Application

If an error message indicates that you do not have sufficient space on the TI-83 Plus, you will need to delete one of the current applications. To do this:
1. Press 2nd [MEM] to display the MEMORY menu.

2. Select 2: Mem Mgmt/Del.
3. Select A: Apps.
4. Press ▼ to place the ▶ symbol at the left of the application you wish to delete.
5. Press DEL to delete the application.
   A screen displays **Are You Sure?**
6. Select 2: Yes.

How to Contact Customer Support

Customers in the U.S., Canada, Puerto Rico, and the Virgin Islands

For general questions, contact Texas Instruments Customer Support:
> phone: **1–800–TI–CARES (1–800–842–2737)**
> e-mail: **ti-cares@ti.com**

For technical questions, call the Programming Assistance Group of Customer Support:
> phone: **1–972–917–8324**

Customers outside the U.S., Canada, Puerto Rico, and the Virgin Islands

Contact TI by e-mail or visit the TI calculator home page on the World Wide Web.
> e-mail: **ti-cares@ti.com**
> Internet: **www.ti.com**