

PC Enterprises'

Configuration Cartridges

Installation and Operation Manual



The jrProducts Group

Configuration and Configuration Plus Cartridges

PC Enterprises, PO Box 292, Belmar, NJ 07719
(201) 280-0025

If your PCjr has not already been set up at this time, please do so before installing this option.

This carton should contain the following:

- * Configuration Cartridge
- * Key Lights Diskette (Configuration Plus Only)
- * Dipstick
- * Installation and Operation Manual

Please inspect this package to determine whether any item appears missing or damaged. If any item is missing or damaged report the missing or damaged item to the place of purchase as soon as possible.

Introduction

Congratulations on your purchase of a PC Enterprises product. We expect our product to serve you reliably for many years to come. We hope you will be pleased with this product and pledge to try very hard to keep you satisfied with our support, service and new PCjr products.

This product permits you to change the default hardware configuration of the PCjr. The Configuration Cartridge lets you change the System Identification and Equipment Determination bytes. The Configuration Plus Cartridge also provides indicator lights for the Caps Lock, Num Lock, and Scroll Lock keys. The Scroll Lock indicator can also be changed to an Insert mode indicator.

Copyright Notice

The software and firmware code contained within this product is copyrighted by PC Enterprises. It may not be reproduced without the express written permission of PC Enterprises. All rights reserved.

IBM and IBM PCjr are registered trademarks of the International Business Machines Corporation. Configuration Cartridge and Configuration Plus Cartridge are trademarks of PC Enterprises. PC Enterprises is not in any way affiliated with IBM. Copyright 1987 by PC Enterprises.

Installation Requirements

System Requirements

64K PCjr

Tools Required

None.

What You Should Know

When the PCjr is first turned on the computer assumes you have a 40 column monitor, a single disk drive, and that you want software to be able to determine that it's being run on a PCjr. These are the PCjr default settings.

Configuration Cartridges use an eight position "DIP" switch which permits you to change this default configuration. Switch 1 lets you operate in either the PC or PCjr mode. Switches 5 and 6 set the number of disk drives and switches 7 and 8 are used to indicate the type of display. The other switches are not used.

Configuration Cartridges only change the "default" configuration of your system. This means you can still change the configuration of your system with software which you may already have.

Confusion may arise if you have already installed configuration software on your working copy of DOS. If this is the case, the software will continue to change the default configuration of your system exactly the way that it did before the cartridge was added.

Note: Do NOT use a pencil to change the switch setting. Pencil lead can get inside the switch and cause undesired results. For your convenience, a special Dipstick is included.

Using the Disk Drive Switches

When the PCjr is first started it is set up to operate with only one disk drive. If you enter the command DIR B: you receive the message, "Insert diskette for drive B: and press any key to continue".

If you have installed additional disk drives which are controlled by DOS you will not be able to access these drives until the computer's Equipment Determination byte is modified to indicate additional drive(s) have been installed.

Configuration Cartridges permit you to modify the Equipment Determination byte such that it identifies one, two, three or four drives.

If you have more than one drive you'll even be able to test all of your drives with the PCjr's built in disk drive diagnostics. The diagnostics can be accessed by pressing the Control, Alternate, and Delete keys simultaneously. Refer to your Guide to Operations manual, which came with your PCjr, for instructions on running the built in diagnostics.

Using the Display Mode Switches

The IBM PC automatically starts in an 80 column mode. The PCjr is different. It starts in a 40 column mode. This problem prevents certain software packages which are self booting from working correctly on a PCjr.

In other cases, it's an inconvenience. Each time your computer is started you must enter the MODE command to put the computer in an 80 column mode.

With the Configuration Cartridge properly set up your computer starts in the display mode of your choice - without running any software at all.

Using the PC/PCjr Mode Switch

Hardware differences exist between all IBM personal computers. Occasionally application programs find it necessary to develop dual programming paths to accommodate these differences. When this happens, the application program checks the system identification byte during execution and consequently follows the appropriate path.

The PC/PCjr mode switch lets you change the identification code from that of a PCjr to that of a PC. When you operate in the PC mode any program which reads the system identification byte will be fooled into running as it would on an IBM PC.

The switch permits you to run certain programs designed so they could not be run on a PCjr. One example is the diskette version of Basic which can be found on your DOS diskette. Under normal circumstances if you try to run the Basic program provided on your DOS diskette you receive a "Cartridge Required" message. To run the diskette version of Basic simply flip the PC/PCjr switch to the PC mode before you try to run the Basic program. Note that it is not necessary to reboot your system.

You may wish to experiment with other programs to determine whether the PC/PCjr switch causes the program to do anything different. In certain cases, such as Writing Assistant version 1.0, the switch can make the program much more powerful. In other cases, because differences between the two computers may still exist, running the PC version of a program may cause the program to perform in an undesirable manner. For this reason, we recommend that you use the PC mode to run the diskette version of Basic and other programs which you determine, through experimentation, to perform as desired.

To use the PC mode simply open switch 1.
 Supplemental software is not required, however, you may find it necessary to modify "PCjr Only" programs if you would like to use them while in the PC mode.

Setting the Switches

PC/PCjr mode		
PCjr Mode	Switch 1	open
PC Mode	Switch 1	closed

Number of Disk Drives		
	Switch 5	Switch 6
1 Drive	closed	closed
2 Drives	open	closed
3 Drives	closed	open
4 Drives	open	open

Type of Display		
	Switch 7	Switch 8
40 Column B&W	closed	closed
40 Column Color	closed	open
80 Column B&W	closed	open
80 Column Color	open	open

Installing the Software

The Configuration Cartridge is a "BIOS nibbler". This means it does not require any software at all to operate the basic features. For this reason, the Configuration Cartridges will work with all DOS as well as non-DOS software. The Configuration Plus Cartridge does require software to operate the key lock status lights.

When you purchase the Configuration Plus Cartridge you should also receive a diskette which contains two programs which are used to operate the key lock status lights. If you did not purchase the

Configuration Plus Cartridge you will NOT receive this diskette.

The first program is named LIGHTS. This program activates the Caps Lock, Num Lock, and Scroll Lock indicator lights. Run this program once - each time your system is started.

If you are using the original PCjr keyboard you can put the computer in the Caps Lock mode simply by pressing the Caps Lock key. To put the computer in the Num Lock mode press and hold the Alt key while pressing the Fn key and the N key. To put the computer in the Scroll Lock mode press and hold the Fn key then press the S key.

The second program is called LIGHTINS. This program turns the Scroll Lock indicator into an Insert mode indicator. Run this program INSTEAD of the LIGHTS program if you prefer the Scroll Lock indicator to be an "Insert mode" indicator. To put the computer in the insert mode press the "Ins" key.

The insert mode indicator uses the DOS insert mode indicator flag. Please understand certain programs, including the Basic program, do not use this flag. Instead, these programs set their own flags. When this happens the insert mode indicator may or may not display the correct status of the Insert mode.

Using the LIGHTS Program

Enter the command LIGHTS from the DOS command line, or include the LIGHTS command anywhere in your AUTOEXEC file.

The LIGHTS program will remain resident in memory until the machine is rebooted.

Using the LIGHTINS Program

Enter the command LIGHTINS from the DOS command line, or include the LIGHTINS command anywhere in your AUTOEXEC file.

The LIGHTINS program will remain resident in memory until the machine is rebooted.

Installing the Hardware

With your computer's power switch turned off insert the Configuration Cartridge into either cartridge slot. We believe the cartridges are compatible with all other PCjr cartridges.

Never insert or remove the cartridge from the computer with the computer's power switch on. Doing so may cause damage to your cartridge or to your PCjr.

Compatibility

Although we are not aware of any true compatibility problems the use of the PC/PCjr mode switch is often misunderstood. As a result, apparent compatibility problems will be noticed when you operate in the PC mode.

The most common problem concerns software designed to run specifically on a PCjr such as PCjr cartridge and memory management software.

Memory Management

The architecture of the PCjr requires the video buffer be relocated before memory beyond 128K can be recognized. The IBM PC, however, does not require it's video buffer to be relocated.

If you have expanded your memory beyond 128K and you are not using software provided by PC Enterprises to access your additional memory you may or may not have a problem when you operate in the PC mode. If your software checks the system identification byte it may not relocate the PCjr's video buffer when you operate in the PC mode. If this should happen your system will be limited to 128K of memory.

There are three ways to overcome this problem. The easiest way is to use a memory management program which does not check the system identification byte such as the program provided with PC Enterprises memory sidecars.

The second way is to start your computer in the PCjr mode - then switch to the PC mode after DOS has started.

The third is to modify, or "patch" your existing memory management program so it attempts to relocate the video buffer - even when it detects that it's being run on a PC.

PCjr Cartridge Compatibility

If you start your computer in the PC mode then try to access software on a PCjr cartridge you may receive a "bad file name" message. This happens because the Configuration Cartridge has fooled DOS into running as it would on an IBM PC - and the PC does not have cartridge ports.

There are two ways to solve this problem. You can either modify DOS so that DOS, in effect, expects IBM PCs to have cartridges too - or you can wait until DOS has started to flip the switch which puts your computer into the PC mode.

PC Enterprises Application Note AP-02 deals with modifications to certain programs for PC mode compatibility.

If You Have a Problem

Cartridge not working at all

Often this appears to be the case when configuration software has been installed on the diskette used to start your system. Often configuration software modifies the boot record of the diskette, and therefore does not appear when you inspect a directory of the diskette.

To determine whether or not configuration software has previously been installed on your diskette you may format a blank diskette with the `FORMAT /S` command then use the new diskette to start your computer. If your configuration software has been installed on your diskette you may use the `DOS SYS` command to overwrite the patched system files with unmodified system files. Refer to your DOS manual for more information on the `SYS` command.

Can not access drive 4

The PCjr BIOS is currently capable of supporting only three floppy drives. The Configuration Cartridge adds hardware to control a fourth drive in order to support future PCjr products under development by PC Enterprises.

This is why the PCjr built in diagnostics will only acknowledge three drives even when the Configuration Cartridge is set up to identify four drives.

Key lights flash during data transfer

This is normal. It has to do with the way the memory resident software checks the status of the key lock indicator flags.

We'd Like to Know

We are always interested in your comments concerning our products and manuals. If you have any suggestions for improvements we would like to hear them. Please forward your comments to:

About Your Manual
PC Enterprises
PO Box 292
Belmar, NJ 07719

Other PCjr Products

The jrProducts Group of PC Enterprises has been dedicated to developing new products and services for PCjr owners since 1984. We offer disk drives which snap on top of the PCjr, memory expansion and other sidecars, as well as a complete selection of keyboards and keypads. Other products include PCjr serial cables, keyboard cables, joysticks, joystick adapters, Keyboard Buffer and Speed up Cartridges, dust covers, books, printers, monitors and countless other PCjr products.

A free catalog of available PCjr products can generally be obtained by calling our toll free 800 phone number: 1 800-922-PCJR. The catalog includes photos, descriptions and prices.

In addition, we offer a memory upgrade service for those who have already purchased a 128K PCjr sidecar such as the Tecmar jrCaptain, Microsoft Booster, or IBM Memory sidecar and would like to upgrade to 640K.

Limited Warranty

PC Enterprises warrants the original purchaser of this product that it will be in good working order for the one year period from the date of purchase from PC Enterprises or authorized dealer. Should this product fail to be in good working order at any time during the warranty period, PC Enterprises will, at its option, repair or replace the product at no additional cost except that as stated below. Repair parts and replacement products will be furnished either reconditioned or new. All replaced parts and products become the property of PC Enterprises. This warranty does not include service to repair damage to the product as a result of misuse, disaster, accident, or modification of the product.

Warranty service may be obtained by shipping the product US Mail to PC Enterprises and providing proof of purchase date. You agree to insure the product or assume the risk of loss or damage in transit, to prepay shipping charges and to use the original shipping container or equivalent. Contact PC Enterprises prior to returning any products for repair to receive a Return Authorization (RA) number. Any products returned without an RA number will be indiscriminately refused.

All express and implied warranties for this product including the warranties of merchantability and fitness for a particular purpose, are limited in duration to the one year period from the date of purchase, and no warranties, whether express or implied, will apply after this period. Some states do not allow limitations on how long an implied warranty lasts, so the above may not apply to you.

If this product is not in good working order as warranted above, your sole remedy shall be repair or replacement as provided above. In no event will PC Enterprises be liable to you for any damages, whether incidental or consequential, arising out of the use of, or inability to use such product. Some states do not allow the exclusion or limitation of incidental or consequential damages for consumer products, whereas the above limitations may not apply to you. This warranty gives you specific legal rights, and you may also have other rights which may vary from state to state. Modification or other disassembly of the PC Enterprises' product without written permission from PC Enterprises will void this warranty.