PC9800 & PC9800LS
User's Guide

USER'S GUIDE VERSION

In the objective of giving you the most up-to-date information, there might be an earlier version of this manual on the WEB.

<p align="center">http:\\Support.daptech.com</p>

Enter as a Guest.

You will find a printable full size manual, manuals in other language, the Cradle User's Guide, the communication program (COM.EXE). , the battery manager program (BATMNGR.EXE), the DOS files and some utilities that can be used on PC9800 units

DAP TECHNOLOGIES LOCATIONS

Headquarters

DAP TECHNOLOGIES
(Headquarters)
955, rue Fernand-Dufour
Vanier (Quebec)
Canada
G1M 3B2

Tel.: (418) 681-9394
Fax: (418) 681-0799

E-mail: sales@daptech.com

Web: www.daptech.com

Technical Support: support@daptech.com

U.S.A subsidiary

DAP TECHNOLOGIES CORP.U.S.A.
(U.S.A. subsidiary)
5525 W. Cypress St.
Suite 205
Tampa, FL 33607
Tel.: (813) 637-8800
        1 800 229-2822
Fax: (813) 637-8640

E-mail: salestampa@daptech.com

European subsidiary

DAP TECHNOLOGIES (FRANCE)
Place du Village des Barbanniers
92632 Gennevilliers Cedex
France

Tel. : 33 (0) 1 41 21 95 95
Fax : 33 (0) 1 41 21 95 65

E-mail: salesparis@daptech.com

United Kingdom subsidiary

DAP TECHNOLOGIES (UK)
61-63, St-Peter's Street
Bedford
MK40 2PR
England

Tel. : 44 (0) 1234 34 11 66
Fax : 44 (0) 1234 34 90 49

E-mail: salesuk@daptech.com

PRECAUTIONS

> ➢ Refer to this manual when inserting or removing batteries, cables or external peripherals.

> ➢ Operate and store your Microflex within the limits of temperature specified in this manual.

> ➢ Never expose battery to extreme heat or dispose of in a fire

> ➢ Any attempts to open the case of a PC9800 unit will void the warranty

> ➢ The LEMO communication connector for the PC9800 unit has proprietary pin-out distribution. Any attempt to connect cables other than the ones supplied or recommended by DAP TECHNOLOGIES could result in damage to the PC9800.

> ➢ If you need to use a cable other than the ones supplied or recommended by DAP, we suggest you contact DAP TECHNOLOGIES Technical Support Department beforehand.

> ➢ When removing the LEMO cable, **DO NOT TWIST** the cable connector. Using the gray metal connector of the LEMO cable, pull back on the cable to remove it from the connector.

> ➢ To insert the LEMO cable, align both red dots found on the cable and on the PC9800 connector than, insert the cable into the connector of the unit.
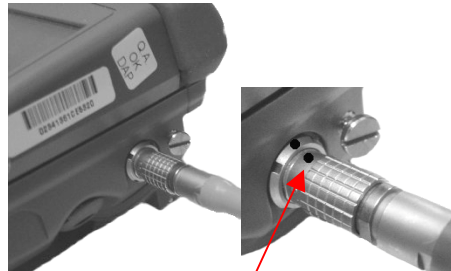
Align red dots and insert
the connector in place

This document reflects a PC9800, PC9800LS with a firmware version "I"

- BIOS version 1.12
- SETUP version 1.09
- COM.EXE version 3.01

and

- BATMNGR version 1.43

Every effort has been made to ensure that the information contained in this document is accurate and up to date. Although DAP TECHNOLOGIES has reviewed the document carefully, it cannot assume any responsibility for any consequences resulting from possible errors or omissions.

DAP TECHNOLOGIES reserves the right to make changes and improvements to this product without notice.

WARRANTY STATEMENT

DAP TECHNOLOGIES makes no representation or warranties with respect to the contents hereof and specifically disclaims any implied warranties of merchantability or fitness for any particular purpose.

The information in this manual is subject to change. DAP TECHNOLOGIES reserves the right to update and modify the MICROFLEX, its accessories and manuals without notice.

No part of this manual may be copied, distributed, transmitted, transcribed, stored in a retrieval system, or translated in any form or by any means, whether electronically or manually, without the express written consent of DAP TECHNOLOGIES.

MICROFLEX AND ACCESSORIES LIMITED WARRANTY

As manufacturer, DAP TECHNOLOGIES will replace or repair, at its discretion, any products that prove to be defective, in either material or workmanship, for a period of one year following the purchase date of the MICROFLEX hand-held computer and for a period of nineteen (90) days following the purchase date of MICROFLEX accessories sold by DAP TECHNOLOGIES. The warranty only cover the material and workmanship

This warranty does not cover damages caused by misuse, abuse, neglect, or occurred during shipping or storage; the warranty does not also cover any modification or servicing by any one other than a DAP TECHNOLOGIES Authorized Service Center.

DAP TECHNOLOGIES cannot be held responsible for any damage caused by the misuse of the MICROFLEX or by any other software or hardware added to the MICROFLEX. The MICROFLEX device and accessories should not be used in applications where device failure could result in physical harm or loss of life.

The operating system, MS-DOS®, Windows CE and all other software sold or supplied by DAP TECHNOLOGIES are provided as is, without any warranty, either expressed or implied.

In no event shall DAP TECHNOLOGIES be liable for any direct, indirect damages or damages of any kind, including but not limited to damages on account of the loss of present or prospective profits arising out of or in connection with the use or failure of performance of the product. No claim may be made against DAP TECHNOLOGIES under this head, whether arising from contractual, extra-contractual or statutory liability.

The warranty allowed hereby excludes all other legal warranty related to the quality of the product or its capacities to fulfill specific purposes, including all warranties granted by the United Nations Convention on Contracts for the International Sales of Goods, the application of such Convention being expressly excluded

Revision March 2004

RETURN MERCHANDISE AUTHORIZATION (RMA) FOR SERVICING

In order to have your product serviced, you must first obtain a Return Material Authorization (RMA) from DAP TECHNOLOGIES. You may then return your MICROFLEX, correctly enclosed in its original packaging if possible, to your Value Added Reseller (VAR), an Authorized Service Center, or directly to DAP TECHNOLOGIES. Service under the conditions of this warranty requires prepaid shipment from your facility to a Service Center.

The MICROFLEX and its accessories have no user serviceable parts.

To obtain a RMA you can make your request by phone or use our on-line form at:

http://www.daptech.com/rma

EXTENDED WARRANTY ON DAP MANUFACTURED PRODUCTS

The original purchaser may, at any time during the initial warranty period, extend the warranty through purchase of a DAP CARE Service Contract. For more information, contact DAP TECHNOLOGIES.

CE CONFORMITY PC9800 only

The PC9800 meets the 89/336/EEC directive intent for Electromagnetic Compatibility Compliance when used with DAP's accessories.

This is a Class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

The compliance was demonstrated to the following specifications as listed in the official Journal of the European Communities:

Emissions:

EN 55022	Radiated & conducted , CLASS A
EN 60555	PART 2 & 3.
CISPR 22	For CLASS A

EN 50082-2:1995, Electromagnetic Immunity:

ENV 50140	Radiated RF electromagnetic field.
ENV 50204	Radiated electromagnetic field from radio telephones.
EN 61000-4-8	Power frequency magnetic field.
EN 61000-4-2	Electrostatic discharge.
EN 61000-4-4	Electrical fast transient/burst.
ENV 50141	Conducted disturbances induced by RF field.

CE CONFORMITY PC9800LS only

The PC9800 meets the 89/336/EEC directive intent for Electromagnetic Compatibility Compliance when used with DAP's accessories.

This is a Class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

The compliance was demonstrated to the following specifications as listed in the official Journal of the European Communities:

Emissions:

EN 55022	Radiated & conducted , CLASS A
EN 60555	PART 2 & 3.
CISPR 22	For CLASS A

EN 50082-2:1995, Electromagnetic Immunity:

ENV 50140	Radiated RF electromagnetic field.
ENV 50204	Radiated electromagnetic field from radio telephones.
EN 61000-4-8	Power frequency magnetic field.
EN 61000-4-2	Electrostatic discharge.
EN 61000-4-4	Electrical fast transient/burst.
ENV 50141	Conducted disturbances induced by RF field.

Safety of laser product

CEI/IEC 60825-1:1993+A1:1997   (CLASS 2 Laser product)

US Federal (FDA) Regulation

21 CFR Chapter I, Subpart J, Part 1040.10

Performance standards for Light Emitting Products

(Class II Laser product)

TABLE OF CONTENTS

QUICK TOUR

KEYBOARD TEMPLATE
VIEW

FIGURE 1

KEYBOARD SIDE

Microphone

Speaker

Screen

Cursor pad

Function keys

Keyboard

Numeric keypad

Battery Status
Indicator

Shoulder / belt /
carrying strap
fastener

Optical
communication
and IrDA port
(COM1 by default)

FIGURE 2

PC9800 & PC9800LS
BOTTOM SIDE

Second IrDA port on PC9800 (optional)
Barcode Laser Scanner on PC9800LS

Microphone

Speaker

Release screws
for PC Card
access door

LEMO
communication
connector
(COM2 by default)

Carrying strap
fastener for left
handed people

Location for
optional second
LEMO

Carrying strap

Battery
compartment

Release screws
for battery
compartment

Charging
contacts

**See also the
Security Notice for the
PC9800LS on next page**

FIGURE 3

PC9800LS
SECURITY NOTICE

AVOID EXPOSURE
LASER LIGHT IS EMITTED FROM
THIS APERTURE

CAUTION

LASER LIGHT- DO NOT STARE INTO BEAM

630-680 LASER
1.0 mW MAXIMUM OUTPUT
CLASS II LASER PRODUCT

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

MAP Technologies
Made in Canada

MICROFLEX

PC9800LS

Laser light
Do not stare into beam
Class 2 laser product
630-680 nm laser
1.0 mW max output

ISO 9001 C E

Danger laser light when open avoid direct exposure to beam.
Complies with 21 CFR 1040.10
& ICE 6825-1:1993 + A1:1997

CAUTION Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous laser light exposure.

FIGURE 4

Do not intentionally look at the laser light

USE OF THE PC9800

> **Except where otherwise indicated, the information regarding the PC9800 is also valid for the PC9800LS.**

Turning the unit ON

To turn on the PC9800, simply press the **F1** key on the keyboard. The PC9800 screen will activate. The application program will restart exactly where it left off when the unit was turned off.

Upon reactivation, a message, indicating low batteries, may appear on the screen. Instructions for recharging the batteries can be found in the section: BATTERIES AND CHARGING.

A new PC9800 comes with a partially charged battery. It should normally start without any further charging. However, depending on how long the unit has been stored without being charged, it may require some charge to restart. Refer to section "BATTERY AND CHARGING"

Automatic shut OFF

You generally do not have to worry about turning off the PC9800 to save the batteries. If the PC9800 remains inactive for more than 45 seconds, it will shut off automatically. The PC9800 will save the exact status of your application program and data before shutting off.

The PC9800 is turned off when the display is empty and the keyboard does not beep when a key is pressed. To restart it, use the normal start up procedure. Once restarted, you can resume your task where you left off.

When turned off with fresh batteries, you can store the PC9800 for weeks without needing to recharge them. Refer to section "MAINTENANCE AND STORAGE" for more information about storing the unit.

Turning the unit OFF manually

To turn off the PC9800, press the following keys: **blue key** and **F1** one after the other, releasing the previous key before pressing the next. The display will clear and the keyboard will no longer beep when a key is pressed.

To restart it, use the normal start up procedure.

Operating environment

Operating temperature

The recommended temperature range, where the **PC9800** may be used, is from -30°C to +50°C (-22°F to +122°F).

The recommended temperature range, where the **PC9800LS** may be used, is from -20°C to +50°C (-22°F to +122°F).

A short exposure to temperatures lower or higher than these could possibly make the screen very dark or light until the unit returns within the suggested temperature range.

Long exposure to temperature below -40°C (-40°F) may damage the screen. Prolonged exposure to temperatures above +60°C (+140°F) will damage the main battery and above +70°C may damage the unit (+158°F).

Rain and water resistance

The **PC9800** and **PC9800LS** will withstand exposure to rain without the ingress of water. It is designed to withstand occasional immersions. The unit floats, making it easy to retrieve when dropped in water.

These characteristics can be impaired if the battery compartment or the PC Card doors are improperly closed or if their gaskets have deteriorated.

Resistance to shock

The **PC9800** is designed to withstand shock and accidental drops from up to 2 meters (6 feet) onto a hard surface, within the fully specified temperature range.

The **PC9800LS** is designed to withstand shock and accidental drops from up to 1 meter (3 feet) onto a hard surface, within the fully specified temperature range.

It is obvious that these situations should be avoided as much as possible.

Electromagnetic resistance

The **PC9800** and **PC9800LS** work perfectly well in most common environments involving electromagnetic fields such as when near power transmission lines, electric motors, transformers, compressors, low power RF transmitters, etc. Performance can be degraded when using a communication cable, a peripheral or a battery charger under these conditions.

BATTERY AND CHARGING

The PC9800 is powered by a rechargeable (Lithium-Ion) battery. The battery allows three workdays of autonomous operation.

Battery power monitoring

At any time supervisors and advanced users can get information about the battery level from the SETUP program. Refer to sections "THE SETUP PROGRAM" in the ADVANCED part of this manual

The PC9800 includes a Power Gauge allowing you to monitor the power remaining in the battery at any time. Your application program may be developed to display to you that information. You should refer to your application program User's Guide to check if that feature is supported.

When implemented, the Power Gauge also needs to be calibrated prior to use, and then from time to time, to keep its precision. Advanced users can refer to section "POWER GAUGE CALIBRATION" in the ADVANCED part of this manual.

The PC9800 also has a Battery Status Indicator, located on the bottom right corner of the unit (see FIGURE 2). This indicator starts to blink in a red color when power begins to be low. The level at which the Battery Status Indicator starts to blink can be modified. It is then possible to adjust the time from which the blinking starts to a complete shut off of the unit. Advanced users can refer to section "THE SETUP PROGRAM" in the ADVANCED part of this manual.

Note: **the Battery Status Indicator may blink only when the Power Gauge is calibrated.**

The PC9800 uses a specifically designed and tested main battery to insure quick charging time, long-battery life and to withstand shocks and vibrations. To be sure that the battery is conform for usage on a DAP equipment, buy them directly from DAP TECHNOLOGIES or one of its distributors (Part number DC800) and check for the DAP label on it.

Batteries that are not from DAP Technologies, even if they come from the same manufacturer and look the same, can have incorrect recharge, give a lower charge and battery life, show improper behavior of "Low Bat" message and break when dropped.

The low battery message

When the battery level is low, the unit turns off automatically. When you resume your application program, whether you have recharged the batteries or not, the unit displays a message. This message says that the unit shut down automatically because the battery was low, and that the battery should be recharged if you have not already done so (see FIGURE **5**). The message will be cleared after a few seconds, and the unit will return to your application program until the next time you have a low battery message.

```
┌─DAP Technologies ════════╗
║                          ║
║ === MICROFLEX PC9800 === ║
║                          ║
║                          ║
║      ** WARNING **       ║
║                          ║
║                          ║
║   A low battery level    ║
║    has been detected     ║
║                          ║
║  Battery needs to be     ║
║  recharged or replaced   ║
║  if not done yet.        ║
╚══════════════════════════╝
```

FIGURE 5
Low battery messages

The unit may refuse to turn back on because the battery is too low. In that case, the message will appear when you connect the PC9800 to a charger.

The PC9800 is equipped with a backup battery. This battery insures that the application program, data and files are always saved, even when the battery is too low or when it is being replaced. See "The backup battery" for more details.

Recharging the battery

The PC9800 is normally ordered with a charging kit. A choice of several charging kits is available. The first two, part number AS800 or AS802, allow charging the PC9800 from the LEMO type connector. The second two, part number AS820 or AS822, allow charging from a communication cradle.

The specific kit required depends on the type of power available for the charger:

- The AS800, AS820, for charging from a 110 V, 50-60 HZ source
- The AS802, AS822, for charging from a 220 V, 50-60 HZ source

The charging operation is completed within three hours. The PC9800 intelligent charging system will stop by itself when the battery is completely recharged.

=== **IMPORTANT** ===

The recharging must be done when the battery is at a temperature between 0°C (32°F) and 45°C (113°F), this to preserve the battery integrity. The Battery Status Indicator goes yellow if the battery is too hot or to cold to be charged and the charging system is disabled.
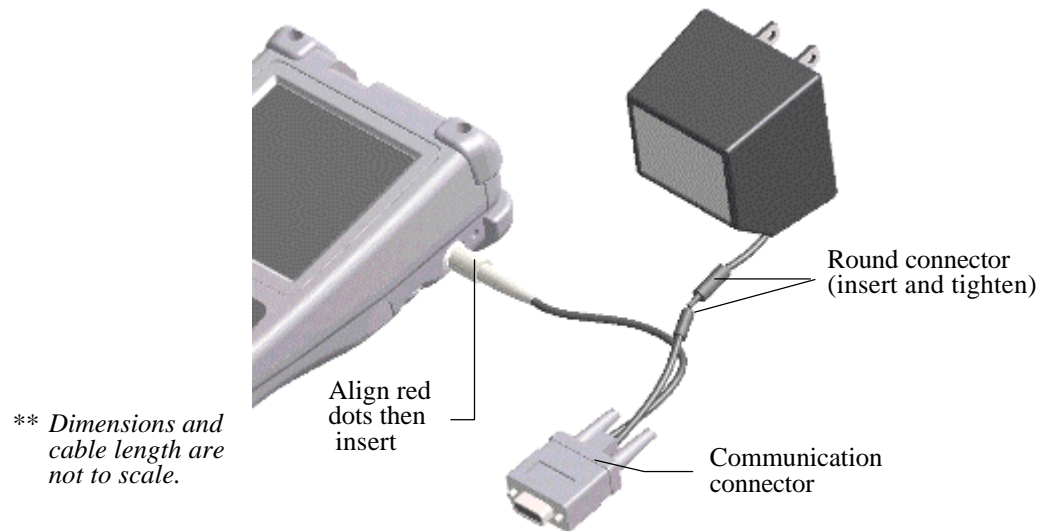
From the LEMO connector

** *Dimensions and cable length are not to scale.*

Round connector (insert and tighten)

Align red dots then insert

Communication connector

FIGURE 6
FROM A LEMO CABLE

The installation requires the modular charger and the communication cable from the LEMO Connector Charging Kit (part number AS800 or AS802).

Insert the round connector of the modular charger into the round connector of the small cable attached to the communication cable's 9-pin connector (FIGURE 6). Connect the modular charger to the wall outlet.

Align the red dot located on the LEMO connector end of the cable with the red dot found on the round connector located on the right side of the PC9800 and insert connectors, one into the other.

Note: **If your PC9800 has 2 round connectors (LEMO connector), use the top one.**

The PC9800's Battery Status Indicator (FIGURE **2**), will turn red in the next 5 seconds, indicating that charging is in progress and will become green when the full charge is completed. This could take up to 3 hours.

If the unit was turned off, it should turn back on after a few seconds. Processing will resume exactly where it was interrupted once recharging starts.

Communication cradle

The installation requires the modular charger and the communication cradle from the Cradle Charging Kit (part number AS810, AS812, AS820 or AS822).

Before charging the PC9800, you first need to power the communication cradle. Insert the round connector of the modular charger into the round connector at the top left of the cradle (FIGURE **7**). Connect the modular charger to the wall outlet.

From there, to recharge the PC9800 battery, you just need to slide the PC9800 into the cradle, bottom first.

FIGURE 7
Charging from a communication cradle

The PC9800's Battery Status Indicator (FIGURE **2**) will turn red in the next 5 seconds, indicating that charging is in progress and will become green when the full charge is completed. This could take up to 3 hours.

If the unit was turned off, it should turn back on after a few seconds. Processing will resume exactly where it was interrupted once recharging starts.

Replacing the battery

It is preferable to replace the batteries while in a clean, dry area. Make sure that neither water nor dust can enter the PC9800.

NOTE: **Always turn off the PC9800 before replacing the batteries. The backup batteries will retain your data and programs.**

> **IMPORTANT: Removing the battery while the unit is still turned-on may result in a loss of data and a booting of the unit when the battery is re-installed.**
>
> **You will also lose your calibration of the battery**

The PC9800 uses a specifically designed battery to assure a quick charging time and long battery life. Consequently, this is only available from DAP TECHNOLOGIES or one of its distributors. Order part number DC800.

Replacement of the battery is an easy task. Follow the steps outlined below.
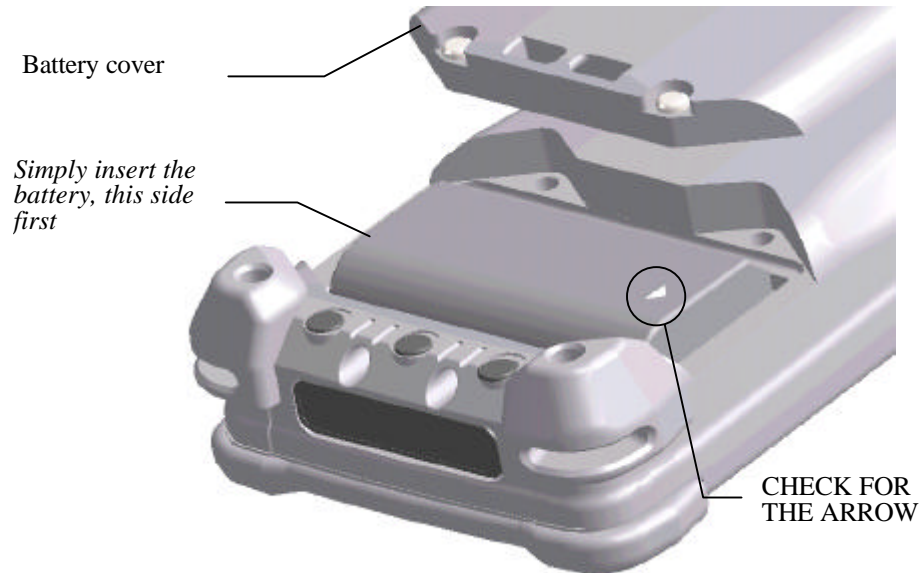
Battery cover

Simply insert the battery, this side first

CHECK FOR
THE ARROW

FIGURE 8
Battery compartment

- Turn off the unit first (see section "Turning the unit OFF manually")

- Using a small, flat blade, screwdriver, remove the 4 screws marked "Release screws for battery compartment" in FIGURE 3.

- Pull out the battery and insert the new one, inserting the left side first. Be sure to align the arrow on the battery, toward the right, as shown on FIGURE **8**. The foam (not shown on the drawing) should go over the battery, to make it tight in the casing.

- Re-install the 4 screws, and tighten them until you feel some resistance.

- Turn the unit back on and charge the battery if required.

The PC9800 uses a specifically designed and tested main battery to insure quick charging time, long-battery life and to withstand shocks and vibrations. To be sure that the battery is conform for usage on a DAP equipment, buy them directly from DAP TECHNOLOGIES or one of its distributors (Part number DC800) and check for the DAP label on it.

Batteries that are not from DAP Technologies, even if they come from the same manufacturer and look the same, can have incorrect recharge, give a lower charge and battery life, show improper behavior of "Low Bat" message and break when dropped.

The backup battery

The main battery recharges the backup battery that preserves the memory. The backup battery is recharged from the main battery even if the unit is not charging.

The backup battery life depends of the type of memory used and the quantity. Battery life is typically7 days with 16Mb of DRAM and over a month with SRAM memory. The backup battery capacity decrease greatly at temperature below 20°C.

The PC9800 backup battery allows you to keep programs and files in the PC9800 memory for days. In practice, the backup battery is used only while you replace the battery, when the battery is absent or when the battery is very low.

Even if the battery is too low to power the PC9800, enough energy remains to power the memory for weeks, without using the backup battery. The backup battery will be switched on to maintain the memory only when the battery is completely dead.

A low backup battery message is displayed if the backup battery is low when the unit reboot (see FIGURE 9).

```
┌─DAP Technologies ══════════┐
║                            ║
║  === MICROFLEX PC9800 ===  ║
║                            ║
║       ** WARNING **        ║
║       BATTERY BACKUP       ║
║                            ║
║    Backup battery is       ║
║        very low.           ║
║                            ║
║  Refer to User's Guide.    ║
║  You may have to re-       ║
║  install your program to   ║
║  assure integrity.         ║
```

FIGURE 9
Low Backup Battery message

The backup battery is rechargeable. See item "Storing" under "MAINTENANCE AND STORING".

KEYBOARD DESCRIPTION

Use of the keyboard

The PC9800 keyboard is the unit's command center. To make the PC9800 easy to handle and simultaneously make the keys big enough, the PC9800 has been equipped with 51 keys. However, these 51 keys are sufficient for all your command entry needs.

Direct access keys

Letters, digits, function keys and an escape key are examples of direct access keys. To generate this type of character, simply press the key bearing the desired character.

Multi-key entry

Sometimes you might need to press more than one key to get a character or a special function. The **SHIFT (↑), CTL/ALT** or **blue key** are the keys that can precede a letter or a digit to modify its original value.

According to your preferences, or as the situation demands, you can decide to use one of the two following methods to form the sequence of keys.:

- Press the keys one after the other, releasing the previous key before pressing the next. This method (also known as one finger typing) allows you to use only one finger to make any function

Or

- You can press all of the keys required together, using two or more fingers.

The color code simplifies the way the keyboard works. The **blue key** needs to be pressed first to get a character in blue.

A simple way to understand how the multi-key entry works is by typing a **?**. The **?** being in blue means that you must precede it with the **blue key** which is also in blue. You may use either method described above.

Auto-repeat

A key will automatically start to repeat if left pressed for more than one second. It will stop repeating when you release it.

Description of the important keys

Digit and letter keys

To generate a character, either as an alpha (letter) or numeric (digit) value, simply press the key bearing the desired letter or digit. Letters are normally all in upper case.

Lower case once

To generate a lower case letter, press the following keys: the **SHIFT (↑)**, followed by the desired letter.

**Continuous
lower case**

To generate a series of lower case letters, first press the **blue key** then the "**0**" (zero). This will simulate the **Caps Lock** key you find on a conventional PC keyboard.

Upper case once

To generate a single upper case character, press the **SHIFT** (↑) followed by the desired letter.

**Continuous
upper case**

To return to upper case characters, just repeat the **blue key** then the "**0**" (zero).

**Enter key or
Return key**

```
ENTER
```

The bent arrow (↵) is used to accept an entry. The key corresponds to a **RETURN** or **ENTER** key on an ordinary keyboard. This is the key normally used to complete a typed command.

Space

```
SP
```

The **SPACE** key corresponds to the space bar of a normal keyboard.

**Keys for
punctuation and
special symbols**

To enter punctuation marks, or special typographic symbols, press the **blue key** and then the letter key marked with the desired symbol in blue. To generate a **?**, press the **blue key,** and then **V**.

**Editing keys
(Del, Backspace)**

```
BKSP      DEL
```

Editing keys, (i.e., the keys used to correct typographical errors) are simple to use: a key marked with **BKSP** corresponds to the backspace function. This key will erase the last character typed. To erase the character in the current position, press the **blue key** and then **DEL**.

Cursor pad
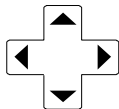
The **cursor pad** groups together four arrow keys, also called direction keys or cursor keys. It is mainly used in an application to make a selection of data, to select and start a function within a menu or to move the cursor on a line to edit the characters. On the **cursor pad**, press the extremity of the cross representing the appropriate direction: up, down, left, or right.

**Minus (-) and
Plus (+) signs**

The "**-**" enters a minus sign in the application. It is frequently used to enter a negative quantity. To generate a minus sign, press the key marked **±** . To generate a plus sign, press the **blue key** and **±**.

Dot sign (.)

The "**.**" key enters a dot in the application. It is frequently used to enter a decimal quantity.

ESC

The **ESC** key is generally used to stop an action or return to a previous menu. It is mainly application dependent.

**Function keys
(F1…F10)**

The function keys are for direct access to a specific function in your application. Function keys F1 to F5 are direct access. The function keys (F6 to F10) are obtained on the PC9800 by pressing **SHIFT** (**↑**) followed by a number from **F1** to **F5**.

You need to refer to your Application User's Guide to know the intended meaning of these keys, in your specific user application.

NOTICE: on the PC9800LS the **F3 <SCAN>** key is generally used to start a barcode scan and consequently will not generate a **F3** function key. See the Security Notice for the PC9800LS at the beginning of the page..

ON/OFF switch

To turn on the PC9800, simply press the F1 key. To turn off the PC9800, press the **blue key** and **F1** key.

**Other special
keys**

Other key combinations are possible and reserved for particular PC9800 operations. For more information, refer to the section "ADVANCED KEYBOARD FUNCTIONS" in this manual.

SCREEN DESCRIPTION

The PC9800 normally displays 25 lines of 25 characters. The application program can also configure it to display many other types of fonts. The most current ones are:

- 25 lines of 33 characters
- 16 lines of 25 characters
- 12 lines of 25 characters

The PC9800 screen can display upper and lower case letters as well as graphics. It is automatically temperature compensated to give you a clear and contrasted reading at very low or very high temperatures. An additional manual adjustment is possible for extreme low, or extreme high, temperature.

Back lighted screen and keyboard

To use the unit in a low light environment, every PC9800 is equipped with a backlighted screen. Optionally, the PC9800 can also be equipped with a backlighted keyboard.

Note: **Backlighting can drain batteries rapidly if used constantly. Only use it when necessary, in a low light environment.**

To active the backlighting of the screen and keyboard, press the **blue key**, and then the **F3** key. The same sequence will deactivate this feature.

Backlighting normally turns off by itself after 45 seconds if there is no key pressed or new information on the screen.

The backlighted keyboard has 2 distinct zones:

- The numeric section, or top keyboard section, which includes the **Function key** row down to the **Enter** key row.
- The alpha section, or bottom keyboard section, which includes the **A**, **B**, **C**, **D** row down to the **W**, **X**, **Y**, **Z** row.

Normally, both zones of the keyboard will be backlighted but, under software control, only one zone, or no zone at all, can be backlighted.

Display background and contrast,
additional adjustments

The PC9800 includes a precise automatic temperature compensation system to assure you that the screen display contrast will be at its best in any circumstance. In extreme temperatures, outside of the -20 to +50°C (-4 to +122°F) range, or simply to adjust it to your preference, you may have to manually readjust it.

In extreme low temperatures, pressing the blue key, and then the F5 key one after the other can increase the display contrast. You can hold down the **F5** key to take advantage of the keyboard repeat function and go quickly from one step to another.

In extreme high temperatures, pressing the blue key, and then the F4 key one after the other can reduce the display background darkness. You can hold down the **F4** key to take advantage of the keyboard repeat function and go quickly from one step to another.

There are about 16 steps to each contrast limit, starting from the default adjustment.

USE OF PC CARDS

To insert, remove or swap a PC Card, follow the steps described below. You can refer to FIGURE 3 and FIGURE 10 to locate the mentioned items.

NOTE: It is preferable to insert, remove or replace a PC Card in a clean, dry area. Make sure that neither water nor dust will enter the PC9800.
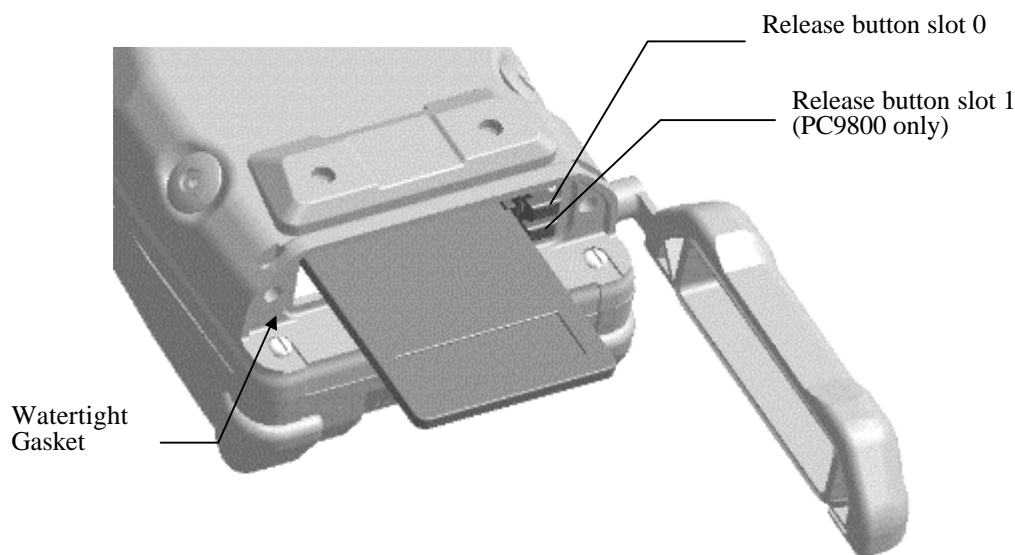
Release button slot 0

Release button slot 1
(PC9800 only)

Watertight
Gasket

FIGURE 10
PC Card compartment

1. It is normally not necessary to turn off the PC9800 before inserting, removing or swapping a PC Card. This can be done any time while the unit is running or turned off.

   It is possible that the PC Card used, or the application program, does not allow an insertion while the unit is running. Your supervisor, the application program supplier or DAP TECHNOLOGIES are the best sources to contact in order to answer this question.

2. Using a small, flat blade, screw driver, remove the PC Card access door by loosening the 2 screws located on the top side of the PC9800 (FIGURE 3), about 2 turns to the left (counterclockwise). Slowly pull out the door (FIGURE 10). A flexible strap will keep the PC Card door attached to the right side of the casing. In like manner the screws have a special mechanism to retain them in the cover.

3. To remove the actual PC Card, if present, press the appropriate release button located on the left side of the card. The card will exit the socket by a few millimeters. It is preferable to use a finger as a protection, to stop the exit of the card. Complete the removal by pulling out the card with your hand.

4. To insert a PC Card, slide it in the socket (the end with the 2 rows of little holes first and the manufacturer label on top). When the sliding begins to be a bit tight, push the card firmly. The release button should pop out and the card should hold firmly in the socket. If this is not so, the card is

possibly upside down. Before closing the door, check the plastic gasket located around the internal side of the casing (see figure). It should be in good condition, perfectly clean, with no dust, sand, grease, oil or other impurities. Any fault in this aspect could cause the PC Card door to leak and eventually damage the unit.

5. To close the door, slowly replace the door in its initial position. Assure yourself that the card does not exceed the casing and touch the door. Tighten the 2 screws (FIGURE **3**), about 2 turns to the right (clockwise). Tighten them until you feel some resistance. Do not over tighten the screws.

The application program should run normally after these steps. It is possible that the card or the application program may require that the PC9800 be reset.

Resetting the unit

Holding the keys F1, 9 and 0 pressed together for about 2 seconds, does reset of the unit. The following display (see FIGURE **11**) should appear for a few seconds, after which the application program will restart or the DOS prompt will appear, depending on the way the unit has been programmed.

NOTE: **The reset should never be done without authorization from your supervisor or special directive since, under certain circumstances, data loss can occur.**

```
╔═ DAP Technologies ═════╗
║                        ║
║ == MICROFLEX PC9800 == ║
║      Version 1.00      ║
║                        ║
║    <special message>   ║
║                        ║
║ Total Memory:    xx MB ║
║ System Memory:  xxxx Kb ║
║ Extended Memory:  xx Mb ║
║                        ║
```

FIGURE 11
Initialization message

PC card overload

While inserting a PC card into a slot the message of FIGURE **12** might appear. This can indicate that the card is not compatible with the PC9800 or the card has a problem or simply that the card requires a high rush current when starting. Remove and re-insert the card a few times to see if the problem always appears. In that case refer to your supervisor or material supplier.

```
╔═══════════════════════╗
║                       ║
║   DAP Technologies    ║
║                       ║
║ === MICROFLEX PC9800 ===║
║                       ║
║                       ║
║                       ║
║     ** WARNING **     ║
║    PCMCIA OVERLOAD    ║
║                       ║
```

FIGURE 12
PC card overload message

IrDA INTERFACE

The PC9800 comes with an optical port on its bottom side. Its main purpose is to be used with the cradle to communicate. In addition, the same Optical Port integrates an IrDA interface. See Figure A2 and A3 of the User's Guide to locate the IrDA interface.

An IrDA interface is an advanced technology that allows Infra Red communication with peripherals and between computers. On a PC9800, the main purpose of an IrDA Interface is to communicate with a printer, without any cable attachment. Communication with another computer or even another PC9800 is also possible.

The way the printing is done using IrDA is mainly dependent of the application program. It is then impossible to describe here precisely how it will handle it. You should refer to your application program user's guide for complete details.

In the mean time, the following presents the basic information.

· To communicate with the IrDA interface, the peripheral or the remote computer should also have an interface supporting the IrDA protocol.

· To communicate with the peripheral, point the bottom side of the PC9800 at the IrDA receptor on the peripheral. Usually the receptor looks like a dark plastic window about 17x7 mm (3/4x5/16 inch). Stay aligned within about ±15°

· The communication can be done from a distance of up to 1 meter (3 feet).

· The communication link is strong enough to withstand a quite large displacement between the computer and the peripheral. In case of bad reception, the communication protocol will restart the transmission of the missed data block.

· Direct, strong sunlight can degrade the communication link, increasing the communication duration or even causing a breaking of the link. Under direct sunlight, protect the PC9800 and the peripheral with the shade of your body and keep the PC9800 closer to the peripheral.

NOTE: **As an option, the PC9800 can have a second IrDA interface on the top of the unit** (see FIGURE 3)**. That interface functions exactly as the one explained above. The IrDA interface on the top of the unit can be advantageous in pointing to a peripheral in front of the user, such as a peripheral attached to a wall. This also allows for any required keyboard entry just prior to the IrDA communication session.**

Printing with IrDA

The main purpose of the IrDA interface is to support printing without using a cable attachment. Printing using IrDA needs to be supported by your application program. If it is the case with your program, you just need to direct the PC9800's IrDA port toward the printer's IrDA port when it is time to print. You may refer to the section above for more information.

The PC9800 will make 2 short beeps to indicate that the printer has been detected and that the printing starts. You will have several seconds to establish the optical link before the PC9800 returns an error to the application program.

After hearing these 2 first beeps, try to keep your position until you hear a second set of 2 beeps, telling you that the transfer of information to the printer is completed. From there, you can continue your normal activity.

The printer may continue to print for several seconds after the second set of beeps. This is normal. It is caused by data still remaining into the printer buffer.

If the optical link is broken before data transfer from the PC9800 to the printer is completed, you will hear several long beeps telling you to reestablish the optical link. You will normally have plenty of time to reestablish the link without any loss of information. The PC9800 will emit up to 20 beeps before stopping the print. However, the printer may stop to print by itself before the PC9800 does. In both case, you may have to re-print your document.

BARCODE LASER SCANNER
(optional, PC9800LS)

CAUTION
LASER LIGHT- DO NOT STARE INTO BEAM
630-680 LASER
1.0 mW MAXIMUM OUTPUT
CLASS II LASER PRODUCT

The PC9800LS is a standard PC9800 on which a Laser Barcode Reader has been installed in place of the optional IrDA 2 interface.

The behavior of the Laser Barcode Reader is mainly under the control of an application program and a special software driver. It is then impossible to describe here precisely how they will handle it. You should refer to your application program user's guide for complete details.

In the meantime, the following presents the basic information.

· Point the top of the PC9800LS toward the barcode label to read.

· Press the **F3 <SCAN>** key and move the PC9800LS back and forth to assure you that the beam will completely cross the label.

2 good ways to scan a label
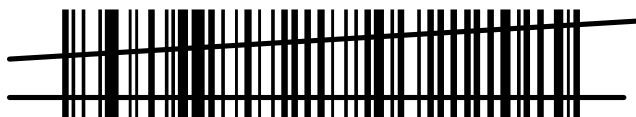
2 bad ways to scan a label

· You will hear a short beep when the label will be decoded.

· You can release the **F3 <SCAN>** key at any time to stop the scanning.

· If you keep the **F3 <SCAN>** pressed for too long the scanning will stop by itself after a certain time. You will hear 2 beeps meaning that no barcode has been decoded.

Refer to the PC9800 & PC9800LS Technical Guide and Development Tools manual for more information about the use and the programming.

CAUTION Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous laser light exposure.

Do not intentionally look at the laser light

Maintenance Notice
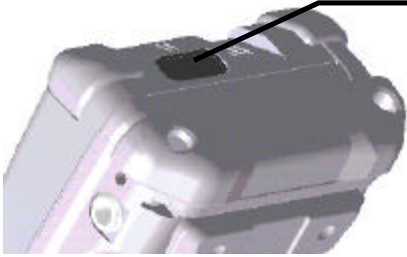
The efficiency of the reading depends of the quality of this plastic window. **TAKE PARTICULAR CARES OF IT**

· Any scratch, dirt or finger mark will degrade the reading quality.

· To clean up used soft cloth with soap and water. Any plastic lens cleaner will also do the job.

VOICE SYSTEM (optional)

As an option, the PC9800 can be supplied with a Record/Playback Voice System. When installed, the Voice System allows the user to listen to pre-recorded messages or instructions, and to record the user's own messages and play them back.

The Voice System is composed of a speaker and a microphone in addition to a Voice Processing chip, inside the unit. You can locate them in FIGURE **3**.

The behavior of the Voice Interface is mainly under the control of an application program and a special software driver. It is then impossible to describe here precisely how they will handle it. You should refer to your application program user's guide for complete details.

In the meantime, the following presents the basic information.

- The method
    - To record a message or listen to a message
    - To listen to a pre-recorded message or a message you just recorded
    - To delete a message or modify one depends on the application program and cannot be described here.
- To record, bring the top of the unit to about 10 cm (4 inches) from your mouth and speak clearly but not too loudly. The way the record function starts depends on the application program and cannot be described here.

- To play back, the internal speaker should be strong enough to listen the information at the distance from which you normally do your keyboard entry. In a noisy environment, it could be necessary to bring the top of the unit nearer to your ear. The way the play back function starts depends on the application program and cannot be described here.

- You can increase or decrease the volume by pressing **+** (plus) or **-** (minus) during playback of messages.

- For optimal performance, do not cover the speaker and microphone with any type of material. Both parts are already sealed against water and dust with a special membrane. They require no additional protection.

MAINTENANCE AND STORAGE

The PC9800 is a reliable instrument and requires little maintenance. Only occasional replacements of the battery and strap are required.

It is important not to leave the PC9800 exposed to the sun for long periods of time, since the airtight casing may accumulate sufficient heat to cause a malfunction.

NOTE: **There are no user serviceable parts inside the PC9800. Do not try to open the case. Any attempt to do so may affect the weatherproofing and may damage the unit, as well as void the warranty.**

Cleaning

Use a normal soft cloth and mild soap to clean the PC9800. Do not use abrasives, as they may damage the finish.

Make certain that the battery compartment and PC Card door are correctly closed before starting the cleaning operation.

Transporting

When transporting the unit, it is a good idea to use the protective case available from DAP TECHNOLOGIES (part number BW800).

Shipping the unit

The PC9800 has been designed to resist the vibration and shock that can occur during normal use of the product. However, if it is necessary to ship the PC9800 any long distance, the handling involved in land and air transport can often subject the PC9800 to impact beyond that for which it was designed to withstand. It is therefore essential that the PC9800 be properly packed in an adequate and appropriate manner before being shipped.

The packing box that DAP TECHNOLOGIES uses for shipping the PC9800 to its customers was designed for this very purpose, and should, therefore, be set aside and kept, in case reshipping becomes necessary.

Storing

If the unit is not going to be used for few days you can just keep it on the charger.

For a storage period of a few weeks, fully recharge the PC9800, turns it off and store the unit at a temperature from 20°C (68°F) to 25°C (77°F). This procedure can be used for a storage period shorter than four (4) weeks for a PC9800 with SRAM memory and two (2) weeks for a PC9800 with DRAM memory. Within that time range, your data will be preserved on the disk.

After the specified period you need to fully recharge the unit if you wish to continue the storing for another period. This to preserve the battery specification as per the manufacturer directives.

Keeping the unit continuously on the charger is also possible but will affect the battery capacity in the time. This could affect applications where very long battery life is required but shows no problem if the unit is normally recharged daily.

DAP recommends that the user do a calibration of the Power Gauge Mechanism (see "Power Gauge Mechanism").

Battery maintenance

The high quality Lithium-Ion battery installed by DAP in your PC9800 can be recharged over 500 times. If you find that the batteries are not lasting for the normal period (at least 12 hours) after having been recharged, it may be time to change them. When used under normal conditions, the battery should last, on average, from 24 to 36 months.

Backup battery maintenance

The PC9800 backup battery allows you to keep programs and data in the PC9800 memory for years without being replaced. Being rechargeable, and protected against deep discharge, the backup battery will not need to be replaced during the expected lifetime of the PC9800.

Carrying strap maintenance

The carrying strap requires no specific maintenance. Use a normal soft cloth and mild soap to clean it.

It may be necessary to replace it from time to time, due to wear.

List of user replaceable parts

There are few parts that the user can easily replace.

The following list shows parts that need to be replaced occasionally as they deteriorate with use.

Part Number	Description
DC800	Lithium-Ion Battery
DC801	Carrying strap (4 per package)

FIGURE 13
User's replaceable parts

TROUBLESHOOTING CHART

**Summary of
the Battery
Status
Indicator**

COLOR	MEANING
Red, continuous	Charger connected, unit is charging
Green, continuous	Charger connected, unit fully charged
Red, blinking	User's defined low battery warning
Yellow, continuous	Charger detected but the battery temperature is too high or too low to be recharged. Charging will start when temperature will be adequate.
Turned off	Power from the charger not detected

FIGURE 14
Meaning of the Battery Status Indicator

**Basic
troubleshooting**

Problems	Possible causes and solutions
The screen is empty and the keyboard does not beep when pressing a key.	The unit is possibly turned off. Press the F1 key to restart it. (Refer to item "Turning the unit on).
The unit does not turn on when pressing the F1 key.	Batteries are possibly too low. Connect the unit to a charger. The unit should wake up after a few seconds and display the battery low message. Refer to section "BATTERY AND CHARGING")
The unit does not restart by itself when connected to a charger.	When connected to a charger, the Battery status Indicator should turn red. Otherwise, check to be sure that the modular charger is connected to the wall outlet. Remove the battery. If the unit restarts, the battery needs to be replaced by a new one. Reset the unit. Refer to "Resetting the unit".
The PC Card does not connect in the PCMCIA socket.	The PC Card is possibly inserted the wrong way. Refer to "USE OF PC CARD".
Display contrast is weak or display background very dark	The display contrast is incorrectly set. Use the contrast keys to adjust the display. Refer to "Display background and contrast, additional adjustments" The display cannot be adjusted correctly if the unit is used outside of its temperature limits

Problems	Possible causes and solutions
The unit does not power off automatically or manually.	The unit is possibly connected to a charger, or, the application program has possibly disabled the automatic power off feature.

FIGURE 15
Troubleshooting chart

There are some specific situations that can cause the PC9800 program to crash or behave strangely. The more common causes are as listed below.

- Programming errors, specifically when trying a new application program.
- Missing or corrupted programs or data files.
- Operation of the unit outside the specified temperature range.
- Physical abuse. In such an instance, the physical cause will be observable by doing a survey of the unit, looking for plastic cracks or corrosion marks in the battery and PC Card compartments.

In all of these cases, contact your supervisor or the application program supplier. If the problem cannot be resolved, contact the equipment supplier or DAP TECHNOLOGIES. A reset of the unit may correct the problem, or it may be necessary to return the unit to the Service Center.

OPERATING ENVIRONMENT

**Operating
Temperature**

The recommended temperature range where the PC9800 may be used is from -20°C to +50°C (-4°F to +122°F).

A short exposure to temperatures lower or higher than these could possibly make the screen very dark or light until the unit returns within the suggested temperature range.

Long exposure to temperatures below -40°C (-40°F) may damage the screen. Prolonged exposure to temperatures above +60°C (+140°F) will damage the main battery and above +70°C may damage the unit (+158°F).

**Rain And Water
Resistance**

The PC9800will withstand exposure to rain without the ingress of water. It is designed to withstand occasional immersions. The unit floats, making it easy to retrieve when dropped in water.

These characteristics can be impaired if the battery compartment or the PC-Card doors are improperly closed or if their gaskets have deteriorated.

**Resistance To
Shock**

The PC9800is designed to withstand shock and accidental drops from up to two meters (six feet) onto a hard surface within the fully specified temperature range.

The PC9800LS is designed to withstand shock and accidental drops from up to one meter (three feet) onto a hard surface within the fully specified temperature range.

It is obvious that these situations should be avoided as much as possible.

**Electromagnetic
Resistance**

The PC9800 work perfectly well in most common environments involving electromagnetic fields such as when near power transmission lines, electric motors, transformers, compressors, low power RF transmitters, etc. Performance can be degraded when using a communication cable, a peripheral or a battery charger under these conditions.

ADVANCED USERS INFORMATION

The following sections contain information that is for advanced users and supervisors. The information is not a requirement for adequate use of the PC9800.

For all information concerning the download of the communication program (COM.EXE), the battery manager (BATMNGR.EXE), the DOS files and some utilities that can be used on PC9800 Series units, please refer to the extranet web site of DAP Technologies (DocuDAP: https: **https://support.daptech.com**.)

Where to find more information.

Start your Internet browser and go to the following address: http://support.daptech.com

Login using your Username and Password and click LOGIN

Then go under section « Product Documentation / User Guides & Updates / Other Downloads »

ADVANCED KEYBOARD FUNCTIONS

The keyboard of your MICROFLEX PC9800 gives you access to the most common keys you can find on a standard desktop computer. In addition, it includes several keys specific to the unit. Not all keys have the same significance or use. That is why several keys or key sequences have not been described previously, but are supported as hidden keys on the keyboard.

FUNCTION	KEY or KEY SEQUENCE
Position and Editing keys	
INS	BLUE KEY + INS
HOME	BLUE KEY + 7
END	BLUE KEY + 1
PAGE UP	BLUE KEY + 9
PAGE DOWN	BLUE KEY + 3
TABULATION	BLUE KEY + 4
BACK TABULATION	BLUE KEY + 6
CTRL HOME	BLUE KEY + CTL + BLUE KEY + 7
CTRL END	BLUE KEY + CTL + BLUE KEY + 1
CTRL PAGE UP	BLUE KEY + CTL + BLUE KEY + 9
CTRL PAGE DOWN	BLUE KEY + 3
CAPS LOCK	BLUE KEY + 0
To stop processing or quit current operation	
ESCAPE	ESC
CONTROL-C	BLUE KEY + CTL + C
To print	
ECHO ON PRINTER	BLUE KEY + CTL + P
PRINT SCREEN	BLUE KEY + 5
To generate special characters	
OUTPUT ASCII CODE	ALT and 3 digits (require the Alternate Keyboard map)
For function keys	
F1 to F5	Direct access
F6 to F10	SHIFT + F1 to F5
CTRL-F1 to CTRL-F5	BLUE KEY + CTRL + F1 to F5
CTRL-F6 to CTRL-F10	BLUE KEY + CTRL + SHIFT + F1 to F5
Manual window scrolling movement	
WINDOW UP	BLUE KEY + Up Arrow
WINDOW DOWN	BLUE KEY + Dn Arrow
WINDOW LEFT	BLUE KEY + Left Arrow
WINDOW RIGHT	BLUE KEY + Right Arrow

FIGURE 16
List of keyboard-hidden keys

POWER GAUGE CALIBRATION

This chapter describes the use of BATMNGR.EXE version 1.40. BATMNGR.EXE is the program used to calibrate and test the PC9800 battery capacity.

When calibrated, the SETUP menu POWER MANAGEMENT (see FIGURE **17**) gives you an accurate value of the remaining battery capacity. The Battery Status Indicator will also flash when the battery will reach the Battery Warning Level sets by the user (see section THE SETUP PROGRAM, under "Warning Level").

When a full battery test is performed the calibration of the battery is also done but an indication of the maximum capacity of the battery is also given. When compared to previous values it allows you to decide whether to perform a preventive replacement of the battery.

Calibration of the battery is suggested

- Every time the POWER MANAGEMENT menu of the SETUP program displays that the LAST CALIBRATION is expired.
- Every time the main battery is removed

```
        SETUP Ver 1.xx
POWER MANAGEMENT -------+

  POWER OFF DELAY =xxxx

  BATTERY WARNING
  LEVEL            =  xx%

   -- BATTERY STATUS --

  ACTUAL LEVEL    =  xx%

  LAST CALIBRATION
  DATE =    xxxx/xx/xx
  STATUS = VALID
         ---------

  <MAIN MENU>



+------------------------
PRESS ENTER TO MODIFY
▲ ▼  TO SELECT NEXT ITEM
```

Remaining power

Date of the last calibration (comes from the log file created by BATMNGR.EXE

Calibration status VALID/EXPIRED

FIGURE 17
The Power Management menus

NOTE: **A non-calibrated battery DOES not affect the battery life nor the charging duration. The calibration only allows the PC9800 to accurately report the remaining capacity of the battery and to enable the battery Status Indicator to blink when the battery reaches the Warning Level. A PC9800 can be freely used with a non-calibrated battery.**

Installation of BATMNGR

BATMNGR runs on the PC9800. You may find the BATMNGR.EXE program file under sub-directory TOOLS on the PC 9800's Companion Disk 1, revision 5 and higher. In that last case you just need to transfer the file BATMNGR.EXE to the PC9800.

Release 1.40 of BATMNGR runs only on a PC 9800.

> ### NOTE
> - **BATMNGR.EXE requires a BIOS version 1.07 or higher**
> - **Release 1.40 of BATMNGR runs only on a PC 9800.**
> - **BATMNGR.EXE is not on your PC9800 by default. It needs to be transferred form the Companion Disk (see above)**

Calibration mode

To start BATMNGR in Calibration mode at the DOS prompt (A>) enter the following command:

```
BATMNGR F [ENTER]
```

When started for a Battery Test mode, the first operation of BATMNGR is to fully charge the PC9800 battery, so as to start the test from a known point. Then, it starts a deep discharge operation and a second full recharge operation.

The full battery test could last up to 17 hours depending on the initial charge level of the battery and their actual state (fresh batteries vs. used ones).

Quick Calibration

Since the Calibration Mode could take up to 17 hours it could be useful to sometime have a way to make it faster. The Quick calibration does about the same than the Calibration Mode but leaves the PC9800 discharged at the end of the cycle.

To start BATMNGR in Quick Calibration at the DOS prompt (A>) enter the following command:

```
BATMNGR D [ENTER]
```

When started for a Quick Calibration the program charges the battery then discharge the battery until a low battery warning occurs. At this point, BATMNGR re-connects the charger and quits.

Calibration of a PC9800 could last up to 13 hours. At the end of the cycle, the unit is not charged but is ready for any other task while it completes the charging.

Aborting the operation

At any time, you can abort the operation by entering the character "@" on the PC9800 keyboard. This is done by first pressing the Blue key, and then the "I" key.

Status display

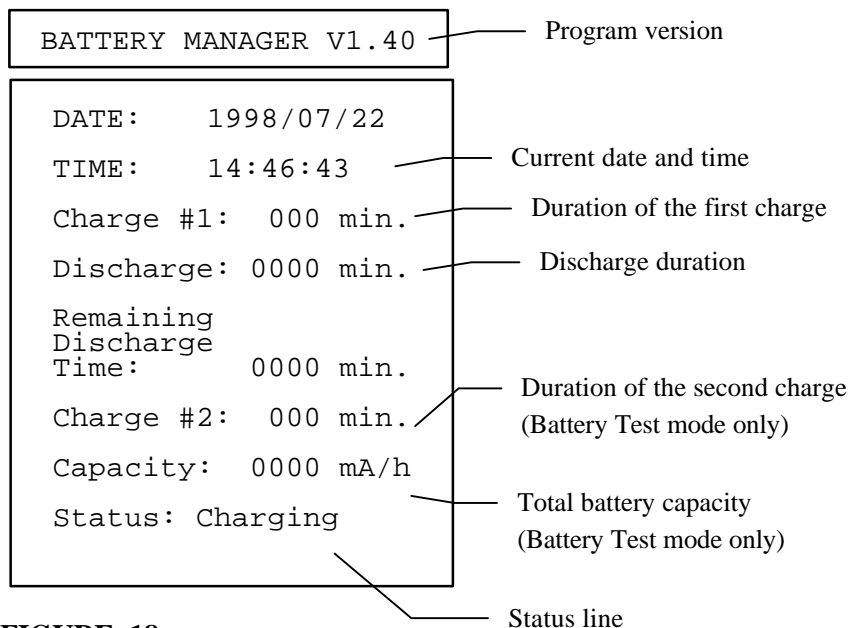While running, the BATMNGR program displays the following information (FIGURE **18**).

```
┌─────────────────────────────┐
│  BATTERY MANAGER V1.40 ──────┼──── Program version
└─────────────────────────────┘
┌─────────────────────────────┐
│   DATE:     1998/07/22       │
│                              │
│   TIME:     14:46:43 ────────┼──── Current date and time
│                              │
│   Charge #1:  000 min. ──────┼──── Duration of the first charge
│                              │
│   Discharge: 0000 min. ──────┼──── Discharge duration
│                              │
│   Remaining                  │
│   Discharge                  │
│   Time:       0000 min.      │
│                              │
│   Charge #2:  000 min. ──────┼──── Duration of the second charge
│                              │      (Battery Test mode only)
│   Capacity:   0000 mA/h ─────┼──── Total battery capacity
│                              │      (Battery Test mode only)
│   Status: Charging           │
│                              │
└──────────────────────────────┘
                          └──────── Status line
```

FIGURE 18
Status display

NOTE: **The battery charger needs to be present when you start BATMNGR. If the PC9800 charger is not connected an error message will be displayed on the 2 last lines of the screen.**

Typical results

As a guideline, a fresh battery should give the typical following values. The previous readings done with the same battery also need to be compared to be able to know the actual battery capacity and tendency.

	Minimum value	Typical value
First charge	Non-relevant	Non-relevant
Discharge	450 min.	475-700 min.
Second charge**	150 min.	175-250 min.
Capacity **	1200 ma-h	~1800 ma-h

** Calibration Mode only, not indicated in Quick Calibration

FIGURE 19
BATMNGR typical values

If values are far from the typical values it is suggested to:

- Check LAST CALIBRATION into the SETUP program. It should be VALID with the ACTUAL LEVEL between 100 and 140%
- Run another BATMNGR

If the battery still refuses to calibrate,

- Turn-off the PC9800
- Remove the battery for about a minute
- Re-install the battery then run BATMNGR again

If it still remains non-calibrated,

- Replace the battery
- Call DAP Technologies Customer Support

THE SETUP PROGRAM

The following information is for advanced users and its knowledge is not a requirement for an adequate use of the PC9800. It is possible that the application program restricts your access to the SETUP program.

--- WARNING ---

The modification of the configuration parameters may affect the correct behavior of your application program. Be sure you proceed with all the required knowledge and authorization.

The user can modify some characteristics of the PC9800. When the unit is inactive for several seconds, for example, the screen turns off in order to save battery power. The user can modify the delay after which the screen blanks out, or can modify this characteristic so that the screen is always on.

This can be done easily using the SETUP program. The program SETUP allows you to display and modify the parameters that determined the characteristics of the PC9800. Among other things, the program allows you to control:

- The power-off delay
- The display time-out
- The display font
- The scrolling mode

And to visualize

- The actual battery level and the date of the last battery calibration
- The hardware configuration
- The date and time

The parameters are stored in the PC9800's Configuration Variables. They are specific memory locations, protected from being written by any type of application programs. They are preserved even when the PC9800 is turned off or reset.

When you use the SETUP program to modify the values of parameters, the new values becomes effective only when you quit the program using the UPDATE AND SAVE option.

Note: **This information reflects version 1.06 of the SETUP.EXE program**

Using the program

Starting the program

The program SETUP is started from DOS. Before starting the program, you should see the DOS prompt (e.g. "A>" or "C>") on the screen of the PC9800.

Enter the following command:

C:\SETUP <ENTER>

Once started, the program SETUP displays the main menu.

```
        SETUP Ver 1.06
MAIN
--------------------+

  SET DATE: xxx/xx/xxxx
  SET TIME: xxx:xx:xx
        ......................

  SCREEN TIME OUT= xxxx
  ACTIVE FONT    =    x
  SCROLLING      = xx
        ......................

  KEY CLICK      = xxx
        ......................

  POWER MANAGEMENT...
  HARDWARE INFO...
        ......................

 <UPDATE AND EXIT>
 <EXIT WITHOUT UPDATE>

+------------------------
PRESS ENTER TO MODIFY
▲ ▼  TO SELECT NEXT ITEM
```

FIGURE 20
Main menu

Using the menus

The menus of SETUP were designed to make the program friendly and easy to use. The name and the version always appear on the first line. The last 2 lines specify the required action to do.

-- NOTE --
The bottom line will start to blink showing you that you are in EDIT mode.

Below the name of the menu, there is a list of options. To select an option, you may navigate using the Down Arrow or Up Arrow located on the cursor pad until the desired item is highlighted. To enter the EDIT mode and adjust the parameters value, you press ENTER. To edit the value, with some options you have to use the Left Arrow and Right Arrow key, located on the cursor pad, to increase or decrease the value. With some others, you have to enter directly the value from the numeric pad. Again, the last 2 lines are useful to inform you of the next action and the accepted range of values.

At any time you can press ESC to quit the EDIT mode and return to the NAVIGATION mode, preserving the previous value.

Some options are an entry to another menu. They are terminated with 3 dots (...), as with POWER MANAGEMENT... . Pressing ENTER will display the sub-menu. The ESC key will return to the parent menu.

Quitting the program

Selecting the option UPDATE AND SAVE makes the new parameters effective by updating the PC9800 Configuration Variables, quits the program and returns to DOS.

Selecting EXIT WITHOUT UPDATE will preserve your previous values

Note: **The DATE and TIME are changed as you modify them into the field.**

Error messages

The program validates all data entered by the user. In case of error, the computer beeps and returns to NAVIGATION mode, preserving your last value.

Details of menus

Set Date, Set Time

To set DATE and TIME, just highlight the desired field, press ENTER and use the Left Arrow and Right Arrow keys from the cursor pad. Press ENTER to quit the EDIT mode.

Screen Time Out

This parameter determines the number of seconds of inactivity at either the keyboard or the screen, after which the screen blacks out in order to save battery power. This delay is set to 45 seconds by default.

Active Font

A font is an assortment of characters having the same size and style. The PC9800 has room for 4 fonts, each of them having room for 256 characters. They are numbered from 0 to 3 with the following default correspondence.

FONT #	DESCRIPTION	SCREEN SIZE
0	IBM Extended ASCII	25 lines of 25 characters
1	IBM Extended ASCII	25 lines of 33 characters
2	IBM Extended ASCII	16 lines of 25 characters
3	IBM Extended ASCII	12 lines of 25 characters

FIGURE 21
 Font descriptions

The Active Font is the one actually used for the display. The application program normally sets it but it can be useful sometimes to modify it.

NOTE: **Fonts can also be modified by the use of the Flash Bios Editor. In that case, they will not match the information found in FIGURE** 21**.**

Scrolling

The screen of the PC9800 can be considered to be a window that reveals part of a standard-size screen (25 lines of 80 characters). The screen is normally locked where the menu is, regardless of where the display cursor goes. It can sometimes be useful to have it following the display cursor. That is the purpose of that option.

Select	▲ ▼	To scroll freely in top bottom direction
	◀ ▶	To scroll freely in left right direction
	YES	To scroll freely in all direction
	NO	To fix the screen

FIGURE 22
Scrolling option

Key Click

This option selects if the PC9800 beeps each time a key is pressed. Press ENTER then ◀ ▶ to toggle the selection between ON and OFF. When OFF, the beep is disabled.

Power Management…

This menu allows you to adjust the Power Off delay, and the Low Battery Warning level, as well as display the visual battery level and last calibration date. When selecting that option, the following menu appears.

```
          SETUP Ver 1.06
POWER MANAGEMENT -------+

  POWER OFF DELAY =xxxx

  BATTERY WARNING
  LEVEL            =  xx%

   -- BATTERY STATUS --

  ACTUAL LEVEL    = xx%

  LAST CALIBRATION
  DATE =   xxxx/xx/xx
  STATUS = VALID
        ---------

  <MAIN MENU>



+------------------------
PRESS ENTER TO MODIFY
▲ ▼  TO SELECT NEXT ITEM
```

FIGURE 23
Power Management menu

Power-Off Delay

When no activity is detected at either the keyboard or the screen for several minutes, the PC9800 shuts off automatically (POWER OFF). To turn back on and resume operation at exactly the same place in the program, you then need to press the F1 key (ON/OFF)

This option determines the number of seconds of inactivity after which the computer automatically shuts off. The default is 45 seconds.

Warning Level

This option allows you to determine at which battery level, in percentage, the Battery Status Indicator will start to blink, indicating you are near a low battery condition. The default value is 10%. Since all applications do not have the same load on the battery, this information will be translated into usage times for each application. Adjusting the warning level allows you to get more or less minutes before having the Low Battery Message. The lower the number, the shorter will be the duration between the Low Battery Message and the moment the unit will not restart. When the Warning level is reached, the Battery Status Indicator starts to blink to inform you about that situation.

NOTE: **The Warning Level works only if the Last Calibration Status is VALID.**

**Actual Battery
Level**

This is information regarding the actual battery level, in percentage. The higher the number, the longer the unit can be used. Since all applications do not have the same load on the battery, this information will be translated into different usage times for each application.

NOTE: When the unit is fully charged the Actual Battery Level can reach a value greater than 100%, typically 120 to 140%. This is caused by the fact that the gauge is based on the performance of the batteries at the time the PC9800 has been released. Since then, the total capacity on new batteries has increased causing a level higher than 100%.

Last Calibration

This is information regarding the date of the last Power Gauge calibration and whether the actual calibration is valid. It is recommended one calibrate the Power Gauge on a regular basis to get valid information on the remaining battery life. If the calibration is not valid, the Battery Status Indicator will no longer blink when you meet the Warning Level.

The data comes from the file A:\BATMNGR.LOG created during a Power Gauge Calibration program. The message N/A will appear if that file is not available.

Info Hardware…

This is an information panel on the actual PC9800 hardware profile, showing memories and options. When selecting that option, the following menu appears (FIGURE **24**).

```
       SETUP Ver 1.06
HARDWARE INFO.----------+

    --- MEMORIES ---
 SYSTEM -> xxxxx Kb x
 DISK A -> xxxxx Kb x
 DISK B -> xxxxx Kb x


    --- OPTIONS ---
 BACKLIGHT      -> xxx
 WINDOWS        -> xxx
 IrDA (top)     -> xxx
 SECOND LEMO    -> xxx
 MEM. BOARD1    -> x Mb x
 MEM. BOARD2    -> x Mb x
 NAND MEMORY    -> x Mb
 FLASH BIOS     -> xxx Kb
 PCMCIA         -> xxx
 TOUCH PAD      -> xxx
 VOICE          -> xxx
 MAX CPU SPEED -> xx MHz

 <MAIN MENU>


+------------------------
PRESS ENTER TO QUIT
```

FIGURE 24
Hardware Information display

The S and the D, in lines 22 and 23, inform you of the memory type, S for static type and D for Dynamic type.

The lines MEM. BOARD1 and MEM. BOARD2 informs you on which board the memory has been put, the quantity per board and the memory type (Static, Dynamic). This information is more for Technical Support people.

COMMUNICATION WITH COM.EXE

The following information is for advanced users and its knowledge is not a requirement for adequate use of the PC9800.

Communications using the program COM is based on the master-slave concept. The master computer is the computer that controls the communications. During communication, the master sends commands to the slave computer that executes them. The master computer can send files to the slave or receive files from the slave.

When communicating between a desk computer and a PC9800, it is most practical to use the desk computer as the master, since this simplifies command entry. Limited automation of the communication process is possible with the COM program

Note: **This information reflects version 2.45 of the COM.EXE program. This is just basic information. For complete information please refer to the "PC9800 Technical Guide & Development Tools", Chapter "E".**

Starting the program

On the PC9800, at the DOS prompt, press the following keys:

C:\COM ↵

On the desktop computer: insert the PC9800 Companion Disk 1 into drive A:. At the DOS prompt type

C:\COM ↵

The file COM.EXE can be freely copied from drive A: to any other drive or directory.

```
  COM Ver 2.45
COM1:115200 BAUDS
LOGON    →
MICROFLEX PC9800

 1:MODEM/DIAL
 2:MASTER
 3:SLAVE
 4:BAUD RATE
 5:SMALL TERM
 6:PORT

 ∅:EXIT
OPTION  ?
```

FIGURE 25
COM.EXE main menu

To enter the communication selects the appropriate speed and port and press 2 on the desktop computer. The PC9800 will go automatically in Slave mode.

Navigating in the menus

The menus of COM were designed to make the program friendly and easy to use. The name and the version of the program always appear on the first line (FIGURE **25**). The second line indicates the communications port used and the transmission speed (BAUD RATE). The third line displays the computer's identification (LOGON), followed by a list of numbered options.

To choose one of the options, simply type the corresponding number.

Quitting a menu or the program

Each menu has the option 0:EXIT. This option allows you to quit the current menu. Option 0:EXIT of the main menu allows you to quit the program and return to DOS.

**Aborting an
operation**

At any time you can press the ESC key to abort the current operation. The messages `ENTER to confirm` will be displayed. You then need to press the ↵ key to confirm the aborting process.

It could take many seconds before the message is displayed. This depends on the current operation. So be patient. For the same reason, the ENTER key is sometimes not accepted. It could then be necessary to press the ESC key again.

> **NOTE: Never quit COM.EXE by doing a hard reset of the unit. This would leave all Power Save Systems disabled causing a low battery life. In all time the ESC key will allow you to return to the main menu and quit.**

Some basic information

**COM and
Windows**

The COM.EXE program works under Windows 3.1, Windows 95 and Windows NT, into a DOS window.

Windows should not reserve the communication port you want to use for any other task. As an example, you cannot just disconnect your mouse from the COM1 port to run COM.EXE on COM1. The resource is still reserved by Windows and COM.EXE will not connect. Be sure to use a free communication port. This is a Windows limitation. If no additional ports available, start your computer in DOS mode.

**COM and
cradles**

Start COM with a parameter:

`COM N0 <enter>` to set the cradle for speed of 300 to 38400 BPS.

`COM N1 <enter>` to set the cradle for speed of 58 400 BPS

`COM N2 <enter>` to set the cradle for speed of 115 200 BPS

NOTE: **For more information and to configure the cradle refer to the PC9800 Technical Guide, Chapter "E".**

**Communication
ports**

On the PC9800 the bottom port is by default COM1 and the LEMO connector is COM2. The application program can change this.

If two (2) LEMO connectors are present, use the top one as COM2. The second LEMO connector cannot be used directly. An advanced user may select it using the PC9800 Configuration program (Chapter C of the PC9800 Technical Guide).

Detail of
options

OPTION	OPERATION	EXAMPLES
1:MODEM/DIAL	To start a communication by modem	See detailed guide for COM.EXE, in the PC9800 Technical Guide.
2: MASTER	To cause the computer to control the communication and force the remote computer into SLAVE mode	

1:SEND	To send one or more files to the slave computer.
	By default the file comes from the current drive and directory on the MASTER computer. Wildcard characters "?" and "*" can be used
	
	NOTE: You may change the current drive and directory using options 5:CHDIR and 8:DRIVE.
	
	Special case
	
	Entering *.* /S will transfer all files and directories from the MASTER to the SLAVE PC9800, creating the missing directories.
		Examples of SOURCE files
		    FILE.001↵
		    \TEST\FILE.001 ↵
		    C:\TEST\FILE.001
		    C:*.DAT↵
		    FILE.1?0↵
		Example of DESTINATION
		    ↵ (to keep same name)
		        NEWFILE.001↵
		
		`FILE TO SEND:`
		`*.* /s`
		`DESTINATION:`
		`<ENTER>`

2:RECEIVE	To receive a file from the slave computer. By default the file comes from the root of the A: drive on the SLAVE computer.
	
	NOTE: You may change the current drive and directory using options 5:CHDIR and 8:DRIVE.
	
	NOTE: For the RECEIVE option, the wildcard characters "?" and "*" cannot be used.
	
	Special case
	
	Entering *.* /S will transfer all files and directories from the SLAVE PC9800, creating the missing directories on the MASTER. Note the "\" when you want to receive under another directory.
		Examples of SOURCE files
		    FILE.001↵
		    C:FILE.001↵
		Examples of DESTINATION:
		    ↵
		    FILE.DAT↵
		    C:\DATA\FILE.DAT↵
		
		`FILE TO RECEIVE:`
		`*.* /s`
		`DESTINATION:`
		`c:director\`

3:ERASE	To erase one or several files on a disk of the slave computer.
	
	Special case
	Entering *.* /S will delete all files and directories from the SLAVE PC9800. Type "YES" to confirm.
		FILE.001↵
		FILE.0??↵
		.↵
		
		`FILE TO ERASE:`
		`*.* /s`
		`Are you sure (YES/N)`

4:TIME	To transfer the date and time of the master computer to the slave computer.	
5:CHDIR	To change the current directory of the slave computer	\ (for the root directory) .. (up one directory) TEST ↵

OPTION	OPERATION	EXAMPLES
6:RMDIR	To remove a directory from the disk of the slave	DATA ↵
7:MKDIR	To create a new directory on a disk of the slave computer.	DATA ↵
8:DRIVE	to change the default drive on the slave computer. **NOTE: Specifying a nonexistent drive will cause problems during subsequent operations.**	|D: ↵
3:SLAVE	To place the computer you are working on in the slave mode. The computer you are in contact with becomes the master and controls the communication. You do not need to select SLAVE if you press MASTER on the other computer.	
4:BAUD RATE	To select the transmission speed ranging from 300 to 115,200 BPS.	
5:SMALL TERM	Provides emulation of a TTY-type terminal. All characters typed on a keyboard (either MASTER or SLAVE) will appear on the screen of the other computer. To quit this option, type the character "|" (on a PC9800 press the blue key, then H; on a desktop, use the pipe character). **NOTE: useful to verify the communication link.**	
6:PORT	To select the communication port to be used according to the hardware used**. NOTE: This must be done before communication begins.**	
9:EXIT (end)	To end both the communication and the link between the two computers. The master computer displays the main menu and the slave computer returns to DOS.	
0:EXIT (hold)	To end the communication but maintains the link between the two computers. The main menu is then displayed on both computers.	

FIGURE 26
COM.EXE, Detail of options