

# Formula<sup>®</sup>

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The Bar Code Solutions

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**Formula 8500**

USER MANUAL



\* 2 0 0 1 7 5 9 8 5 0 2 0 \*

ENGLISH



# **DATALOGIC** DL

*Bar Code & More*

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Datalogic S.p.A.

Via Guglielmo Marconi 161 - 31021 Mogliano Veneto (TV) - Italy  
Tel. (int+) 041-598 6511 - Fax (int+) 041-598 6550

Formula 8500 - USER MANUAL

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# Formula

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## GENERAL INFORMATION

# 1

### 1.1 SCOPE OF THE MANUAL

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This manual was compiled by Datalogic S.p.a. and accompanies the Formula 8500 terminal.

The information contained here is divided into two parts:

- **Chapters 1, 2, 3, 5:**  
which define the terminal's characteristics and methods of use; these chapters are for whomever uses the terminal in their day to day work activity.
- **Chapters 4, 5, 6:**  
which define the connections methods for the terminal. These chapters are aimed at the person responsible for managing the terminals – generally the person who installs the network and the application program.

Constant attention to the indications contained in the manual will guarantee the user's safety, working efficiency and a longer functional life for the terminal.

## 1.2 ENCLOSED DOCUMENTS

The documents listed in the following table are enclosed with the manual.

DOCUMENT TYPE	RECEIVER		
	User	Terminals Manager	Programmer
Declaration of conformity	•		
Menu & Commands Booklet for 8500	•	•	•
Test chart	•		
Formula products customer service form		•	

## 1.3 PACKAGE CONTENTS

The terminal package contains:

- No. 1 F8500 terminal;
- No. 1 User's manual and attached documentation;
- No. 1 battery pack;
- No. 1 box for 3 alkaline batteries

Any other packages will contain the accessories necessary for the terminal connection to the host computer and to the network: the cradle, power supply, and one or more connection cables.

Remove all the components from their packaging, check their integrity and congruity with the packing documents.

Keep the original packaging for use when sending products to the technical assistance centre. Damage caused by improper packaging are not covered under the guarantee.

1.4 TERMINAL MANUFACTURER AND MODEL IDENTIFICATION



Model description

**Formula 8500**

Model identification and serial number

Serial Number	
2007900111	
F8500	
Volt	Code
****	140734500



## 2.1 TERMINAL DESCRIPTION

The Formula 8500 is the new Hand-held PC with integrated laser scanner based on PC technology designed by Datalogic S.p.a.

The Formula 8500 is capable of reading all common barcode symbologies, including the new PDF-417 two-dimensional codes as option.

The user accessible Type-II PCMCIA slot allows for simple installation of modems, Ethernet and Token Ring adapters, and solid state disk using the standard PC Card technology.

The Formula 8500 is equipped with an IrDA port for short-range wireless infrared communication with portable printers and other devices that support this kind of interface

The Formula 8500 is equipped whit a back-light LCD graphic display, with 160 by 240 pixels resolution, and an ergonomic alphanumeric keyboard. In addition, for pen-based applications, an optional touch screen is available which allows even for functions that require signature capture or mouse emulator.

The screenshot shows a handheld device screen with the following content:

- Header: **Milky Way Farms Deliver Log**
- Delivery Person:  MONTOMO
- Customer:  MY CHEESE HEAVEN
- Quantity:  7
- Delivery of:
  - Milk - 1 gal.
  - Milk - 2 gal.
  - Milk - 1 ltr.
  - Buttermilk
- Signature:  (Handwritten signature: "Rosa")
- Buttons: **Retry Signature**, **Clear Selections**, **<<**, **>>**, **Return to Main Menu**



## 2.2 TECHNICAL CHARACTERISTICS

### □ Optical Characteristics - laser 1D

Light source laser scanner	VLD source, 670 nm
Scan rate	$36 \pm 3$ scan/sec
Minimum resolution	0.13 mm
Skew or yaw angle	$\pm 65^\circ$
Pitch or Roll angle	$\pm 55^\circ$
Depth of field (depends on the type and density of the code)	$30 \div 800$ mm

### □ Optical Characteristics - laser 2D

Light source laser scanner	VLD source, 670 nm
Scan rate	$570 \pm 20$ scan/sec
Frame rate	25 frames/sec
Minimum resolution	0.15 mm
Skew or yaw angle	$\pm 15^\circ$
Pitch or Roll angle	$\pm 30^\circ$
Depth of field (depends on the type and density of the code)	$75 \div 300$ mm (2D codes) $120 \div 700$ mm (1D codes)

### □ Electrical characteristics

Micro-controller	32 bit - AMD 486
Memory BIOS-DOS	512KB Flash memory
Disk memory	2/4/8 MB
RAM	2/4 MB DRAM
EEPROM	256 Bytes
Calendar/clock	quartz RTC, time and date programmable with automatic management of leap years.
Power supply	NiMH battery pack, 1350 mAh or 3 AA alkaline batteries.
Battery charge	Formula 985

## □ Physical characteristics

Technology	SMT (Surface Mounting Technology)
Dimensions (LxWxH)	212 x 74 x 50/34.5 mm
Weight	370 grams with NiMH batteries, 1-D laser scanner without radio;
Buzzer	piezoelectric buzzer
LED	Red/green LED
Display	high contrast, graphic LCD with 160x240 dot matrix, back-light
Keyboard	41 keys in silicone covered rubber, reset key

## □ Environmental Conditions

Temperature	working temperature 0° up to +45°C storage -20° up to +60°C (-20° ÷ +35°C for long term battery storage)
Relative Humidity	95% without condensation
Degree of protection	EN 60529 (IP 51)
Electrostatic discharge	IEC 1000-4-2 (up to 15KV on air)
Resistance to falls	IEC 68-2-32 (up to 1.2 m on concrete)
Safety standards	IEC 825 (class 2 laser product)

## □ Programming

Operating system	DOS 6.22
Decoded bar codes - laser 1D	EAN-8, + add-on-2, + add-on-5 EAN-13, + add-on-2, + add-on-5 UPC/A, + add-on-2, + add-on-5 UPC/E, + add-on-2, + add-on-5 Interleaved 2 of 5 (ITF) Codabar - Monarch - NW7 - 2 of 7 Code 39 Code 128 MSI

Decoded bar codes - laser 2D	EAN-8, + add-on-2, + add-on-5 EAN-13, + add-on-2, + add-on-5 UPC/A, + add-on-2, + add-on-5 UPC/E, + add-on-2, + add-on-5 UCC/EAN 128 Interleaved 2 of 5 (ITF) Codabar - Monarch - NW7 - 2 of 7 Code 39 Code 39 full ASCII Code 93 Code 128 MSI PDF 417
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#### □ Communication characteristics

Optical Interface	IrDA 1.0
F985 Interface	cradle-terminal interface via IrDA
Cradle-Host Interface	RS-232 RS-485 Eavesdrop
Maximum speed of transmission	115 Kbit/sec max

#### □ RF Communication Characteristics

Frequency	2.4 GHz
Power output	100 mW Max
In compliance with	ETS 300-328

Permanente

## SAFETY REGULATIONS

3



**Read carefully this manual before performing any type of connection or repair on the terminal.**

**The user is responsible for any damages caused by incorrect use of the equipment or by inobservance of the indication supplied in this manual.**

### 3.1 GENERAL SAFETY RULES

---

- As with all high-intensity light sources, the laser beam used on this terminal can be dangerous for one's eyesight if looked at directly or for long periods of time. For this reason, avoid directing the laser beam towards your eyes or those of other people or animals.
- Use only the components supplied by the manufacturer for the specific terminal being used. The use of cradles other than those supplied with the terminal or indicated in the list in the appendix could cause serious damage to the terminal.
- A Follow the procedures for using and storing the terminal indicated in the Technical Specifications.

### 3.2 MAINTENANCE SAFETY

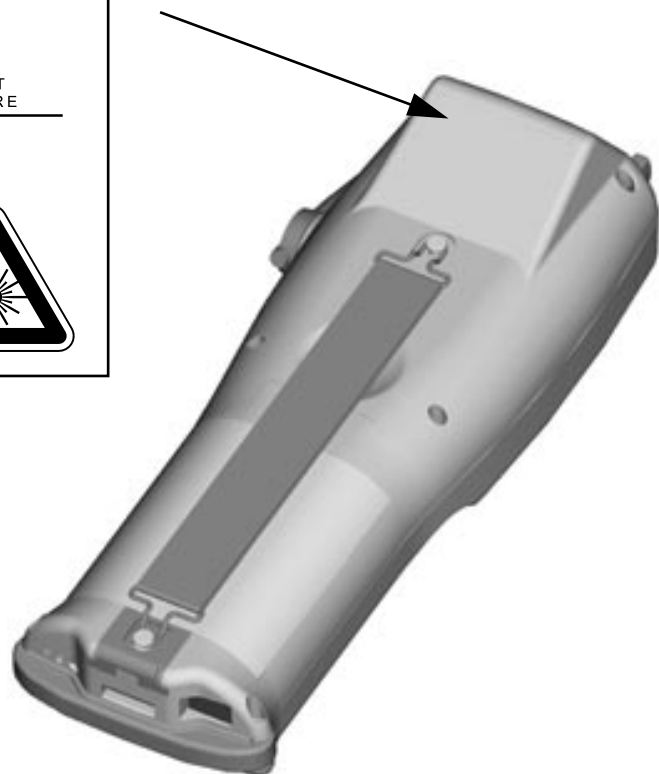
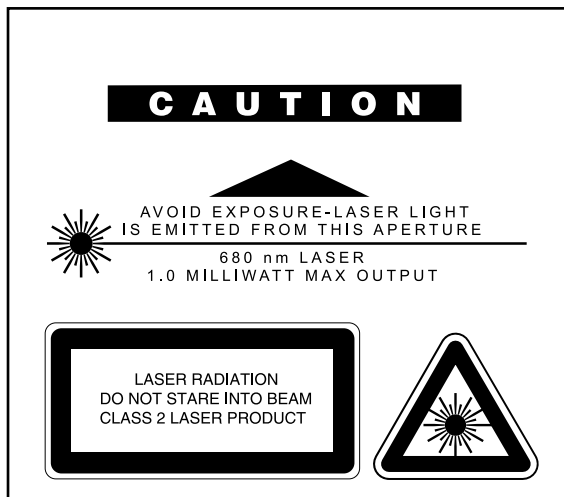
- Do not attempt to disassemble it, as it does not contain parts that can be repaired by the user. Any tampering will invalidate the guarantee.
- When replacing the batteries or at the end of the operative life of the terminal, disposal must be performed in compliance with the law in force.
- Do not submerge the terminal in liquid products.

### 3.3 DANGER SIGNALS



#### CAUTION

**Be sure the danger labels applied on the terminal are readable at all times. If necessary, replace them with new ones.**



This device uses a class 2 IEC 825 laser emitter.



### 3.4 U.S. FEDERAL COMMUNICATIONS COMMISSION RADIO FREQUENCY INTERFERENCE STATEMENT - INFORMATION TO THE USER

#### **i** INFORMATION

**This equipment has been tested and found to comply with the limits for a Class B digital device pursuant to Part 15 of the FCC Rules.**

These limits are designed to provide reasonable protection against harmful interference in a residential installation.

This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications.

However, there is no guarantee that interference will not occur in a particular installation.

If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Re-orient the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet of a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for assistance.
- Changes or modification not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.
- Connecting of peripherals requires the use of grounded shielded signal cables.

# Formula

## CONNECTIONS

# 4

### 4.1 TERMINAL CONNECTION TO THE HOST COMPUTER

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#### CAUTION

**Before continuing with this phase, be sure both the computer and the terminal are turned off.**

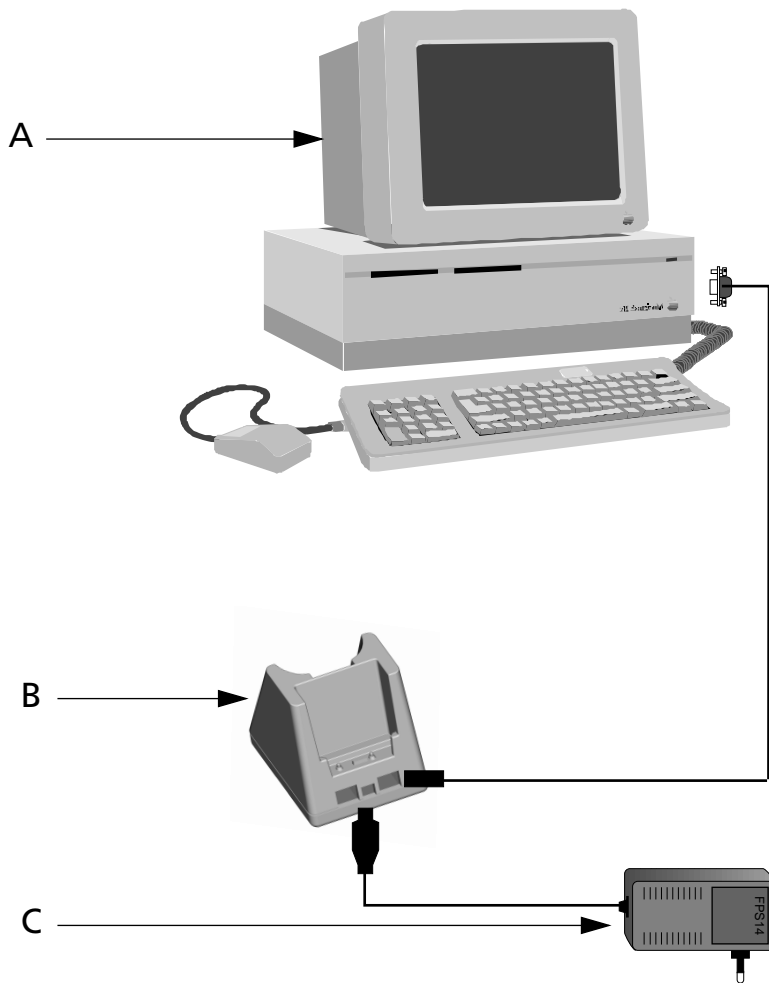
#### 4.1.1 RS-232 Connection

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To install the program on the terminal (thus making it operative), carry out the necessary physical connections as indicated below:

- 1 - take out the cable contained in the cradle package and connect it to the COM1 serial port (or another available serial port) using connector DB9;
- 2 - connect the other end of the same cable to the RS-232 port of the cradle, with the RJ connector;
- 3 - insert the power-supply plug into the outlet on the base of the cradle;
- 4 - attach the power supply to a power outlet and turn on the cradle and the computer.

5 - put the terminal into its cradle and, if necessary, recharge the battery.



**Key:**

- A) Host computer
- B) Cradle F985
- C) Cradle power supply

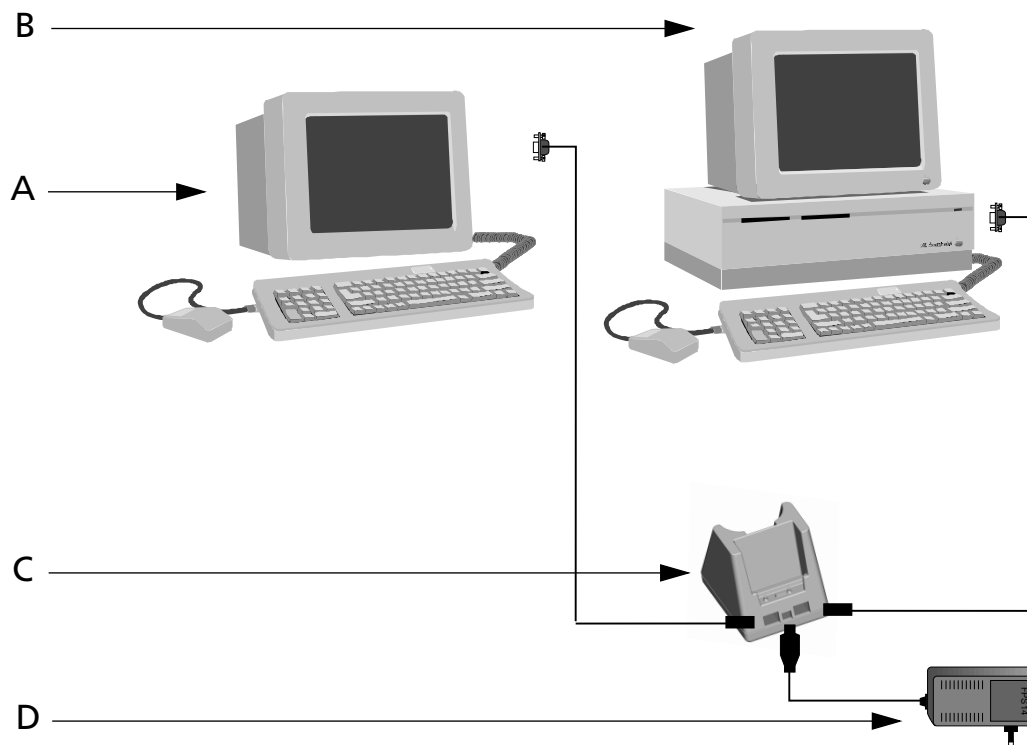


### 4.1.2 Other types of connection

The use of the connections illustrated below depends on the features of the program loaded on the terminal. For more detailed information, please read the software manuals carefully.

#### □ Connection with the Eavesdrop Interface

This connection enables the terminal to be connected on an existing asynchronous RS-232 line (for example between the host computer and a video terminal).



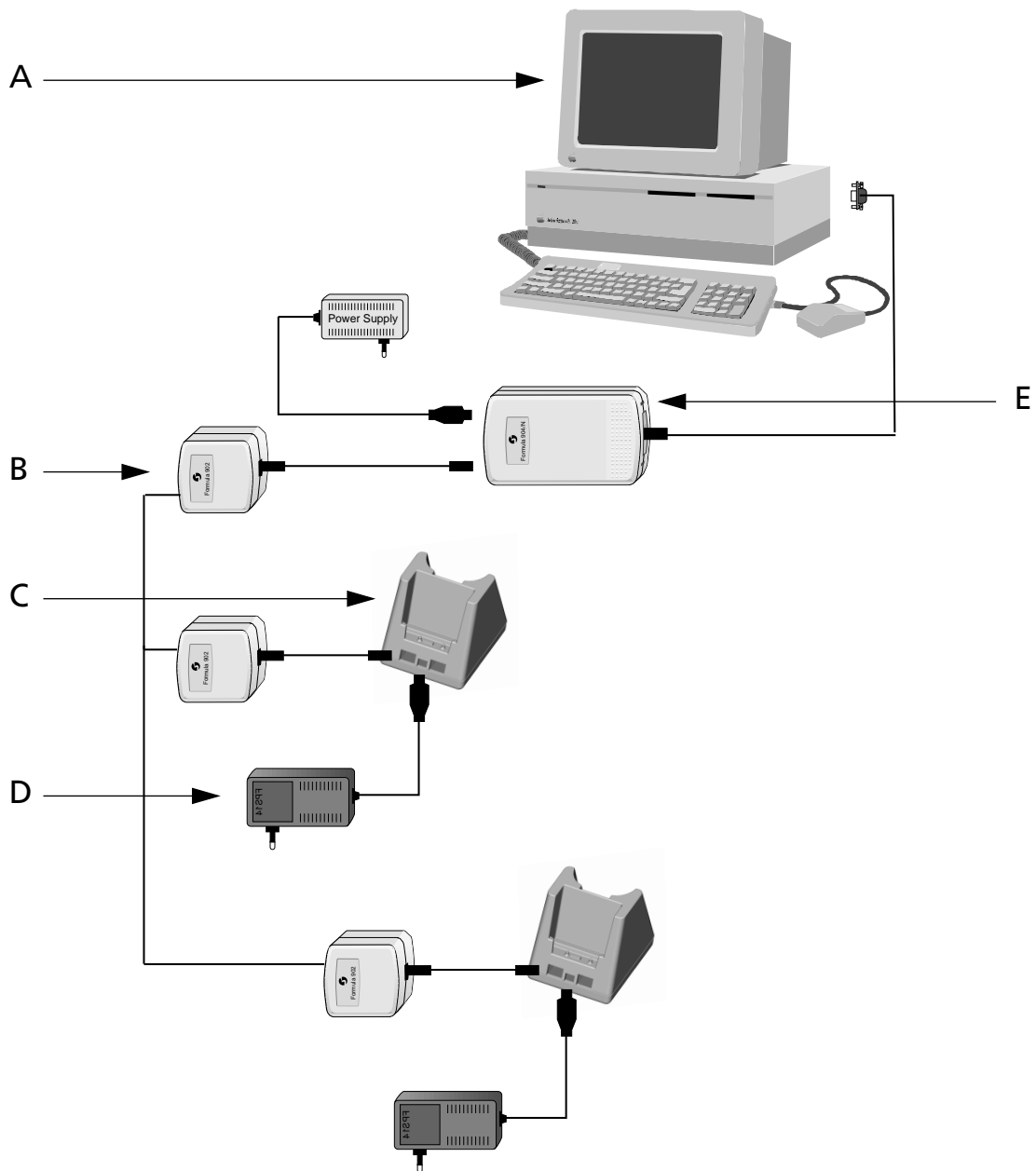
Key:

- A) Video terminal
- B) Host Computer
- C) Cradle F985
- D) Cradle power supply

#### □ RS-485 Connection

Allows for the connection of more terminals on a single RS-232 line through the installation of a Sysnet network.

If the Sysnet network is made using the Formula 902 T-Box, up to 32 Formula cradles can be connected, including different types (if multiple cradles are used, the individual work stations must be counted).

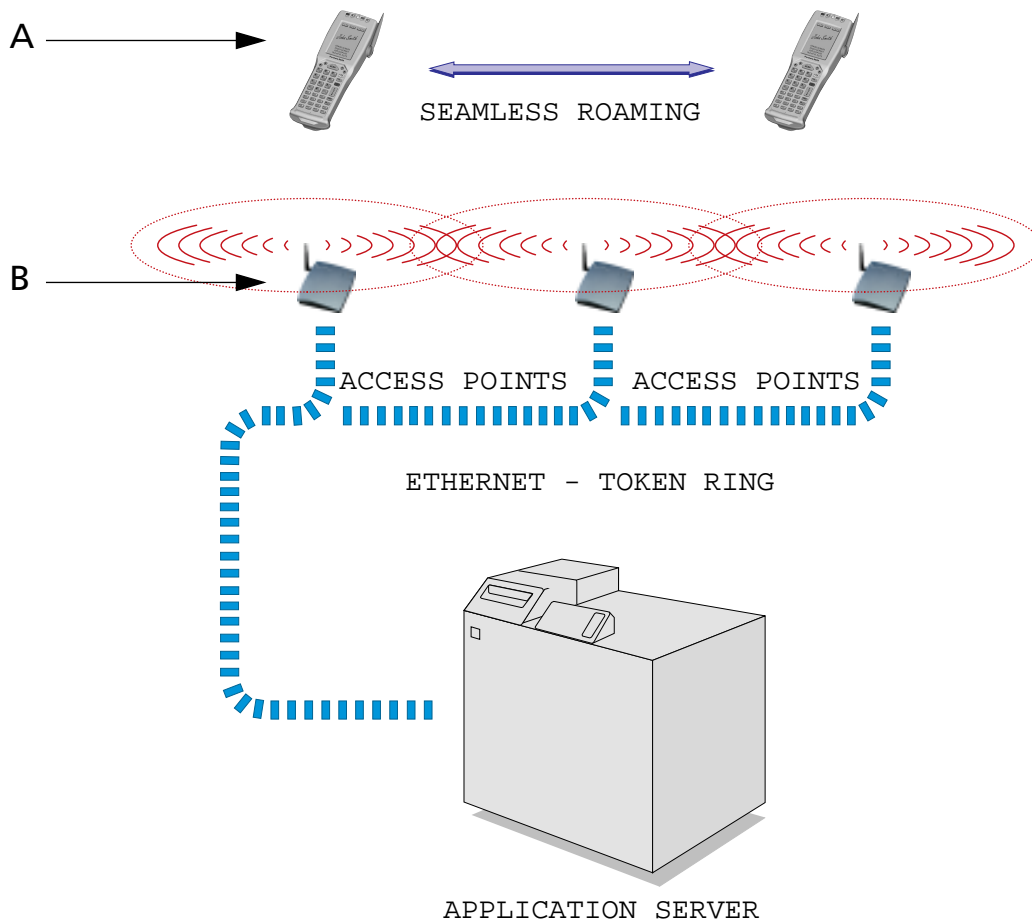


**Key:**

- A) Host computer
- B) Formula 902 T-box
- C) Cradle F985
- D) Cradle power supply
- E) Formula 904/N Interconverter

□ **RF Connection**

This allows the terminal to be connected to the host computer via radio frequency using the RF PCMCIA module that is with the F8500 (only for RF version), and an Access Point connected to the host computer



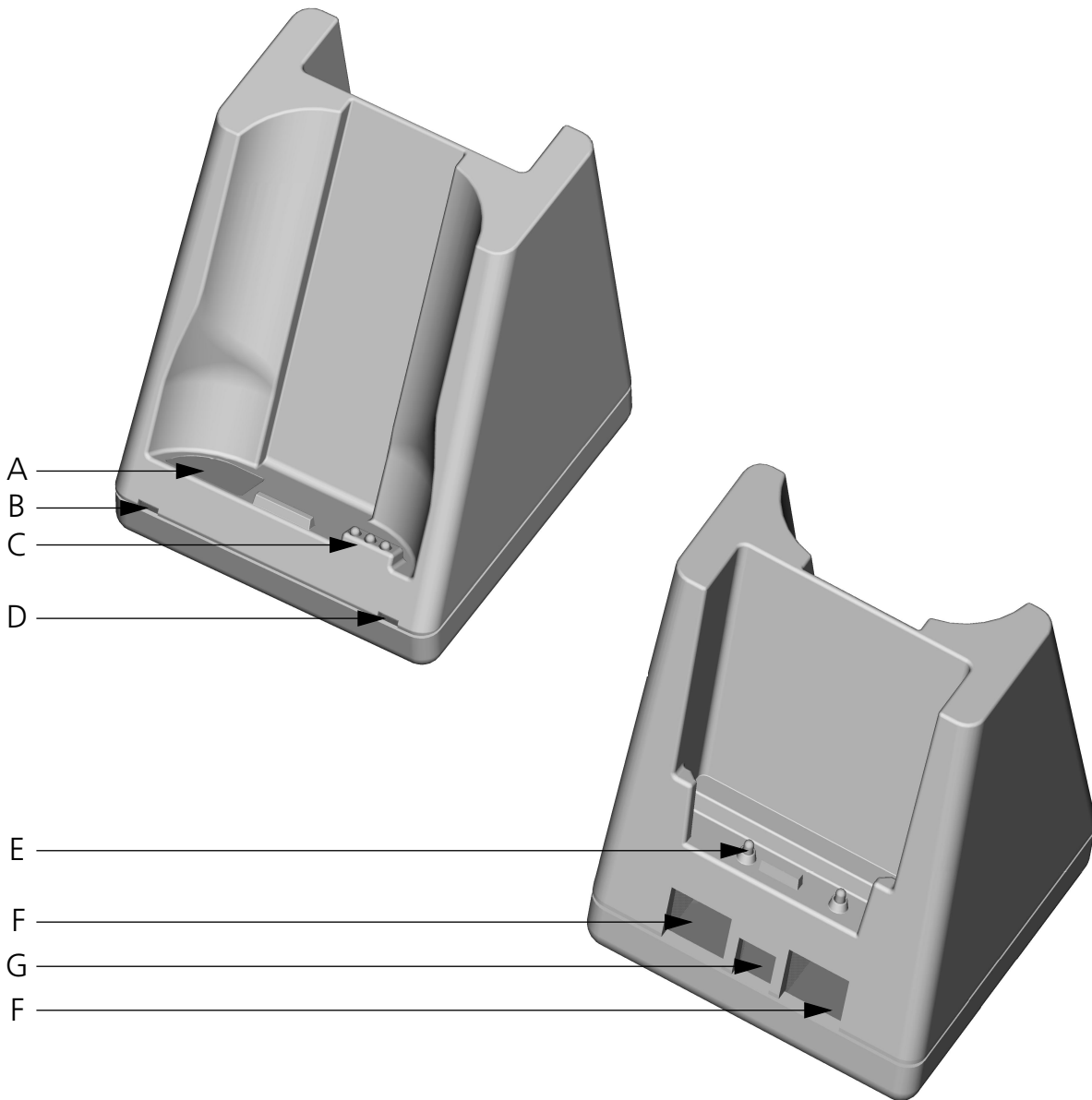
Key:

A) F8500

B) Access Point

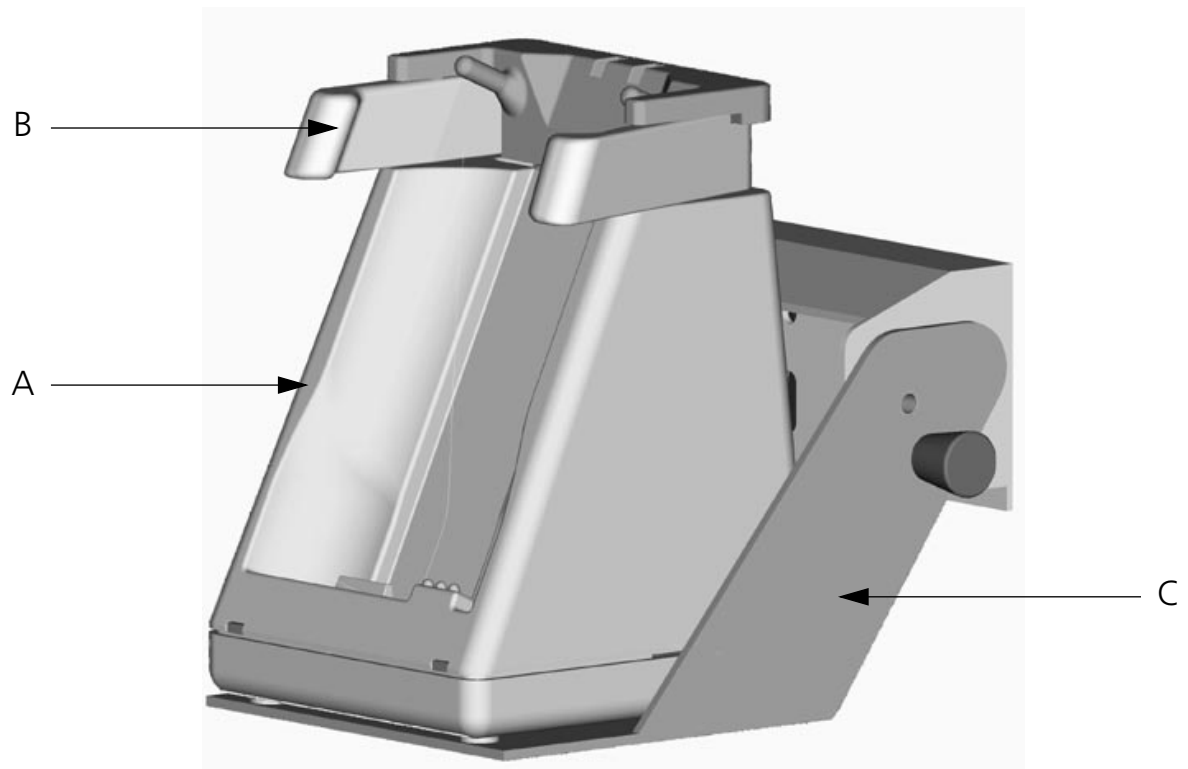
## 4.2 CRADLE F985

Only the F985 cradle can be used with the Formula 8500 terminal:



### Key F985 standard:

- A) IrDA window
- B) Two-color LED – spare battery slot
- C) Terminal-recharge contacts
- D) Two-color LED – terminal battery
- E) Contacts for recharging the spare battery
- F) Connectors for connecting to the host computer
- G) Power-supply connector



**Key F985 vehicle cradle:**

- A) Cradle F985
- B) Clip-in cradle
- C) Metal bracket

### 4.2.1 F985 cradle

The F985 cradle is a battery charger and also functions as a serial communication interface between the host computer and the IrDA optical interface on the F8500 terminal.

By inserting the terminal into the cradle as shown in the figure, its batteries can be charged.

The LED (D) indicates the status of the batteries in the terminal:

COLOR	DESCRIPTION
Constant red	Battery charging
Flashing red/green	Battery charged, terminal on
Constant green:	Battery charged, terminal off or not inserted in the cradle



The spare batteries can also be charged by inserting them into the back part of the cradle, making sure the contacts (E) are correctly positioned.

The LED (B) indicates the status of the batteries in the terminal:

COLOR	DESCRIPTION
Constant red	Battery charging
Flashing red/green	Battery charged
Constant green:	Battery not inserted



### 4.2.2 F985 vehicle cradle

The F985 vehicle cradle has the same functions as the F985 standard cradle in terms of the terminal batteries' charge and the serial communication interface; instead, for this cradle version the back-up batteries-charging function is not available.

The F985 vehicle cradle comes with its accessories already assembled. To install it inside a vehicle driving compartment, proceed as follows:

- 1 - Simply mount the metal bracket;
- 2 - It must be have a stabilised power supply, connected to the vehicle's battery. The power supply must have the following output characteristics::

Voltage	min. 9Vdc max. 12Vdc	
Power	min. 11W	
Coaxial Socket	Polarity:	positive external, negative internal;
	Mechanical dimensions:	External diameter: 5.5 mm Internal diameter: 2.1 mm
	Metal plug length:	14 mm

**! ATTENTION**

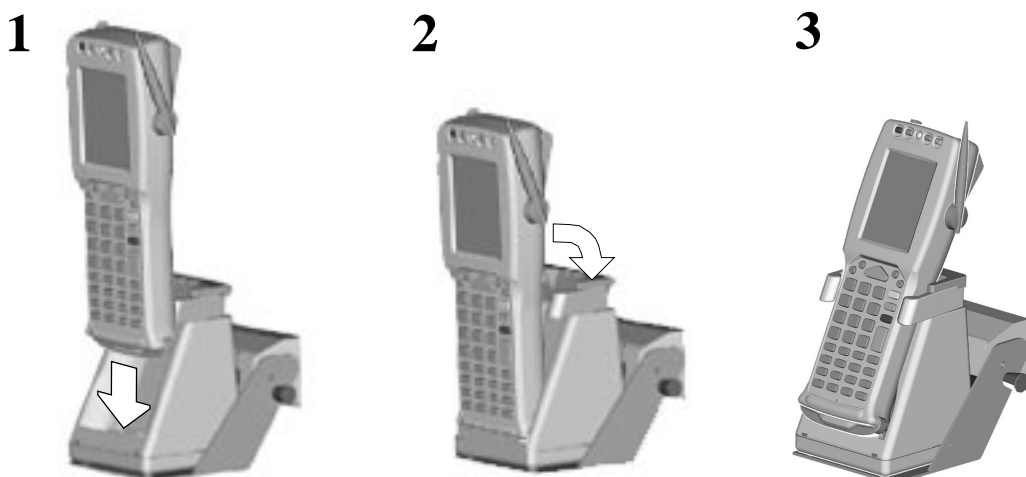
**Do not connect the cradle directly to the vehicle's battery. Possible voltage surges can damage the cradle or cause it to malfunction.**

- 3 - Insert the F8500 terminal only after mounting the cradle in the vehicle.

**! ATTENTION**

**We recommend that you detach any connections to the PCMCIA (e.g. aerial, printer) when putting the F8500 terminal into the cradle or taking it out.**

Proceed as in the following figures:



### 3.1 CONNECTION CABLES

Several types of cable are available depending on the type of computer and connection. The following cables are listed with their number code (C) and production batch number (#).

**RS-232 connection with PC/AT or compatible:  
cable C407900330 (# 404682100)**

RJ	DB 9M	SIGNAL
1	2	TX
2	8	RTS
3	5	GND
4	7	CTS
5	3	RX
	4-1	

**RS-232 connection with PC/XT or compatible:  
cable C407900310 (# 404682200)**

RJ	DB 25M	SIGNAL
1	3	TX
2	5	RTS
3	7	GND
4	4	CTS
5	2	RX
	8-20	

**RS-485 connection:  
cable C407900300 (# 303350260)**

RJ	SIGNAL
3	GND
6	RX/TX
7	RX/TX



- Modem or Eavesdrop connection with host computer:  
cable C407900020 (# 404613020)**

RJ	DB 25M	SIGNAL	SIGNAL
1	2	TX	
2	4	RTS	
3	7	GND	
4	5-13	CTS	RX
5	3-12	RX	RX
6	15		TX
7	14		TX

- Eavesdrop connection with terminal:  
cable C407900030 (# 404613030)**

RJ	DB 25M	SIGNAL
1	3	TX
2	2	RX
3	7	GND
	4-5	
	8-20	

### 5.1 PCMCIA CARD

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The terminal's capabilities can be extended simply by inserting a PCMCIA card with the required function.

For example, peripherals can be connected to the terminal, including: a network card; an RF communication card; a modem/fax or a flash disk capable of storing tens of Megabytes.

#### 5.1.1 Inserting the PCMCIA card

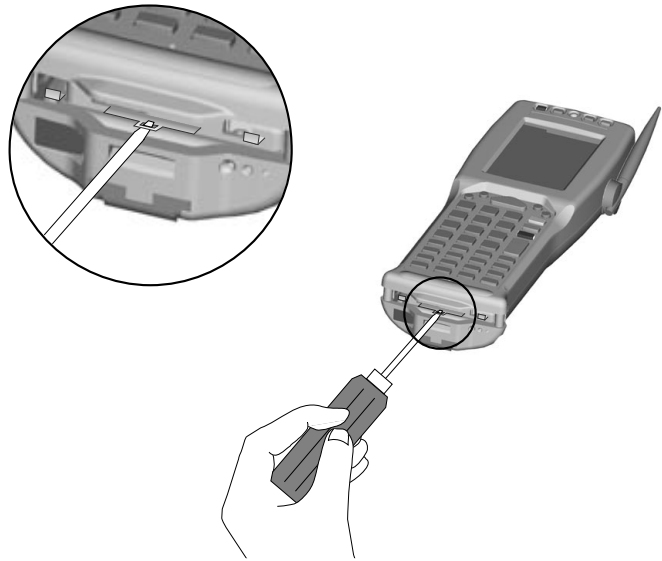
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To insert the PCMCIA card into the terminal, proceed as indicated below:

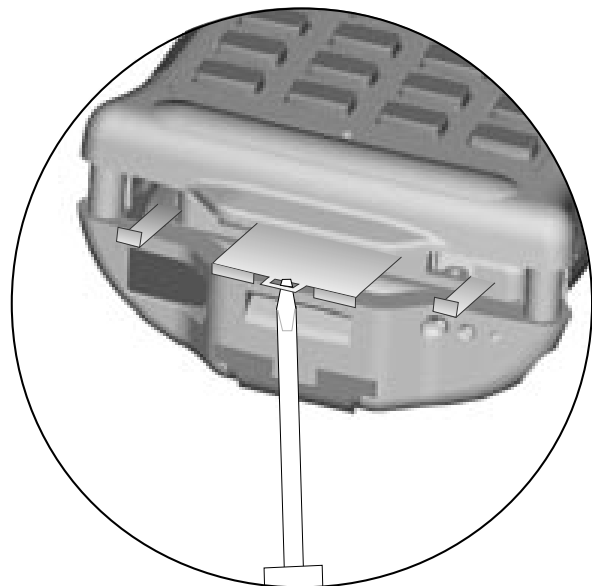
- 1 - Remove the rubber protection.



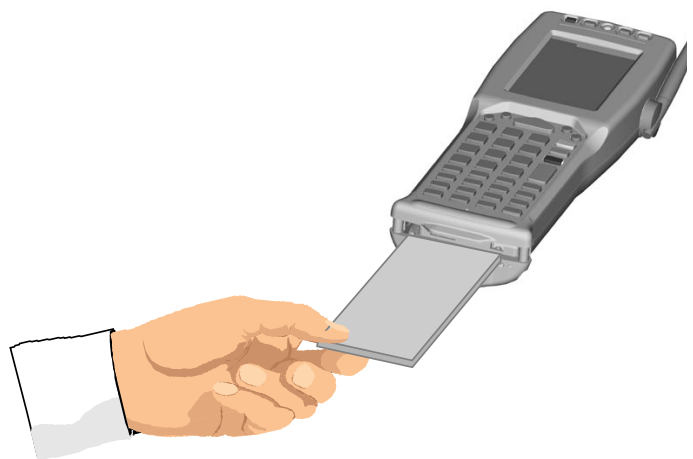
- 2 - Use a screwdriver to lever out the metal tab shown in the figure.



- 3 - Pull the tab outwards until you feel its end stop.



- 4 - Insert the card with the main side facing down.



- 5 - Push the PCIMCA card into the terminal as shown in the figure until you feel a metallic click.

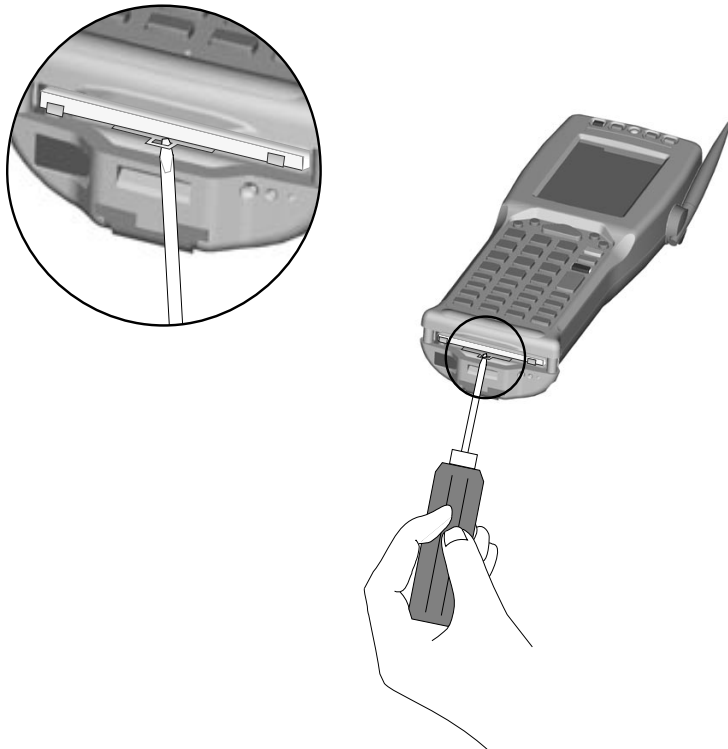


- 6 - When it's possible reinsert the rubber protection.  
At this point, if specific software is loaded, the PCMCIA card can be used.

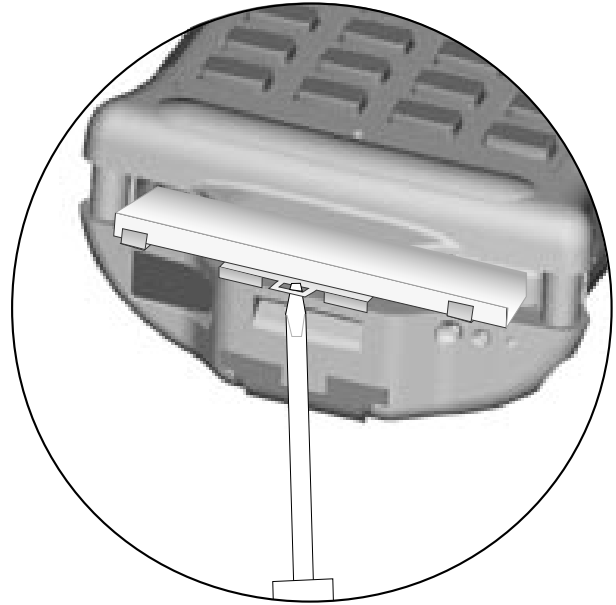
### 5.1.2 Extracting the PCMCIA card

To extract the PCMCIA card out of the terminal, proceed as indicated below:

- 1 - Take out the metal tab with a screwdriver.



- 2 - Pull the tab outwards to its end stop.



- 3 - Extract the card.
- 4 - Reinsert the metal tab into the terminal until you feel a metallic click.

## 5.2 TURNING ON THE TERMINAL

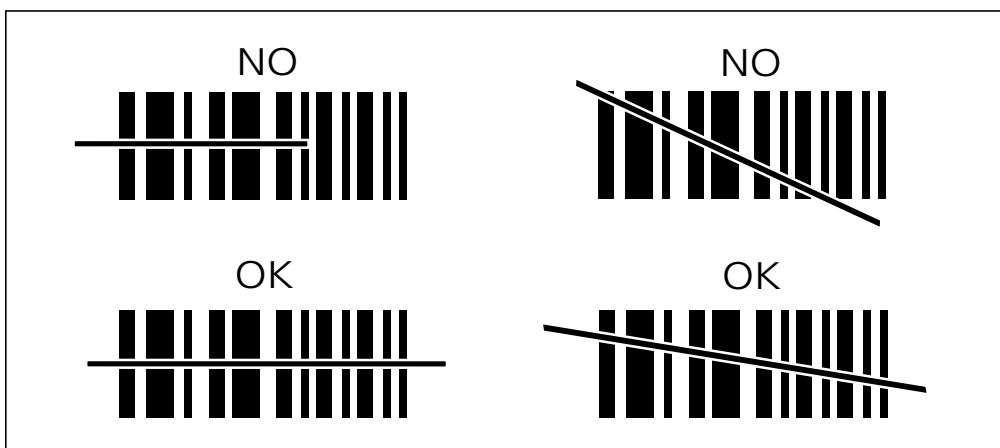
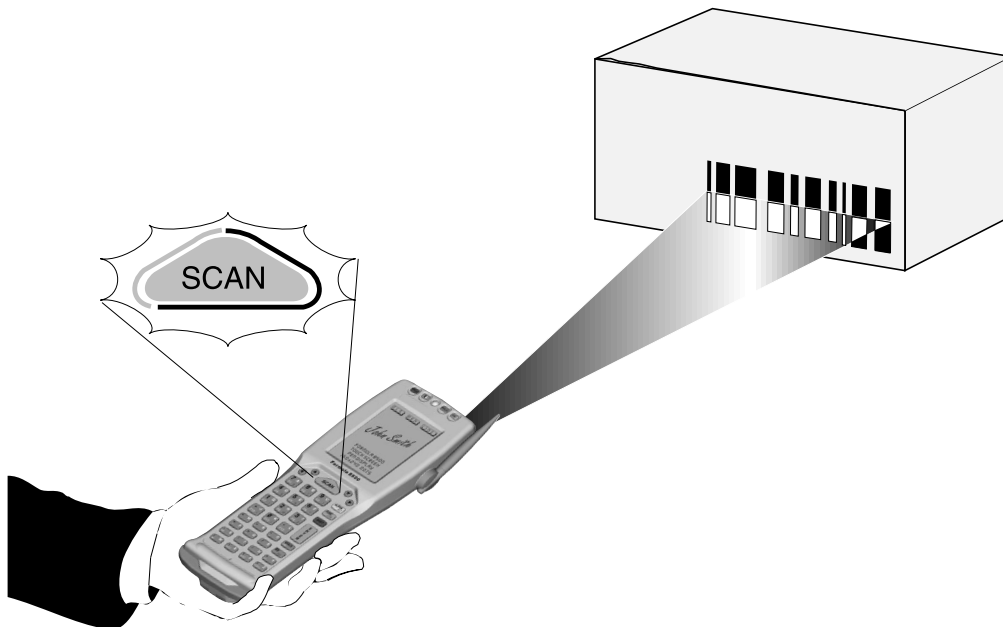
To turn on the terminal, press the ON/OFF key.



### 5.3 BAR CODE SCANNING

To scan bar codes, point the terminal laser beam onto the code from an adequate distance while pressing the <SCAN> key.

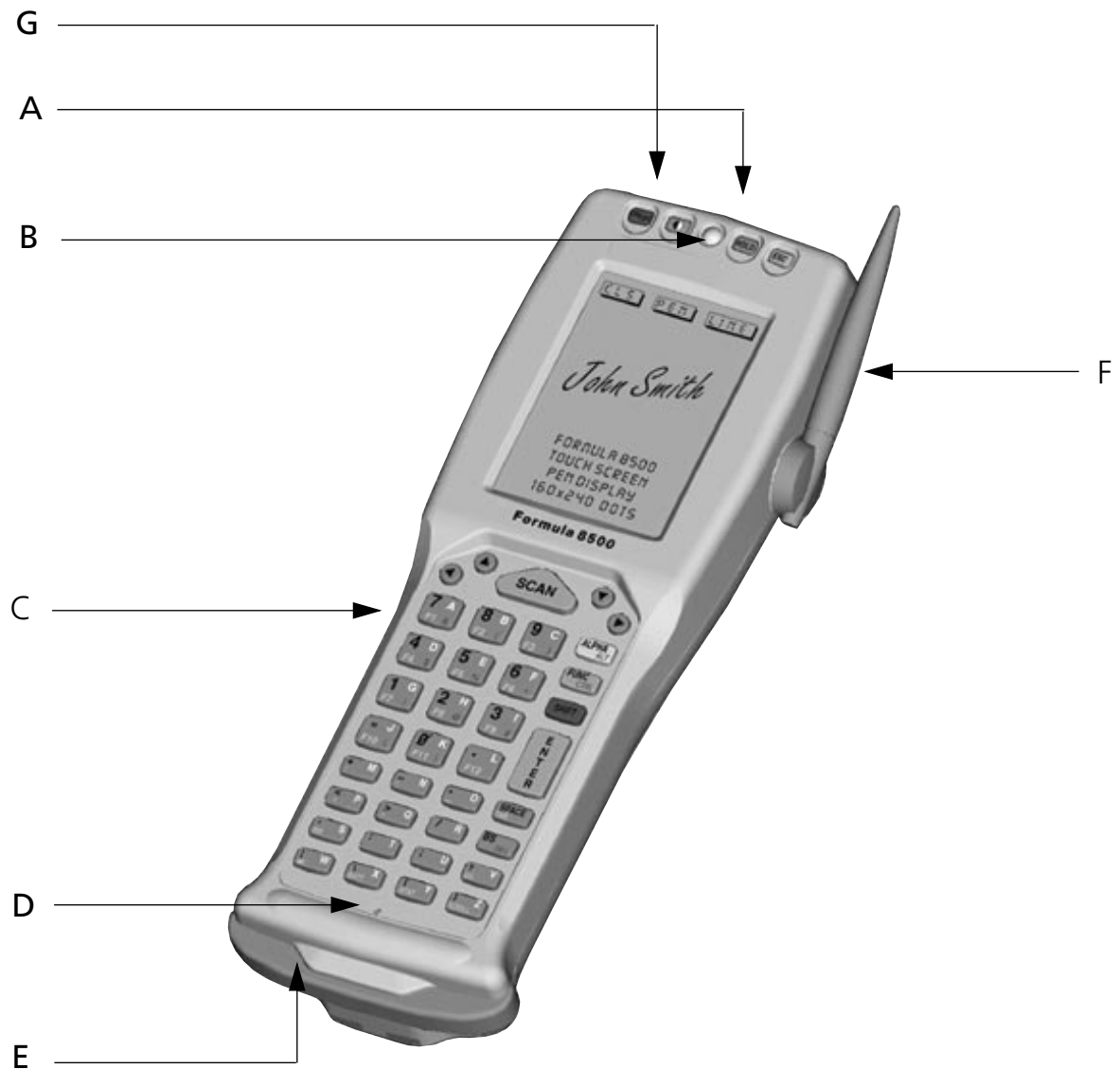
The lighted band emitted by the laser must completely intercept the bar code; the LED and the emission of an acoustic signal – if enabled – will indicate that the scan has taken place correctly.



#### **i** INFORMATION

The heat that can be felt in the area of the battery pack is not a symptom of a malfunction; rather, it is a normal state due to the terminal being in use.

## 5.4 DESCRIPTION OF THE KEYS

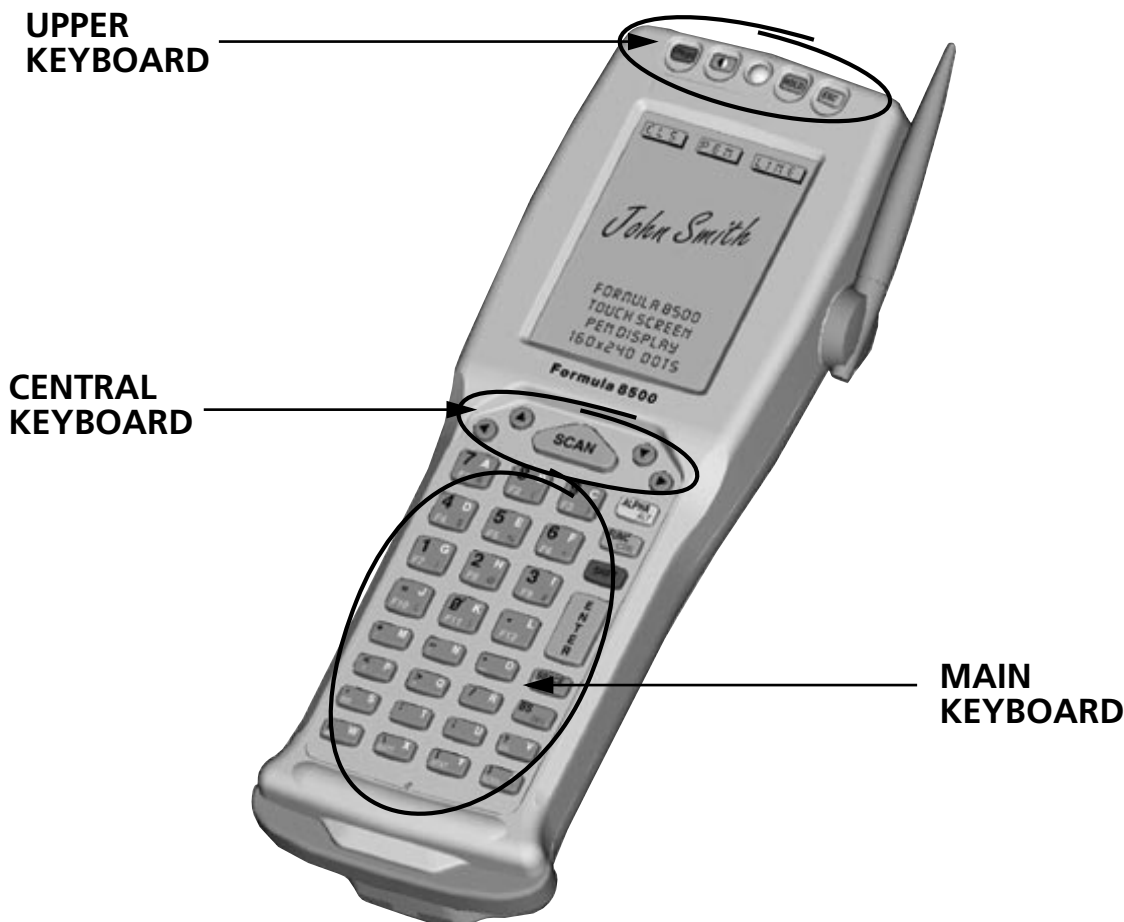


Key:

- A) Laser beam outlet window
- B) Programmable two-color LEDs
- C) Keyboard
- D) Protected reset button
- E) F985-cradle communication window
- F) Antenna
- G) Pen hole

The F8500 terminal keyboard is made up of a total of 41 keys. By using certain key-pressing sequences, all the functions of a regular PC keyboard can be emulated.

The keyboard can be divided into three main parts:



### □ UPPER KEYBOARD

There are 4 keys on the upper part of the keyboard

- [ON/OFF]: a red button located above the upper left corner of the LCD display, this button turns the terminal on and off.
- [●◐]: (CONTRAST) located just to the right of the ON/OFF key and identifiable by a half-black and half-white circle, this button is used to adjust the display contrast:
  - by pressing the button repeatedly and releasing it between one press and the next for less than a second, you will alter the contrast, always in the same direction;
  - by pressing the button and releasing it for more than one second, on the second push you will invert the direction of the change in contrast.



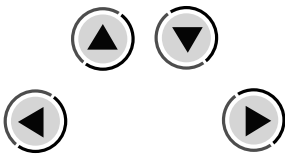
- [HOLD]: located above the LCD display to the right of the two-color LED, this key is used to hold keyboard functions which are generally valid only for the next key pressed after the activation of the function.
- [ESC]: a yellow key located above the upper right corner of the LCD display, corresponding to the ESC key of a PC.

## □ CENTRAL KEYBOARD

Just beneath the display are five other keys with the following functions:



SCAN: this key is used to trigger the bar code reader and is active only if enabled by the appropriate software.



ARROW KEYS: these are the only 4 circular keys located just beneath the LCD display; they correspond to the arrows used to move the cursor on a standard PC, but have the following added functions when preceded by the FUNC or SHIFT keys:

ARROW	FUNC	SHIFT
Up	Page Up LCD	Scroll Down
Down	Page Down LCD	Scroll Up
Left	Home LCD	Scroll Right
Right	End LCD	Scroll Left

The [FUNC]-[ARROW] sequences emulate the Page Up/Down Home and End keys on a PC keyboard.

The [SHIFT]-[ARROW] sequences are used to vertically and horizontally scroll through the information displayed on the LCD display.

To keep the scroll function active for the arrow keys, activate the SCROLL function with the [FUNC]-[Z] sequence.

Pressing the [FUNC]-[Z] sequence again will return the arrow keys to their pre-defined function.

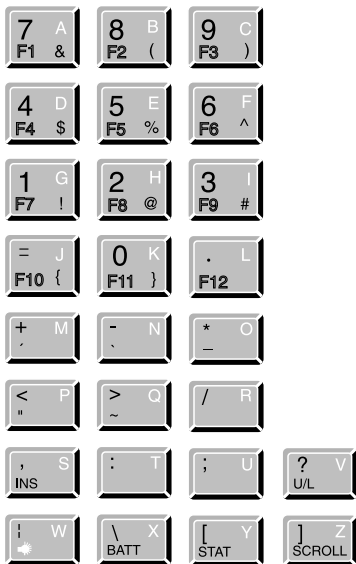
□ **MAIN KEYBOARD**

The last part of the keyboard and the one with the most keys, the main keyboard has 32 keys, among which:

- an <ENTER> key, larger than the other keys, and located at the centre of the right-hand column;
- 28 "general keys" marked with 2, 3 or 4 symbols;
- Three "special keys" (ALPHA, FUNC, SHIFT) to change the keyboard mode;



ENTER: corresponds to the ENTER key on a PC.



GENERAL KEYS: the 28 keys that carry extra symbols; their function changes according to the various keyboard functions.

To explain their function, the key is logically divided into 4 sections according to the following figure:



Each section corresponds to a symbol that can be obtained using the corresponding keyboard method according to the following scheme:

- A) function of the key active in NORMAL mode;
- B) function of the key active in ALPHA mode;
- C) function of the key active in FUNC mode;
- D) function of the key active in SHIFT mode.

Some keys do not display any symbol for section D); in this case, in SHIFT mode, the symbol in section A) is repeated.

When the terminal is restarted, the keyboard is in ALPHA mode.



#### **ALPHA MODE**

Switches keyboard from the alphabetical ALPHA mode to the number and symbol NORMAL mode.

The keyboard remains in this mode till the ALPHA key is pressed again.



#### **FUNC MODE**

Switches keyboard to the function FUNC mode from the ALPHA or NORMAL mode.

The keyboard remains in this mode only when the next general key is pressed, then it returns to the previous mode.

For example, to press the [F1] key, press the [FUNC]-[A] in sequence.



#### **SHIFT MODE**

On the F8500, the SHIFT key is not pressed at the same time with other keys, and this function is to switch the keyboard into the SHIFT symbols mode from the ALPHA or NORMAL modes.

The keyboard remains in this new mode only when the next general key is pressed, then it returns to the previous mode.

For example, to press the [&] key, press the [SHIFT]-[A] in sequence.

**Note:** do not confuse this key with the SHIFT key on a PC keyboard which is used to switch between upper and lower case characters.



#### ❑ CTRL MODE

The CONTROL mode is the same obtained by pressing the [CTRL] key on a PC keyboard; on the F8500 it is activated with the [SHIFT]-[FUNC] sequence from the ALPHA or NORMAL mode.

The keyboard remains in this new mode only when the next general key is pressed, then it returns to the previous mode.

For example, to press the [CTRL]+[C] key from the ALPHA mode, press the [SHIFT]-[FUNC]-[C] keys in sequence.

For example, to press the [CTRL]+[F3] key, press the [SHIFT]-[FUNC]-[FUNC]-[C] keys in sequence.



#### ❑ ALT MODE

The ALTERNATE mode is the same obtained by pressing the [ALT] key on a PC keyboard; on the F8500 it is activated with the [SHIFT]-[ALPHA] sequence from the ALPHA or NORMAL mode.

The keyboard remains in this new mode only when the next general key is pressed, then it returns to the previous mode.

For example, to press the [ALT]+[A] key from the ALPHA mode, press the [SHIFT]-[ALPHA]-[A] keys in sequence.

For example, to press the [ALT]+[F1] key, press the [SHIFT]-[ALPHA]-[FUNC]-[A] keys in sequence.

If the [HOLD] key is pressed immediately after the ALT or CTRL modes have been activated, the keyboard will remain in the ALT or CTRL mode for the entire key sequence of keys till the next SHIFT ALPHA sequence in ALT mode, or SHIFT FUNC in CTRL mode.

To resume:

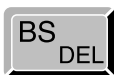
- The [SHIFT]-[FUNC] sequence is equivalent to press the [CTRL] key on the AT keyboard, and the combination is valid only for the next key pressed.
- The [SHIFT]-[ALPHA] sequence is equivalent to press the [ALT] key on the AT keyboard, and the combination is valid only for the next key.
- The [SHIFT]-[ALPHA]-[HOLD] sequence activates the [ALT] function for all the successive key combinations till the [SHIFT]-[ALPHA] sequence is pressed again.
- The [SHIFT]-[FUNC]-[HOLD] sequence activates the [CTRL] function for all successive key combinations till the [SHIFT]-[FUNC] sequence is pressed again.
- The activity of the [FUNC] and [SHIFT] keys is in mutual exclusion, and is always valid in the [NORMAL], [ALPHA], [ALT] and [CTRL] modes.

- For example, the [FUNC]-[A] sequence is always the same as pressing the <F1> key, whereas the [SHIFT]-[A] sequence is the same as pressing the <&> key, independently of the ALPHA, ALT and CTRL status.

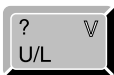
Below is a description of the remaining terminal keys:



The SPACE key is the same as the space bar on the AT keyboard in NORMAL and ALPHA mode. It is the same as pressing the TAB key on a PC when in FUNC mode, and the SHIFT+TAB combination on the AT keyboard while in SHIFT mode.



The BS key operates as a BS key in NORMAL, ALPHA and FUNC modes, and as a DEL key in SHIFT mode.



The U/L key, when in FUNC mode, changes cyclically between Upper case and Lower case letters. It corresponds to the function of the CAPS-LOCK key on a PC keyboard. The letters will be displayed only with the keyboard in ALPHA mode.



The SCROLL key, when in FUNC mode, activates the scroll function of the arrow keys. Pressing [FUNC]-[Z] returns the arrow keys to their predefined function.



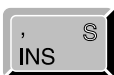
Function not implemented



Function not implemented.



In FUNC mode, the W key controls the back lighting of the LCD display. The light will turn on for a pre-set amount of time. If you enter the BIOS setup you can change the time for the back lighting to remain on.



In FUNC mode, the INS key corresponds to pressing the "ins" key on a PC keyboard.



This combination of keys emulates the CTRL-ALT-DEL sequence of a PC keyboard.



This combination of keys emulates the CTRL-BREAK sequence of a PC keyboard.



PROTECTED RESET BUTTON: to activate the reset button insert a blunt-ended object into the hole. The reset function will delete all RAM data.

## 6.1 CHARGING THE BATTERIES

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The duration of the battery charge varies according to many factors, such as the frequency of barcode scans, the type of laser scanner used on the terminal, and the use of RF transmission.

Recharging is performed after using the terminal until the batteries are completely used up.

To recharge the batteries, insert the terminal into the cradle or insert only the battery pack into the proper position in the cradle.

If the batteries are new or have not been recharged for a long time, you will have to perform two or three charge and discharge cycles (complete use) before they are capable of reaching their greatest charge capacity.



### CAUTION

**If the terminal will not be used for a few days, we recommend that the battery pack be removed from the terminal to prevent the battery from being damaged from over-discharging.**



### CAUTION

**The time required to recharge a completely run-down battery pack is about 2,5 hours regardless of whether it is left inserted in the F8500 or charged by itself.**



### INFORMATION

**At the end of the battery charge, the heat that can be felt in the area of the battery pack is not a symptom of a malfunction; rather, it is a normal state when batteries are fast charged.**

## 6.2 REPLACING THE BATTERIES

To correctly replace the batteries, proceed as follows.

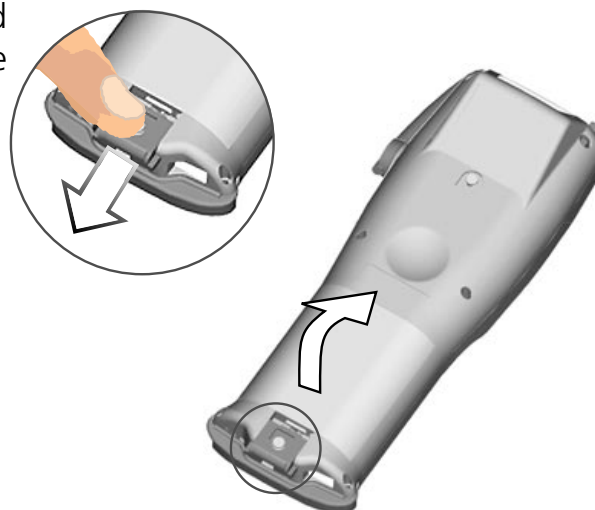
- 1 - Turn off the terminal with the ON/OFF key.



- 2 - Turn the terminal over and release the elastic belt from the lower part of the terminal.



- 3 - Press the lock runner downward while at the same time removing the battery pack.

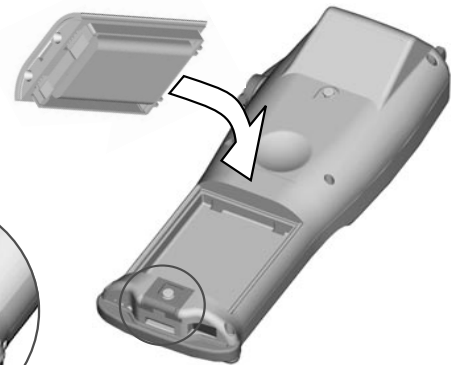
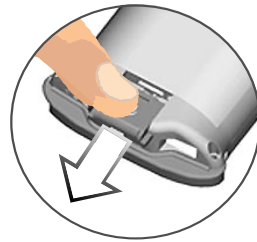




- 4 - Insert the new battery pack, keeping the lock runner pressed down. Once the battery pack is correctly inserted, release the lock runner.

**CAUTION**

Dispose of the batteries as required by the relevant laws in force.



### 6.3 CLEANING THE TERMINAL

Periodically clean the terminal with a slightly dampened cloth. Do not use alcohol, corrosive products or solvents.

# Formula



## PRODUCTS AND ACCESSORIES OF THE FORMULA 8500 LINE

### **Formula 8500 Terminals**

- **Formula 8500 Laser Scanner**  
Hand-held programmable laser micro-terminal.
- **Formula 8500/RF Laser Scanner**  
Hand-held programmable laser micro-terminal, equipped with RF module for radio frequency transmission.

### **Cradle**

- **Formula 985 Transceiver charger**  
Battery charger and optical transceiver for connections between terminal and host computer in RS-232 and RS-485.
- **Formula F985 Vehicle Transceiver charger**  
Battery charger and optical transceiver for connections between terminal and host computer in RS-232 and RS-485. It's possible to install it inside a vehicle driving compartment.

### **Batteries**

- NiMH Battery Pack

### **Radio Frequency**

- Formula One AP 7520 Ethernet
- Formula One AP 7100 ISA

### **Software**

- Development System for Formula 8500 and C Compiler

**DATALOGIC DL**  
*Bar Code & More*

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**Formula 8500**  
**Formula 8500/2D**  
**Formula 8500/RF**  
**Formula 8500/2D/RF**  
**Formula 985**  
**Formula 985/V**

**Laser Hand-Held PC**  
**Laser Hand-Held PC, 2D Scanner**  
**Formula One Wireless**  
**Formula One Wireless, 2D Scanner**  
**IRDA Transceiver/Charger**  
**IRDA Transceiver/Charger**

sono conformi alle Direttive del Consiglio Europeo sottoelencate:  
are in conformance with the requirements of the European Council Directives listed below:  
sont conforme aux spécifications des Directives de l'Union Européenne ci-dessous:  
der nachstehend angeführten Direktiven des Europäischen Rats:  
cumple con los requisitos de las Directivas del Consejo Europeo, según la lista siguiente:

**89/336/EEC**  
**92/31/EEC**  
**73/23/EEC**

**EMC Directive**  
**EMC Directive**  
**Low Voltage Directive**

Basate sulle legislazioni degli Stati membri in relazione alla compatibilità elettromagnetica ed alla sicurezza dei prodotti.

On the approximation of the laws of Member States relating to electromagnetic compatibility and product safety.

Basée sur la législation des Etats membres relative à la compatibilité électromagnétique et à la sécurité des produits.

Über die Annäherung der Gesetze der Mitgliedsstaaten in bezug auf elektromagnetische Verträglichkeit und Produktsicherheit entsprechen.

Basado en la aproximación de las leyes de los Países Miembros respecto a la compatibilidad electromagnética y las Medidas de seguridad relativas al producto.

Questa dichiarazione è basata sulla conformità dei prodotti alle norme seguenti:  
This declaration is based upon compliance of the products to the following standards:  
Cette déclaration repose sur la conformité des produits aux normes suivantes:  
Diese Erklärung basiert darauf, daß das Produkt den folgenden Normen entspricht:  
Esta declaración se basa en el cumplimiento de los productos con la siguientes normas:

**EN 55022-B**      **RF Emissions Control**  
**EN 50081-1**      **Emission to Electromagnetic Disturbance**  
**EN 50082-1**      **Immunity to Electromagnetic Disturbance**  
**EN 60950**        **Product Safety**

Mogliano Veneto, 29.12.98



Roberto Tunio, Managing Director  
Datalogic S.p.a.  
Via Guglielmo Marconi 161  
31021 Mogliano Veneto (TV) - Italy

