Formula®

The Bar Code Solutions

F7400
User Manual

ENGLISH

DATALOGIC
Bar Code & More

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F7400 - User Manual

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AIM EUROPE FOUNDER MEMBER

CERTIFIED ISO 9001 QUALITY SYSTEM

CONTENTS

Formula

1 GENERAL INFORMATION

1.1. SCOPE OF THE MANUAL

This manual was compiled by Datalogic S.p.A. and accompanies the Formula 7400.

The information contained here is divided into two parts:

- Chapters 1, 2, 3, 6:
  which define the F7400 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, 7:
  which define the connection methods for the F7400 terminal. These chapters are aimed at the person responsible for managing the F7400 terminals, generally the person who installs the network and the application program.

1.2. ENCLOSED DOCUMENTS

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

- Declaration of conformity
- Test chart
- Menu & commands booklet

1.3. PACKAGE CONTENTS

The F7400 terminal package contains:

- No. 1 F7400 terminal;
- No. 1 user's manual and attached documentation;
- No. 1 rechargeable battery pack or 1 container for alkaline batteries;
- No. 1 floppy disk containing the software ROM-DOS 6.22 Datalight and relative documentation;
- No. 4 Keyboard overlays (for 37-Key RF versions).

Any other packages will contain the accessories necessary for the F7400 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.

ATTENTION

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

NOTE

Rechargeable battery packs (NiMH) are not initially charged. Therefore the first operation to perform is to charge them in the appropriate cradle. See paragraphs 7.2 and 4.1.

1.4. TERMINAL MANUFACTURER AND MODEL IDENTIFICATION

37-Key models

24-Key models

Model identification
and serial number

2.1. F7400 TERMINAL DESCRIPTION

The Formula 7400 is the new Hand-held PC with integrated laser scanner based on PC technology designed by Datalogic S.p.A.

The Formula 7400 is capable of reading all common barcode symbologies.

The Formula 7400 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 7400 is equipped with a back-lighted LCD graphic display, 96 x 64 pixel resolution, and an ergonomic alphanumeric keyboard (24 or 37 keys).

Key:
A) Laser beam output window
B) Programmable two-color LED
C) Keyboard
D) Protected reset button
E) F970-cradle communication window
F) Contacts for the recharging the batteries
G) Direct RS-232 connection cover (see "RS-232 Direct Connection" on page 20)

2.2. TECHNICAL CHARACTERISTICS

❑ Optical Characteristics - laser 1D

Light source laser scanner	VLD source, 670 nm
Scan rate	36 ± 3 scan/sec
Minimum resolution	0.13 mm
Skew angle	± 65°
Pitch angle	± 55°
Depth of field (depends on the type and density of the code)	30 to 800 mm

❑ Electrical characteristics

Micro-controller	32 bit - AMD 486
Disk memory	2/4 MB (512 K used for BIOS-DOS)
RAM	2/8 MB DRAM
EEPROM	256 Bytes
Calendar/clock	quartz RTC, time and date programmable with automatic management of leap years.
Power supply	NiMH battery pack, 1500 mAh or 3 AA alkaline batteries.
Battery charger	Formula 970

❑ Physical characteristics

Technology	SMT (Surface Mounting Technology)
Dimensions (LxWxH)	176 x 61 x 36 mm
Weight	305 grams with NiMH batteries
Buzzer	piezoelectric buzzer
LED	Red/green LED
Display	high contrast display , graphic LCD with 96x64 dot matrix, back-light
Keyboard	24 or 37 silicone covered rubber keys plus reset.

❑ Environmental Conditions

Temperature	operating 0 to +45 °C; storage (without battery) -20 to +60 °C;
Relative Humidity	95% without condensation
Degree of protection	sealed against rain and dust
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 825-1 class 2 laser product CDRH 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
	ITALIAN PHARMACEUTICAL
	CODABAR - MONARCH - NW7 - 2 OF 7
	CODE 39 STANDARD
	CODE 39 FULL ASCII
	CODE 39 CIP
	CODE 2/5 INTERLEAVE
	CODE 2/5 INDUSTRIAL
	CODE 128
	EAN 128
	MSI
	CODE 93

❑ Communication characteristics

Optical Interface	IrDA 1.0
F970 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	

3 SAFETY REGULATIONS

NOTE	*Read this manual carefully before performing any type of connection or repair on the F7400 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.*

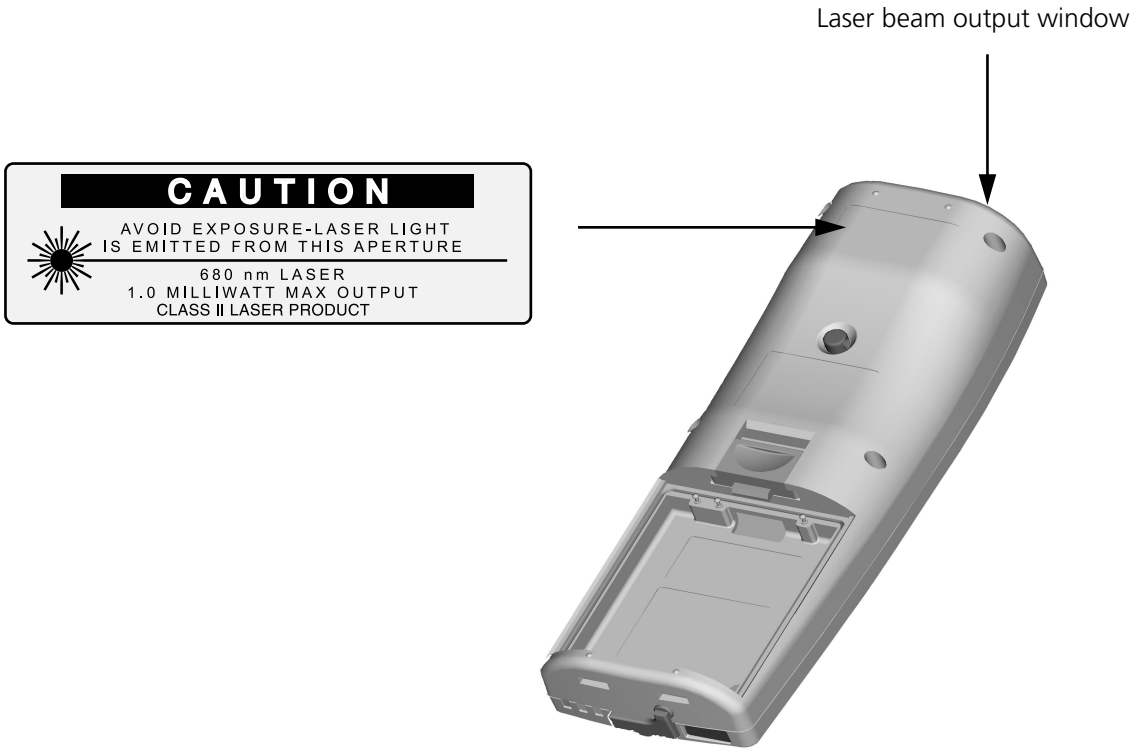
3.1. GENERAL SAFETY RULES

- Use only the components supplied by the manufacturer for the specific F7400 terminal being used. The use of cradles other than those supplied with the F7400 terminal or indicated in the list in the appendix could cause serious damage to the F7400 terminal.
- Do not attempt to disassemble the F7400 terminal, as it does not contain parts that can be repaired by the user. Any tampering will invalidate the warranty.
- When replacing the batteries or at the end of the operative life of the F7400 terminal, disposal must be performed in compliance with the laws in force..
- Do not submerge the F7400 terminal in liquid products.

3.2. LASER SAFETY

Be sure the laser warning label applied to the terminal is readable at all times. If necessary, replace it with a new one.

The laser light is visible to the human eye and is emitted from the window indicated in the figure.



I	D	F	E
La luce laser è visibile all'occhio umano e viene emessa dalla finestra indicata nella figura.	Die Laserstrahlung ist für das menschliche Auge sichtbar und wird am Strahlaustrittsfenster ausgesendet (siehe Bild).	Le rayon laser est visible à l'oeil nu et il est émis par la fenêtre désignée sur l'illustration dans la figure.	a luz láser es visible al ojo humano y es emitida por la ventana indicada en la figura.
LUCE LASER NON FISSARE IL FASCIO APPARECCHIO LASER DI CLASSE 2 MASSIMA POTENZA D'USCITA: LUNGHEZZA D'ONDA EMESSA: CONFORME A IEC 825-1 (1993)	LASERSTRAHLUNG NICHT IN DEN STRAHL BLICKEN PRODUKT DER LASERKLASSE 2 MAXIMALE AUSGANGSLEISTUNG: WELLENLÄNGE: ENTSPR. IEC 825-1 (1993)	RAYON LASER EVITER DE REGARDER LE RAYON APPAREIL LASER DE CLASSE 2 PUISSANCE DE SORTIE: LONGUEUR D'ONDE EMISE: CONFORME A IEC 825-1 (1993)	RAYO LÁSER NO MIRAR FIJO EL RAYO APARATO LÁSER DE CLASE 2 MÁXIMA POTENCIA DE SALIDA: LONGITUD DE ONDA EMITIDA: CONFORME A IEC 825-1 (1993)

ENGLISH

The following information is provided to comply with the rules imposed by international authorities and refers to the correct use of your terminal.
STANDARD LASER SAFETY REGULATIONS
This product conforms to the applicable requirements of both CDRH 21 CFR 1040 and IEC 825-1 at the date of manufacture.
For installation, use and maintenance, it is not necessary to open the device.


CAUTION

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

The product utilises a low-power laser diode. Although staring directly at the laser beam momentarily causes no known biological damage, avoid staring at the beam as one would with any very strong light source, such as the sun. Avoid that the laser beam hits the eye of an observer, even through reflective surfaces such as mirrors, etc.

ITALIANO

Le seguenti informazioni vengono fornite dietro direttive delle autorità internazionali e si riferiscono all'uso corretto del terminale.
NORMATIVE STANDARD PER LA SICUREZZA LASER
Questo prodotto risulta conforme alle normative vigenti sulla sicurezza laser alla data di produzione: CDRH 21 CFR 1040 e IEC 825-1.
Non si rende mai necessario aprire l'appa-recchio per motivi di installazione, utilizzo o manutenzione.


ATTENZIONE

L'utilizzo di procedure o regolazioni differenti da quelle descritte nella documentazione può provocare un'esposizione pericolosa a luce laser visibile.

Il prodotto utilizza un diodo laser a bassa potenza. Sebbene non siano noti danni riportati dall'occhio umano in seguito ad una esposizione di breve durata, evitare di fissare il raggio laser così come si eviterebbe qualsiasi altra sorgente di luminosità intensa, ad esempio il sole. Evitare inoltre di dirigere il raggio laser negli occhi di un osservatore, anche attraverso superfici riflettenti come gli specchi.

DEUTSCH

Die folgenden Informationen stimmen mit den Sicherheitshinweisen überein, die von internationalen Behörden auferlegt wurden, und sie beziehen sich auf den korrekten Gebrauch vom Terminal.
NORM FÜR DIE LASERSICHERHEIT
Dies Produkt entspricht am Tag der Herstellung den gültigen IEC 825-1 und CDRH 21 CFR 1040 Normen für die Lasersicherheit.
Es ist nicht notwendig, das Gerät wegen Betrieb oder Installations-, und Wartungs-arbeiten zu öffnen.


ACHTUNG

Jegliche Änderungen am Gerät sowie Vorgehensweisen, die nicht in dieser Betriebsanleitung beschrieben werden, können ein gefährliches Laserlicht verursachen.

Der Produkt benutzt eine Laserdiode. Obwohl zur Zeit keine Augenschäden von kurzen Einstrahlungen bekannt sind, sollten Sie es vermeiden für längere Zeit in den Laserstrahl zu schauen, genauso wenig wie in starke Lichtquellen (z.B. die Sonne). Vermeiden Sie es, den Laserstrahl weder gegen die Augen eines Beobachters, noch gegen reflektierende Oberflächen zu richten.

FRANÇAIS

Les informations suivantes sont fournies selon les règles fixées par les autorités internationales et se refèrent à une correcte utilisation du terminal.
NORMES DE SECURITE LASER
Ce produit est conforme aux normes de sécurité laser en vigueur à sa date de fabrication: CDRH 21 CFR 1040 et IEC 825-1.
Il n'est pas nécessaire d'ouvrir l'appareil pour l'installation, l'utilisation ou l'entretien.


ATTENTION

L'utilisation de procédures ou réglages différents de ceux donnés ici peut entrainer une dangereuse exposition à lumière laser visible.

Le produit utilise une diode laser. Aucun dommage aux yeux humains n'a été constaté à la suite d'une exposition au rayon laser. Eviter de regarder fixement le rayon, comme toute autre source lumineuse intense telle que le soleil. Eviter aussi de diriger le rayon vers les yeux d'un observateur, même à travers des surfaces réfléchissantes (miroirs, par exemple).

ESPAÑOL

Las informaciones siguientes son presentadas en conformidad con las disposiciones de las autoridades internacionales y se refieren al uso correcto del terminal.
NORMATIVAS ESTÁNDAR PARA LA SEGURIDAD LÁSER
Este aparato resulta conforme a las normativas vigentes de seguridad láser a la fecha de producción: CDRH 21 CFR 1040 y IEC 825-1.
No es necesario abrir el aparato para la instalación, la utilización o la manutención.

ATENCIÓN	*La utilización de procedimientos o regulaciones diferentes de aquellas describidas en la documentación puede causar una exposición peligrosa a la luz láser visible.*

El aparato utiliza un diodo láser a baja potencia. No son notorios daños a los ojos humanos a consecuencia de una exposición de corta duración. Eviten de mirar fijo el rayo láser así como evitarían cualquiera otra fuente de luminosidad intensa, por ejemplo el sol. Además, eviten de dirigir el rayo láser hacia los ojos de un observador, también a través de superficies reflectantes como los espejos.

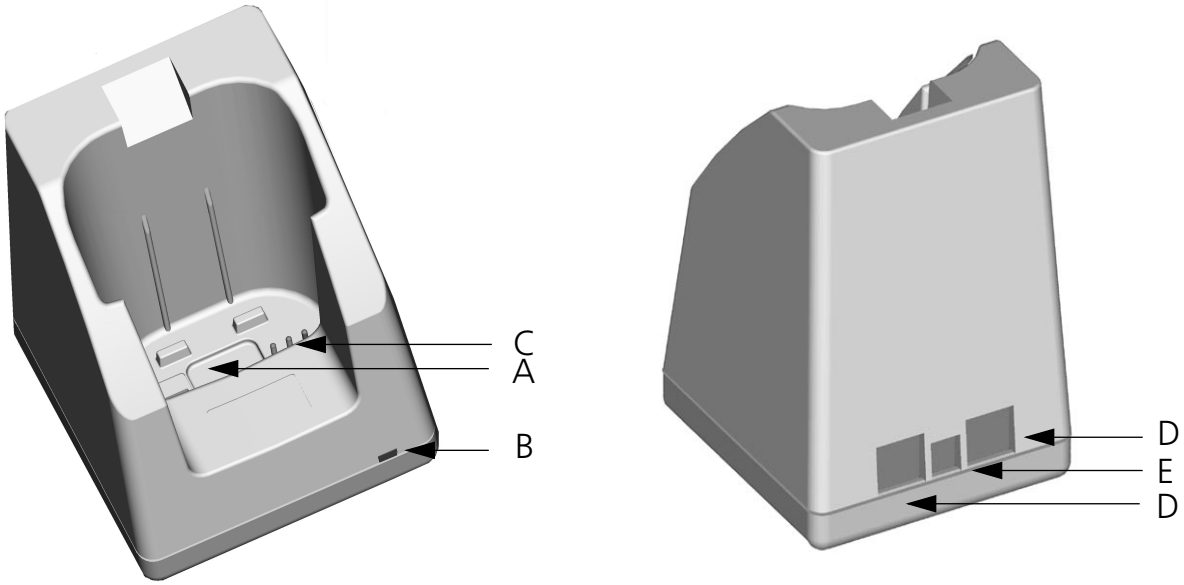
3.3. FCC COMPLIANCE - INFORMATION FOR THE USER

ATTENTION	*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 which may cause undesired operation.*

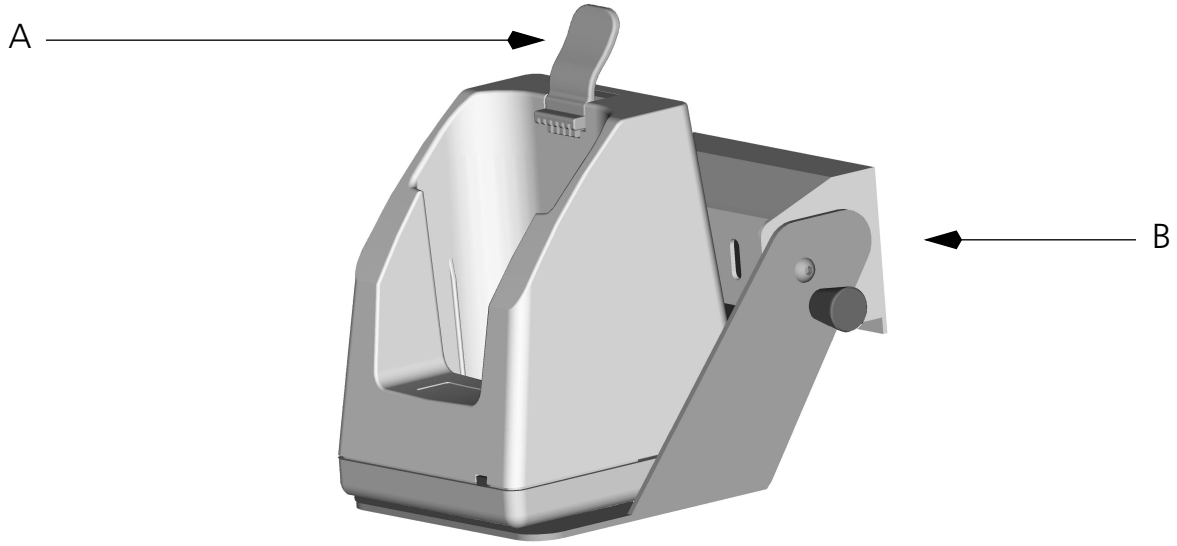
This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

4.1. CRADLES

With the F7400 terminal, both the standard cradle F970 and the vehicle version can be used.



Key F970 cradle:
A) IrDA window
B) Two-color LED – spare battery slot
C) F7400 terminal battery - recharge contacts
D) Connectors for host computer connections
E) Power jack



Key F970 vehicle cradle:
A) Cradle retaining clip
B) Metal bracket

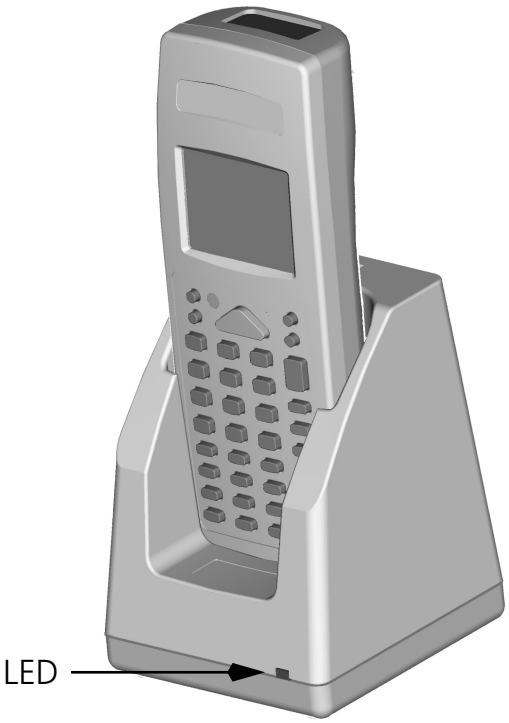
4.1.1. F970 Cradle

The F970 cradle is a battery charger and also functions as a serial communication interface between the host computer and the IrDA optical interface on the F7400 terminal.

By inserting the F7400 terminal into the cradle as shown in the figure, its batteries can be charged.

The LED indicates the status of the batteries in the terminal:

COLOR	DESCRIPTION
Constant red	Battery charging
Flashing red/green	Battery charged, F7400 terminal on
Constant green:	Battery charged, F7400 terminal off or not inserted in the cradle



4.1.2. F970 Vehicle Cradle

The F970 vehicle cradle has the same functions as the F970 standard cradle in terms of battery charging and serial communication interfacing.

The F970 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;

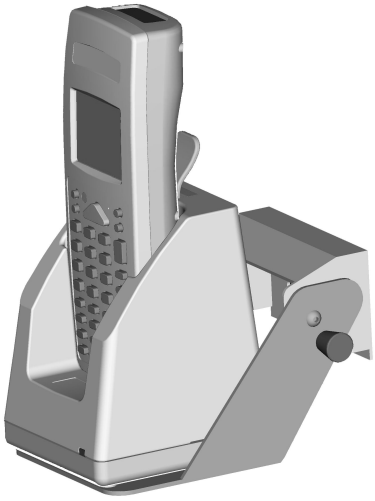
2 - It must have a stabilised power supply, connected to the vehicle's battery. The power supply must have the following output characteristics:

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

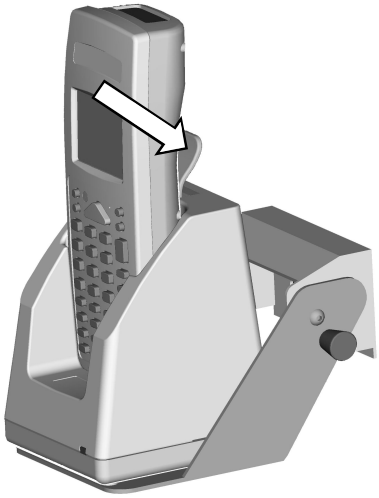
ATTENTION

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 F7400 terminal only after mounting the cradle in the vehicle.



4 - To take out the F7400 terminal from the F970 vehicle cradle, you must first press the plastic retaining clip shown in the figure and pull the F7400 terminal upwards.



4.2. TERMINAL CONNECTION TO THE HOST COMPUTER


CAUTION

Before continuing with this phase, be sure both the computer and the F7400 terminal are turned off.

4.2.1. RS-232 Connection via Cradle

To connect the cradle F970 to the host computer proceed as follows:

1 - connect the serial port of the host computer to cable 94A054000 for 9-pin connections or to cable 94A054010 for 25-pin connections;

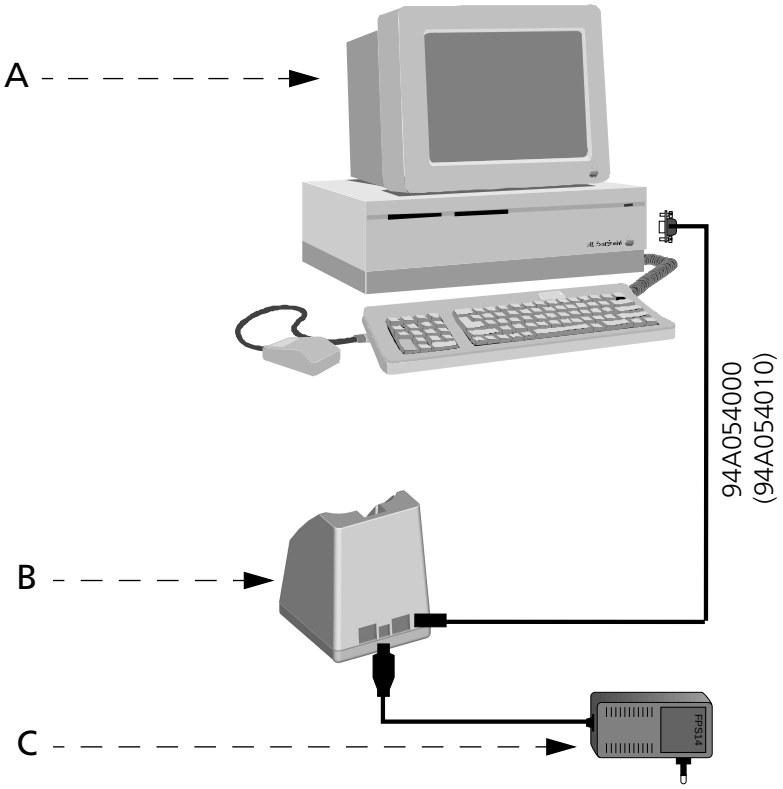
2 - connect the other end of the same cable (RJ connector) to the RS-232 port of the cradle;

3 - insert the power-supply plug into the outlet on the base of the cradle;

4 - attach the power supply to a power outlet

5 - turn on the cradle and the computer.

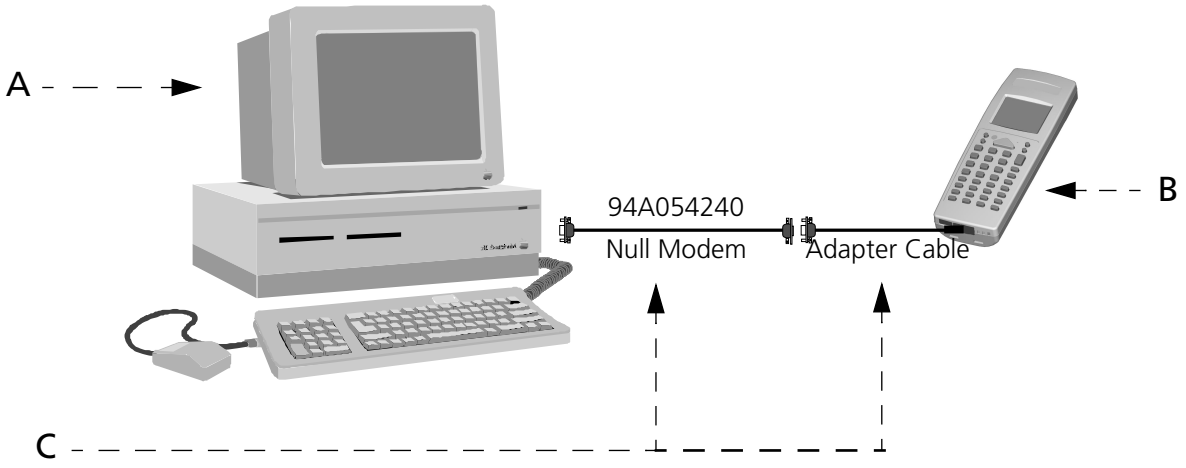
6 - put the F7400 terminal into its cradle.



Key:
A) Host computer
B) Cradle F970
C) Cradle power supply

4.2.2. RS-232 Direct Connection

You can connect the F7400 terminal directly to the host computer. Proceed as follows:



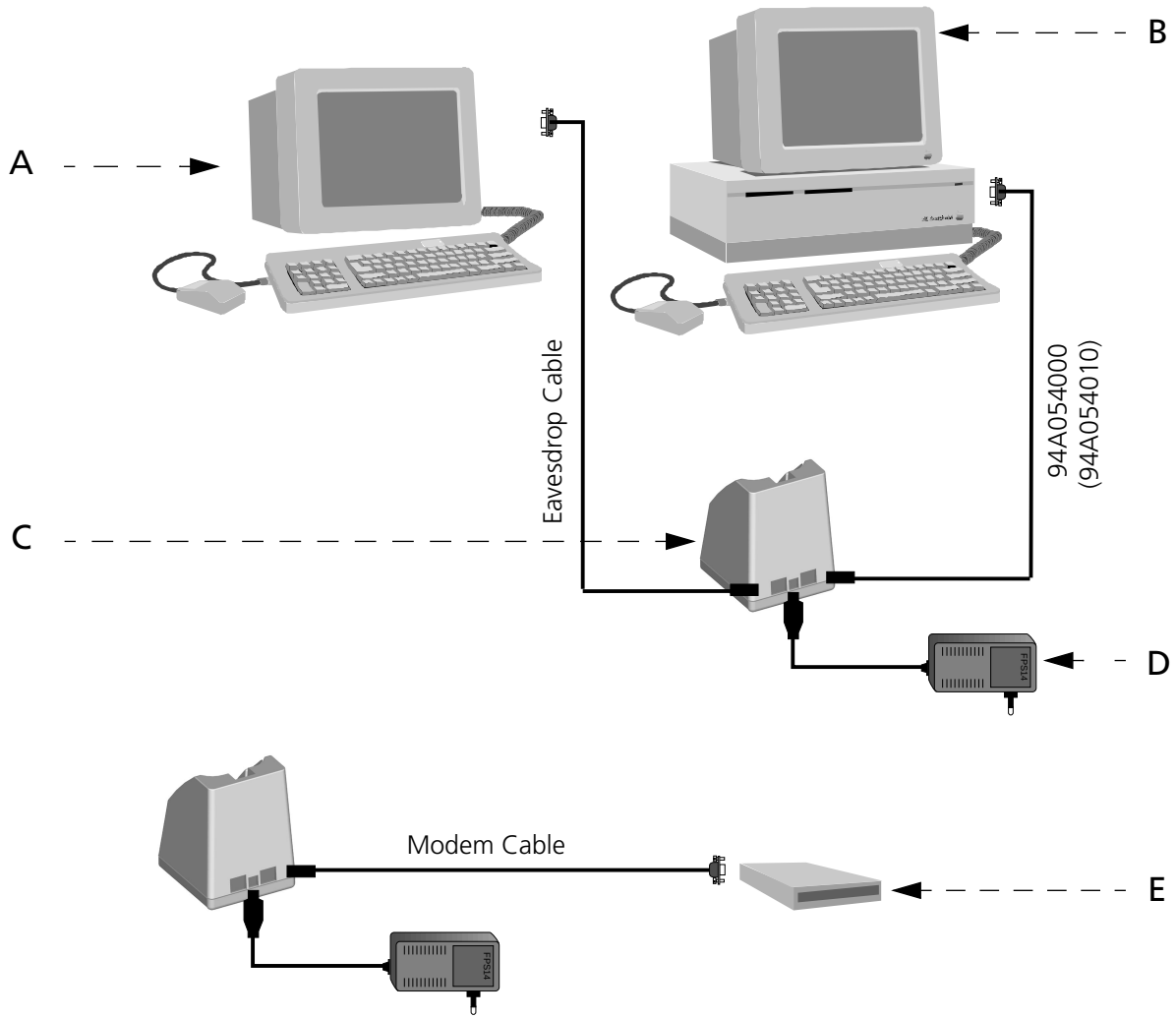
Key:
A) Host computer
B) F7400 terminal
C) RS-232 Direct Connection Kit

4.2.3. Other Connections

The use of the following connections depends upon the application program loaded on the F7400 terminal.

❑ Connection with the Eavesdrop Interface

The cable Kit 94A054030 provides two cables; one for Eavesdrop connections and one for Modem connections.
The Eavesdrop connection enables the F7400 terminal to be connected to an existing asynchronous RS-232 line (for example between host computer and Video terminal).
The Modem connection enables the F7400 terminal to be connected to a host system using a modem.

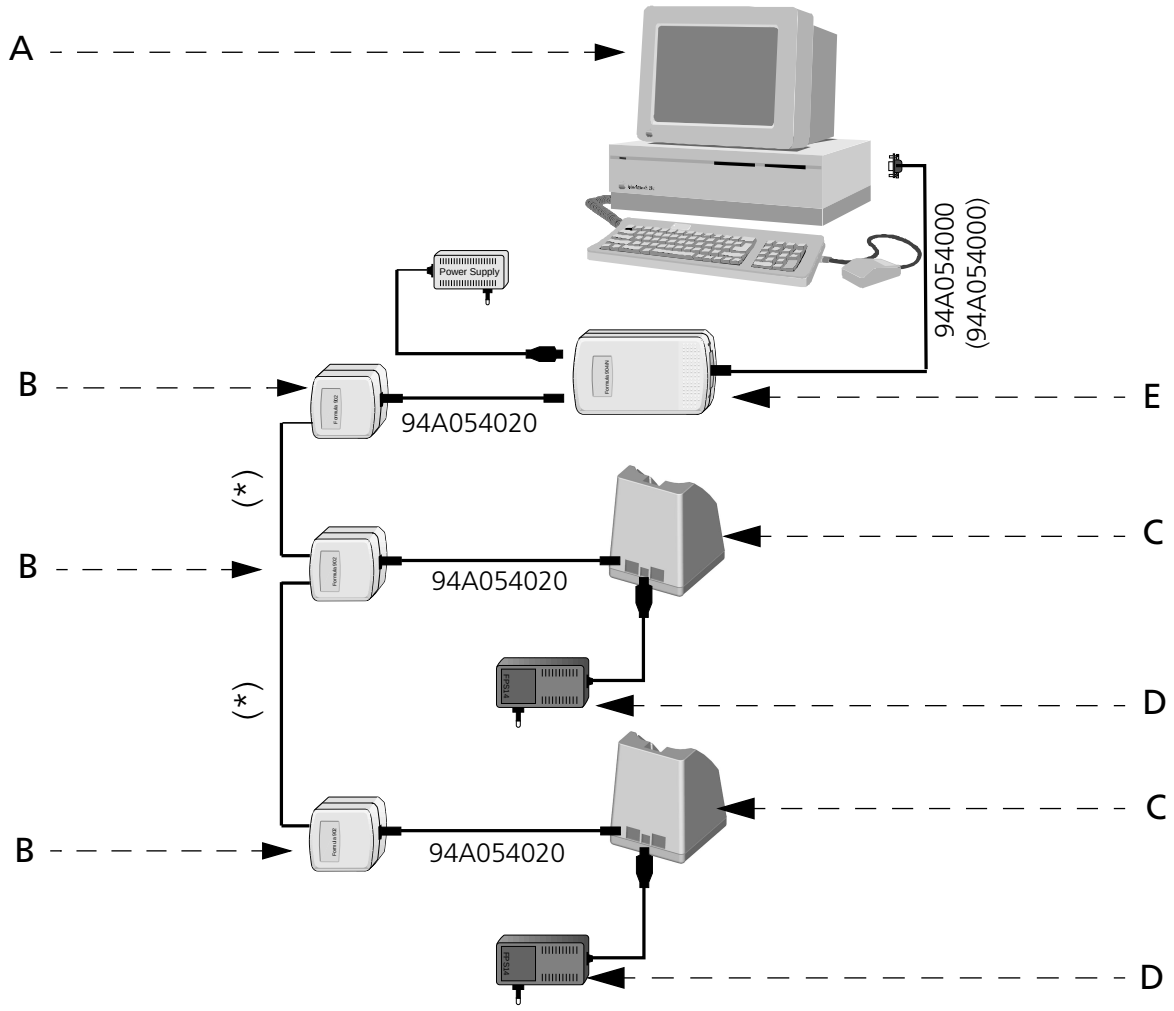


Key:
A) Video terminal
B) Host Computer
C) Cradle F970
D) Cradle power supply
E) Modem

❑ RS-485 Connection

Allows for the connection of several terminals on a single RS-232 line through the installation of a Sysnet network (see "Formula 904/N User Manual").

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.

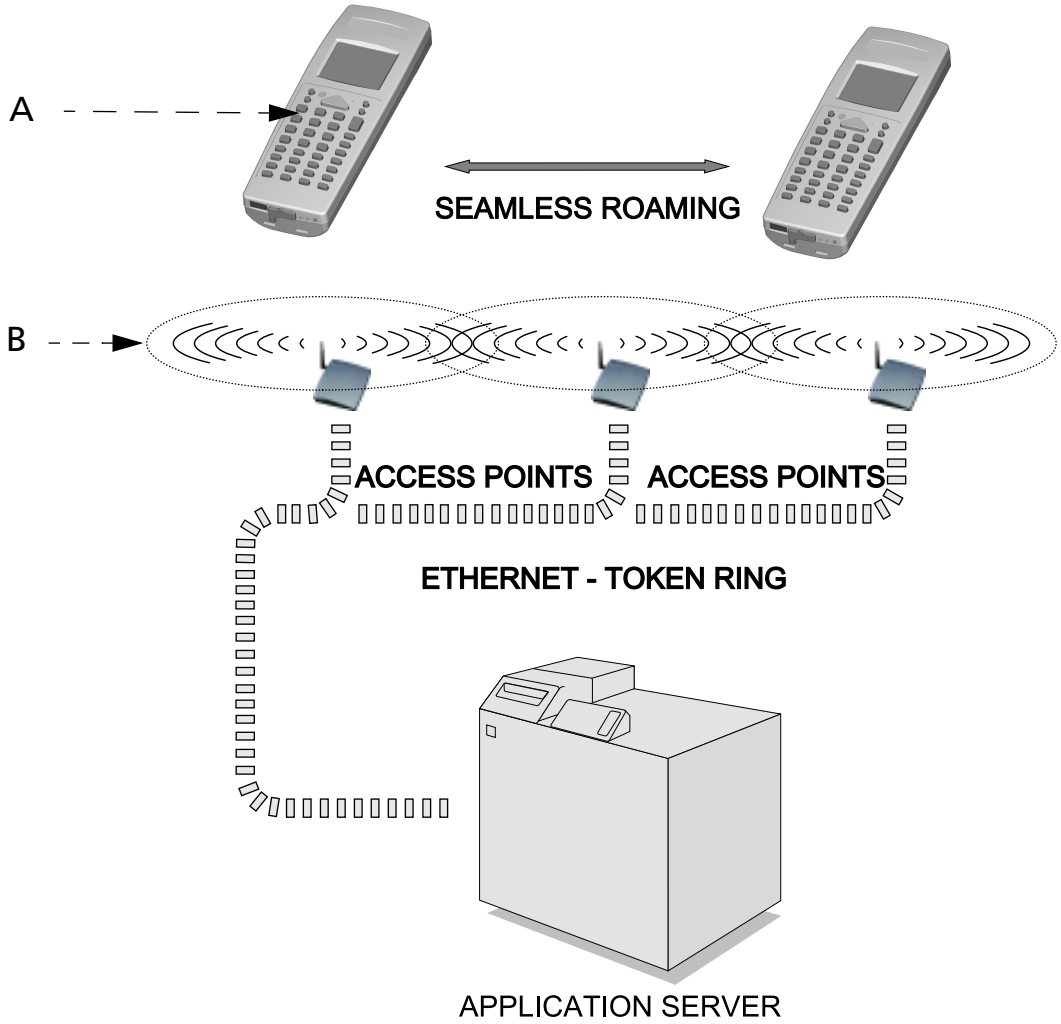


Key:
A) Host computer
B) Formula 902 T-box
C) Cradle F970
D) Cradle power supply
E) Formula 904/N Interconverter

(*) Telephone pair (max. 125 m)

❑ RF Connection

F7400 RF versions can communicate with the host using the on-board radio frequency module and an Access Point connected to the host computer.

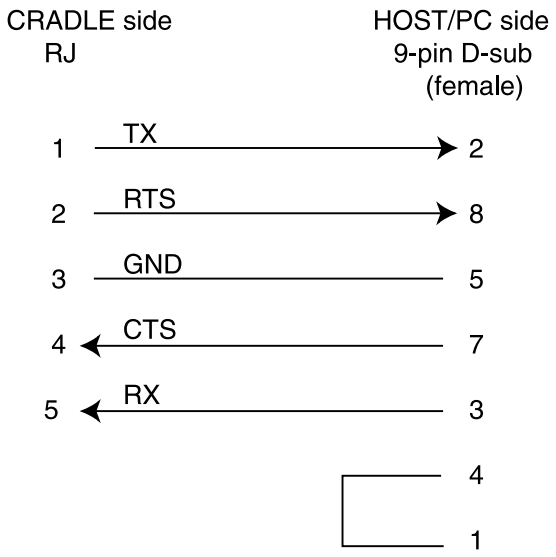


Key:
A) F7400
B) Access Point

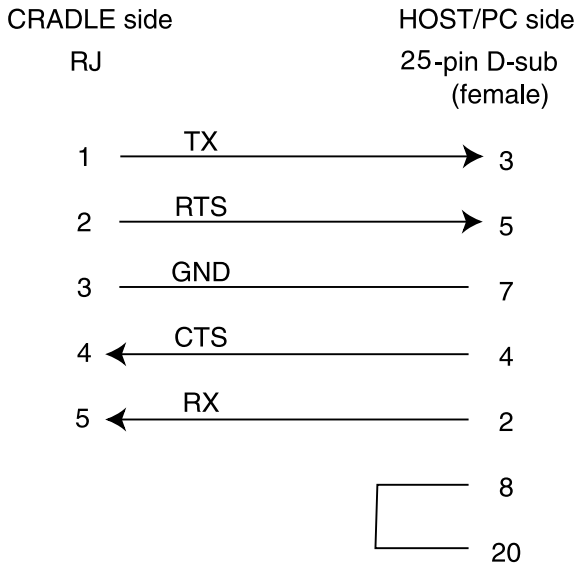
4.3. CONNECTION CABLES

Several types of cables are available depending on the type of computer and connection.
The following cables and cable Kits are listed with their order number.

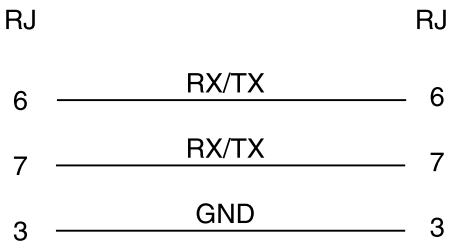
❑ RS-232 Connection with PC/AT or compatible: cable 94A054000



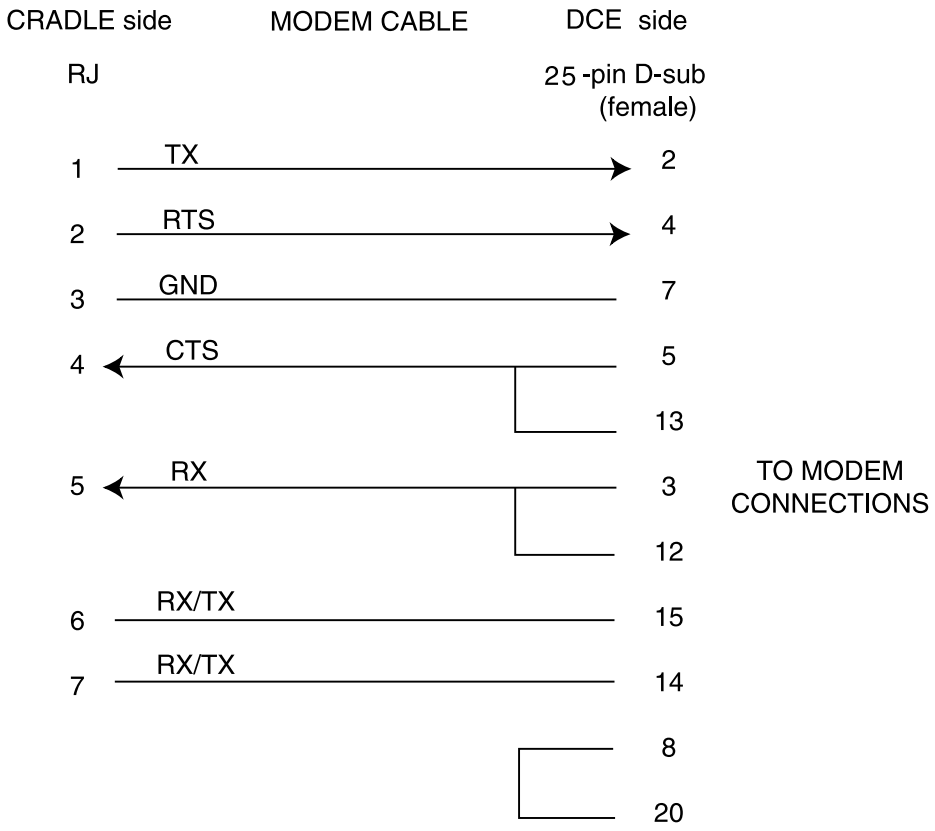
❑ RS-232 Connection with PC/XT or compatible: cable 94A054010

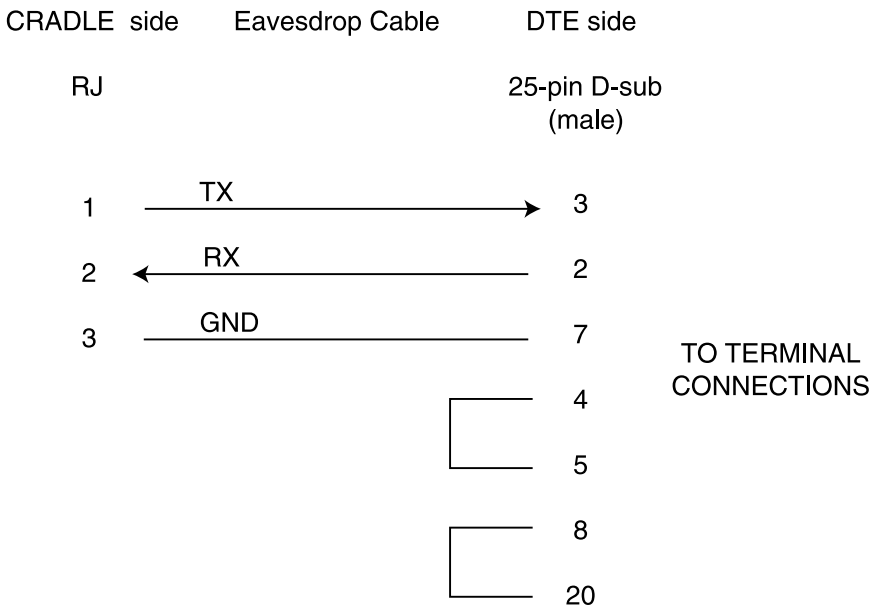


❑ RS-485 Connection: cable 94A054020

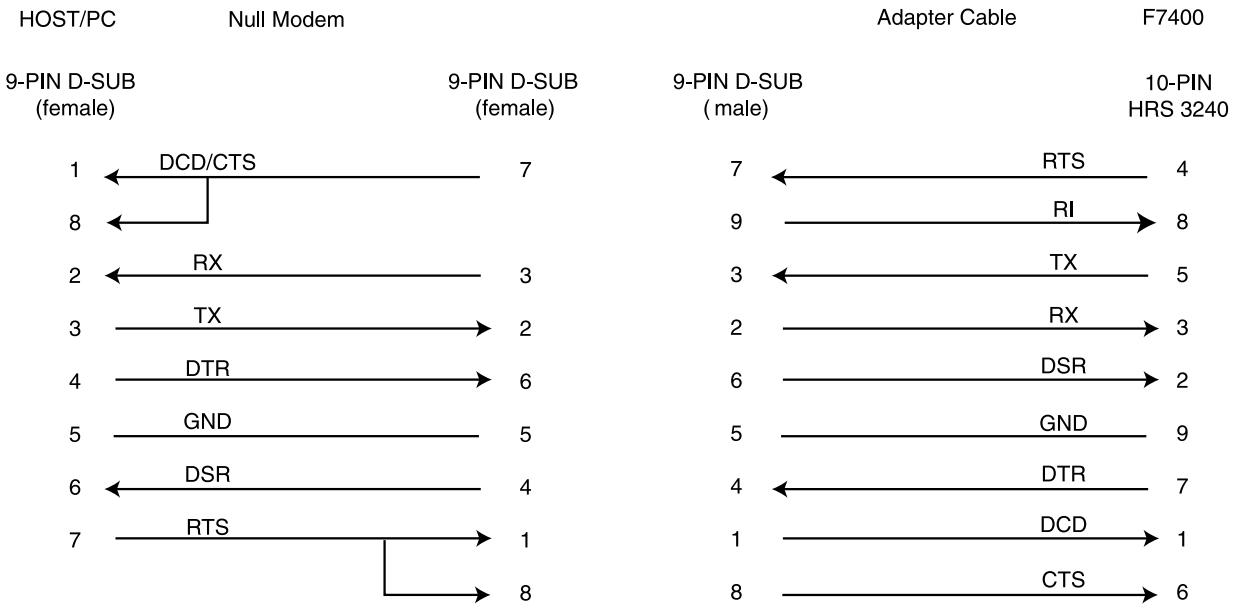


❑ Modem and/or Eavesdrop Connections: cable Kit 94A054030





❑ RS-232 Direct Connection: Kit 94A054240



5.1. GENERAL INFORMATION

The F7400 terminal is very versatile and can be adapted to suit many special requirements by configuring certain parameters which can be changed after the F7400 terminal's *boot sequence*.

The activities of accessing the parameters and their modification are commonly referred to as F7400 terminal *setup activities*.

The parameters have their default values, which are loaded automatically during the *booting sequence* if the following conditions occur:

- the first time the F7400 terminal is booted, as initial setup of the parameters themselves;
- if, during the boot sequence, the BIOS notes that the previously-set configuration parameters might not be complete or correct.

5.2. ACTIVATING THE SETUP PROCEDURE

The BSETUP.EXE program is the only way to modify the F7400 terminal parameters, it is a normal DOS program and can be invoked after the F7400 terminal's *boot sequence*.

BSETUP.EXE is intended to be invoked via the NEWAUTO.BAT, but you can use it when you want at the DOS prompt, or you can remove it from the F7400 terminal.

Note that when BSETUP.EXE program runs, the F7400 terminal has just been done the *boot sequence*, so the terminal is configured with one of the following:

- CMOS table
- EEPROM table
- DEFAULT table

The CMOS table parameters are considered the correct ones; the EEPROM table is used only if the CMOS is corrupted and the DEFAULT table, that belongs to the BIOS code, is used if no other choice is possible.

The application has the following three options:

`BSETUP -C`
: the program checks the status of currently loaded parameters to see if they are the CMOS. If so, the program exits, otherwise it asks if you want to modify them. Default is no check;

`BSETUP -N`
: if you select this option, the program does not convert the key to the correct value, for example, if the program is waiting for a number, you must put the keyboard in the correct state before pressing the number. Default is conversion enabled;

`BSETUP -D`
: with this option you can load the DEFAULT configuration

In the NEWAUTO.BAT file it is useful to invoke "`BSETUP -C`", even though the BIOS, after the RAM test, displays information about the currently selected parameters.

The application does not provide a method to change date/time, since you can use the DOS commands DATE and TIME.

5.3. PASSWORD

The password mechanism is used for protecting the access to F7400 terminal parameters.

This protection applies only to the *setup procedure*, so the check option "BSETUP -C" is not protected; this means that everybody can know the nature of loaded parameters (cmos, eeprom or factory configuration).

The application recognizes two passwords which are case sensitive:
A) user defined
B) the string "degibkdr"

If the cmos becomes invalid, the fixed (B) password provides the key to access the setup procedure.

If a wrong password is entered, the program ends returning to the dos prompt. Notice that the password protects only the F7400 terminal parameters, not the terminal itself.

The password can be disabled by entering a null string.

5.4. THE SETUP MENU AND ITS CONFIGURABLE ITEMS

The actual items present in the various menus may depend on the BIOS version being used. Be sure that BSETUP.EXE shares the same BIOS parameters and structure, which are contained in SETUP.BIN.

The setup menu is composed of several pages, every page contains a list of items and every item corresponds to a terminal parameter. There is also an exit page, that gives you the chance to save or discard the modifications.

Every page has its own title, written in the upper row of the screen; note that BSETUP.EXE substitutes the current font with a narrow one, to see all the messages on the screen without scrolling. Every item has a title and a value (the current value), the title is written on the left, the value on the right. The current item is characterized by a dot between the title and the value.

You can navigate through pages, move between items and modify them. You can recognize two types of parameters: valued and ranged. With the ranged parameters, you must enter a valid value. Erroneous values are recognized, and you must re-enter a correct number. Erroneous values cannot be introduced with valued parameters because you can only select from the ones shown.

5.5. CHANGING THE VALUES OF THE MENU ITEMS

To change the values of the menu items, you must use the F7400 terminal keyboard. To change an item, first go to its page and then select it by moving the dot.

To change the value of the items, you will have to use the keys indicated in the table below.

KEY	FUNCTION
[ESC]	Activates the exit page
←, →	Previous/next page
↑, ↓	Previous/next item
[SPACE] [ENTER]	Valued items: change value cycling through the valid ones
[SPACE] [ENTER]	Ranged items: enter the modify mode
[ENTER]	Ranged items: leave the modify mode

5.6. STRUCTURE OF THE SETUP PAGES FOR THE F7400 TERMINAL AND DESCRIPTION OF THE SETUP ITEMS

The tables below describe the SETUP pages which are available as well as the SETUP items relating to each page.

In the VALUES column, an asterisk or a value in parenthesis indicates the default value.

5.6.1. Console

ITEM	VALUES	DESCRIPTION	NOTES
Scroll	Software Track Virt Both (*)	Scrolling mode	See description of scrolling mode for further information
Contrast	Ranged:1..31 (15)	LCD contrast	
Bklight tout	Ranged: 1..15 (4)	Timeout (in seconds) for the backlight	
Kbd click	Enable (*) Disable	Keyboard click	
Click freq	Ranged: 1..100 (3)	Frequency (Hertz/100) of the keyboard click	
Password	String up to 8 characters	Selection of the new password to enter setup	Simply press [ENTER] to disable the password

The CMOS value of LCD contrast represents the only parameter that can be modified outside the BSETUP.EXE application. As a matter of fact, selecting the contrast mode [FUNC]-[T] gives you the ability to change this value using up and down arrows; this changing does not affect the EEPROM value.

5.6.2. Devices

ITEM	VALUES	DESCRIPTION	NOTES
Cpu high	8 MHz 16 MHz(*) 32 MHz	Clock frequency in ON state	See description of Power Management for further information
Com1	Off Electrical Elect+wake(*) Optical	Select type and use of COM1	
uISA	Off (*) On Wakeup	Use of radiofrequency module	
Keyboard	On (*) Wakeup	Enable/disable keyboard as a wakeup source	
RTC alarm	On Wakeup (*)	Enable/disable the RTC Alarm as a wakeup source	
LCD suspend	On Off (*)	If on, keeps the display on when the terminal goes into SUSPEND mode	If LCD suspend is on, it is strongly recommended to set the Keyboard also to Wakeup

5.6.3. Power Management

ITEM	VALUES	DESCRIPTION
Automatic	On (*) Off	Enable automatic power management
Low speed	8 MHz 4 MHz 2 MHz 1 MHz (*)	Clock frequency in IDLE state

ITEM	VALUES	DESCRIPTION
High->low tout	1/8 s (*) 1/4 s 1/2 s 1 s 4 s 8 s 16 s	Select the period without Primary activity (see Activities) before passing from High speed to the IDLE state (Low speed)
Low->sleep tout	8 s 16 s (*) 32 s 1 m 4 m 8 m 16 m	Select the period without any activity before passing from the IDLE state (Low speed) to SUSPEND (Off).

If the Automatic parameter is selected OFF, all other Power Managment parameters have no meaning.

5.6.4. Activities

ITEM	VALUES	DESCRIPTION
Com1	Off Primary (*) Secondary	Indicates the level of activity for UART/IR interface
uISA	Off (*) Primary Secondary	Indicates the level of activity for radiofrequency module
LCD	Off Primary (*) Secondary	Indicates the level of activity for video operations (excluding cursor blink)
Keyboard	Off Primary (*) Secondary	Indicates the level of activity for keyboard

ITEM	VALUES	DESCRIPTION
Disk	Off Primary (*) Secondary	Indicates the level of activity for all accesses to flash disk (boot and non-boot)

If the Power Manegement - Automatic parameter is selected OFF, all Activities parameters have no meaning.

5.7. EXIT MENU

ITEM	DESCRIPTION	NOTES
CMOS + EEPROM Save & Exit	Saves the new values in the CMOS memory and EEPROM memory and exits	Press [S] to activate the function
CMOS Save & Exit	Saves the new values in the CMOS memory and exits.	Press [C] to activate the function
Discard	Discards the new values and exits	Press [Q] to activate the function
Factory parameters	Load the default factory values	Press [D] to activate the function

5.8. EXIT FROM THE SETUP PROCEDURE

To end the SETUP procedure, you will have to:

1 - Select the Exit menu by pressing [ESC]

2 - Select one of the items by pressing the correct key (an erroneus one re-enters the setup procedure):

- If you exit with saving, a message appears notifying that the program is about to quit, and you can choose to reboot the F7400 terminal to see the effects of the new configuration. Remember that the F7400 terminal parameters are used by BIOS at boot-time.
- If you exit with the “Discard” command, no change will affect CMOS and EEPROM memories.
- If you choose the “factory parameters”, the application applies it and then re-enters the setup procedure.

5.9. DEFAULT VALUES

The configuration parameters are saved in a particular area of memory (CMOS RAM) which is call NON VOLATILE because it has a battery back-up that allows the saved values to be maintained even in the event of a power failure or if the main batteries are not available (not present/run down).

It may happen, though, that the saved values are unreliable either because the battery back-up is run down or the data have been changed for some reason.

Only during the F7400 terminal's boot sequence does the BIOS perform the function tests of the CMOS RAM and of the data reliability before using them for the F7400 terminal's configuration: if the BIOS encounters problems of functioning or data non-integrity, it proceeds by loading the EEPROM values into the CMOS RAM, if the EEPROM values have never been written, it loads the default values to allow the terminal to be used safely.

If the BIOS cannot use CMOS and/or EEPROM values, it sends a message indicating the kind of encountered problem, you can see this message after the end of the RAM test.

If the BIOS uses the default values, all the configuration parameters are reset to their default values – this applies also to the PASSWORD (because it was corrupted).

You can choose to use our default configuration invoking the BSETUP.EXE application with the "-d" option or by selecting the factory default item on the exit page, (your password will remain valid).

6 USE AND FUNCTIONING

The use of the F7400 terminal is subordinate to the application software loaded, whether it is provided by Datalogic, or created with the F7400 Development System. Once an application is loaded, barcode scanning can be performed by pressing [SCAN].

6.1. TERMINAL START-UP

The F7400 terminal comes on when the batteries are inserted and goes in *low power consumption mode* when it is no longer used for more than a programmable time-out (usually 16 seconds).

It is possible to anticipate the *low power consumption mode* by pressing the key sequence [SHIFT]-[SCAN].

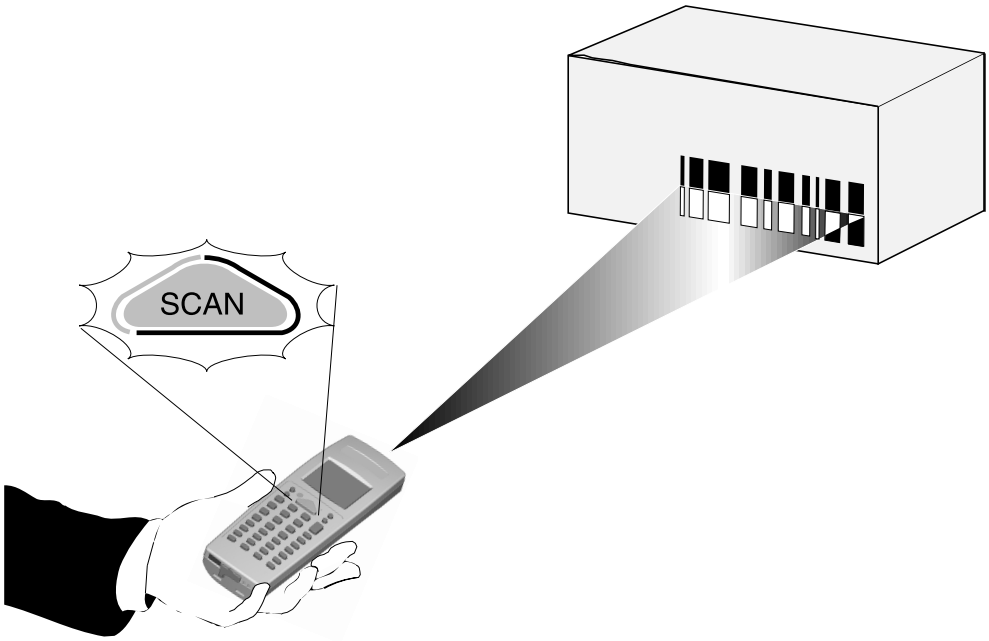
To wake-up the F7400 terminal, press the [SCAN] key.

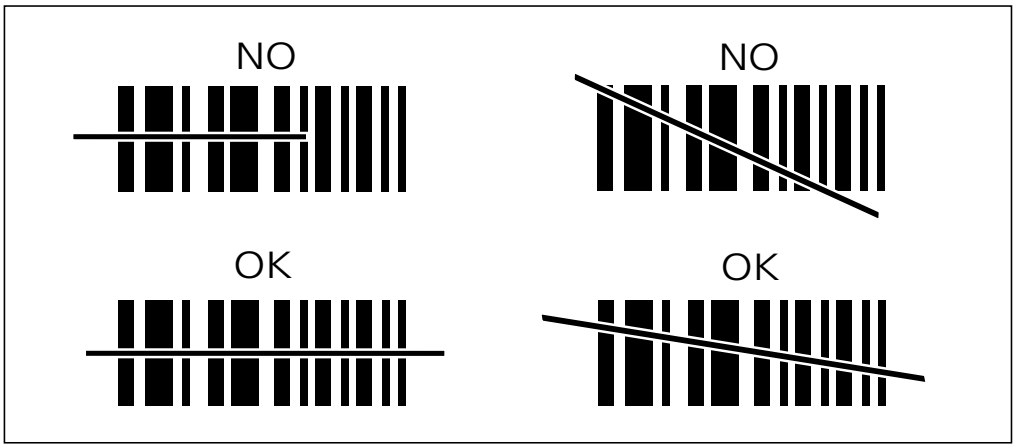
You can configure the F7400 terminal so that it comes on again automatically when:
- it receives some data from the com1 serial port;
- it receives something by RF;
- any key of the keyboard is pressed.

In the Devices sub-menu of SETUP, set the parameters “com1”, “ulSA” and “Keyboard” to “Wakeup”.

6.2. BAR CODE SCANNING

To scan bar codes, point the F7400 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.





NOTE

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 F7400 terminal being in use.

6.3. DESCRIPTION OF THE KEYS (37-KEY MODELS)

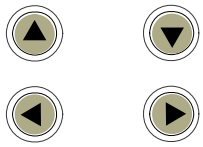
The F7400 terminal keyboard is made up of a total of 37 keys.

The keyboard can be divided into two parts:

UPPER KEYBOARD

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

[SCAN]: this key is used to turn on the bar code reader and only becomes active if made operative by the dedicated software.
The [SHIFT]-[SCAN] sequence allows you to anticipate the F7400 terminal *low power consumption mode*. The next time the [SCAN] key is pressed the F7400 terminal will wake-up again (see "Terminal start-up" on page 36). You can also make the F7400 terminal wake up by pressing other keys.



ARROW KEYS: 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]+[T]	[FUNC]	[SHIFT]
Up	Increase the display contrast	Page Up	Scroll Up
Down	Decrease the display contrast	Page Down	Scroll Down
Left		Home	Scroll Left
Right		End	Scroll Right

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 predefined function.

If the [FUNC]-[T] contrast mode is activated, the up and down arrows allow the contrast of the LCD to be increased or decreased respectively. By pressing [FUNC]-[T] again, the arrows return to normal mode.

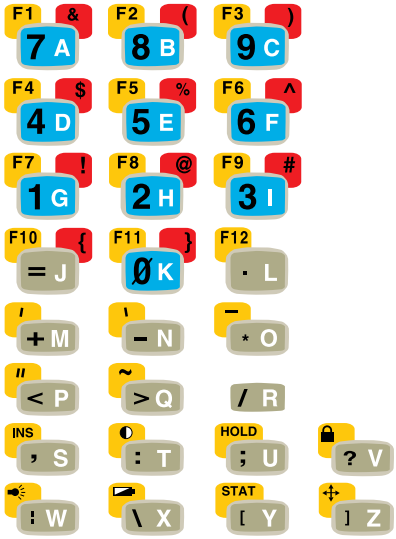
ATTENTION

If the words displayed appear very faint while the contrast function is being changed, the operator will not notice if the F7400 terminal has accidentally been turned off.

MAIN KEYBOARD

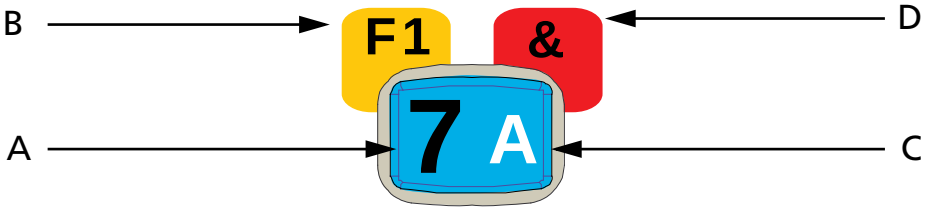
The main keyboard has 32 keys, among which:

[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 and mode

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;

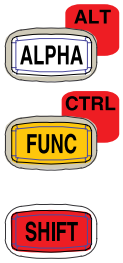
B) function of the key active in FUNC mode;

C) function of the key active in ALPHA 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.

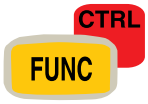
When the F7400 terminal is restarted, the keyboard is in ALPHA mode but you can change the keyboard mode by using the SPECIAL KEYS.



SPECIAL KEYS: [ALPHA], [FUNC], [SHIFT] to change the keyboard 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 F7400, 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.

ATTENTION

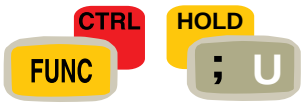
Do not confuse this key with the [SHIFT] key on a PC keyboard which is used to switch between upper and lower case characters.

❑CTRL MODE

The CONTROL mode is the same obtained by pressing the [CTRL] key on a PC keyboard; on the F7400 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 F7400 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.



❑HOLD MODE

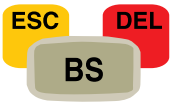
The HOLD mode is obtained by pressing the [FUNC]-[U] sequence. If [FUNC]-[U] is pressed after the ALT or CTRL modes have been activated, the keyboard will remain in ALT or CTRL mode for the whole key sequence until the next sequence [SHIFT]-[ALPHA] in ALT mode or until the [SHIFT]-[FUNC] sequence in CTRL mode.

To summarize:

- The [SHIFT]-[FUNC] sequence is equivalent to pressing 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 pressing the [ALT] key on the AT keyboard, and the combination is valid only for the next key.
- The [SHIFT]-[ALPHA]-[FUNC]-[U] sequence activates the [ALT] function for all the successive key combinations till the [SHIFT]-[ALPHA] sequence is pressed again.
- The [SHIFT]-[FUNC]-[FUNC]-[U] 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.

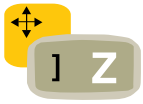
Below is a description of the remaining F7400 terminal keys:

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.

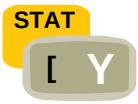


The [BS] key operates as a [Backspace] key in NORMAL mode, an [ESC] key in FUNC mode, and as a [DEL] key in SHIFT mode.

The [FUNC]-[V] sequence 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.



The [FUNC]-[Y] sequence allows you to display the state (STAT mode) of the keyboard by changing the cursor. By pressing [FUNC]-[Y] again, it returns to the previous one. The cursor will take on the appearance of the pixel matrix of the font corresponding to the codes described in the following table:

STATE	CODE	CURSOR
ALPHA	0x41	A
NORMAL	0x4E	N
FUNC FUNC HOLD	0x46	F
FUNC SHIFT	0x66	f
SHIFT	0x53	S

Also, if the battery level drops below a certain level, the state of the keyboard will appear with its colors reversed.

This function depends greatly on the font chosen: if it replaces one of the codes indicated, the cursor will take on the appearance of the new pixel matrix.

BY pressing the [FUNC]-[X] keys, the cursor is replaced with a BATT icon that represents the battery's charge state or the A C character that indicates the terminal has been inserted into the cradle. The codes used are from 251 to 255. If the sequence [FUNC]-[X] is repeated, the system returns to the previous cursor.

Since the cursor can only indicate one state or character at a time, when more than one cursor indication is enabled the priority from higher to lower is:

-Show the battery state

-Show the keyboard state

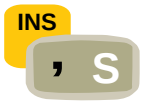
-Show the DOS cursor

For example:

EVENT	CURSOR
1. Power up	shows standard DOS cursor
2. Press [SHIFT]-[SP] (enable)	shows keyboard state
3. Press [SHIFT]-[ESC] (enable)	shows battery level icon
4. Press [SHIFT]-[ESC] (disable)	shows keyboard state
5. Press [SHIFT]-[SP] (disable)	shows standard DOS cursor

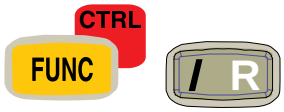
When in BATT mode, loading a new font may affect the cursor shape.

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.

6.4. DESCRIPTION OF THE KEYS (24-KEY MODELS)

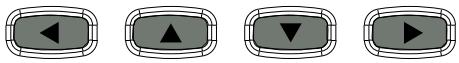
The F7400 terminal keyboard is made up of a total of 24 keys.

The keyboard can be divided into two main parts.

UPPER KEYBOARD

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

[SCAN]: The [SCAN} key is used to turn on the terminal and to activate the laser scanner for bar code reading.
The [SHIFT]-[SCAN] sequence allows you to turn off the terminal itself. Please note that is not possible to activate the laser scanner for bar code reading if the data-collection software application program is not currently running on the terminal.



ARROW KEYS: 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	[SHIFT]+[BS]	[FUNC]	[SHIFT]
Up	Increase the display contrast	Page Up	Scroll Up
Down	Decrease the display contrast	Page Down	Scroll Down
Left		Home	Scroll Left
Right		End	Scroll Right

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]-[:] sequence. Pressing the [FUNC]-[:] sequence again will return the arrow keys to their predefined function.

If the [SHIFT]+[BS] contrast mode is activated, the up and down arrows allow the contrast of the LCD to be increased or decreased respectively. By pressing [SHIFT]+[BS] again, the arrows return to normal mode.

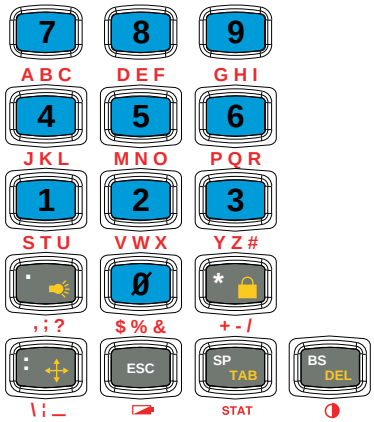
ATTENTION

If the words displayed appear very faint while the contrast function is being changed, the operator will not notice if the F7400 terminal has accidentally been turned off.

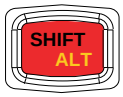
MAIN KEYBOARD

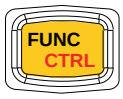
The main keyboard has 19 keys, among which:

[ENTER]: corresponds to the [ENTER] key on a PC.



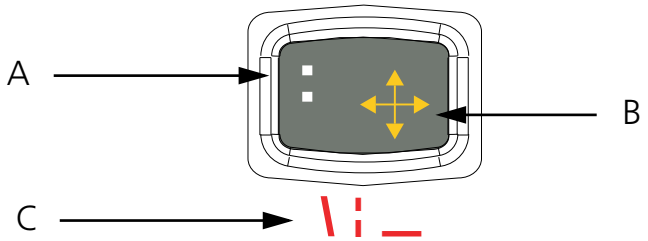
GENERAL KEYS: the 16 keys that carry extra symbols; their function changes according to the various keyboard functions and mode.





SPECIAL KEYS: [FUNC], [SHIFT] to change the keyboard mode.

Each key can have up to five functions:



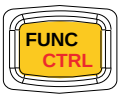
A) standard function of the key (NORMAL mode).
B) function of the key active in FUNC mode. Numerical Keys from 0 to 9 when in FUNC mode, have the same function as the F10, F1, F2..F9 keys respectively on a PC keyboard.

C) functions of the key when preceeded by a SHIFT keypress (SHIFT mode). More precisely after pressing [SHIFT]:

- Press [:] once to get the first symbol (\)
- Press [:] twice to get the second symbol (|)
- Press [:] three times to get the third symbol (_)

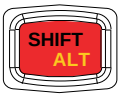
When you press the key the first time, the cursor is turned to the '\' symbol to show you the currently selected symbol. If you press the key again the symbol turns to '|'.
To make the system accept your selection, just wait 2 seconds.

If you are inputing more than one symbol or character, as you press the next key the operation continues. For example, to write ABC, press [SHIFT]-[7]-[SHIFT]-[7]-[7]-[SHIFT]-[7]-[7]-[7] in sequence.



❑FUNC MODE

Switches keyboard to the function FUNC mode from the 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]-[1] in sequence

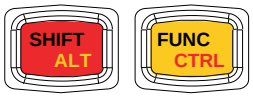


❑SHIFT MODE

On the F7400, the [SHIFT] key is not pressed at the same time with other keys. Its function is to switch the keyboard into the SHIFT symbols mode from the NORMAL mode.
The keyboard remains in this new mode until the symbol is accepted, then it returns to the previous mode.
For example, to press the [&] key, press the [SHIFT]-[0]-[0]-[0] in sequence.

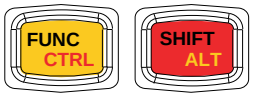
ATTENTION

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 F7400, it is activated with the [SHIFT]-[FUNC] sequence from the 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 NORMAL mode, press the [SHIFT]-[FUNC]-[SHIFT]-[7]-[7]-[7] keys in sequence.
For example, to press the [CTRL]+[F3] key, press the [SHIFT]-[FUNC]-[FUNC]-[3] keys in sequence



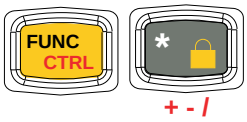
❑ALT MODE

The ALTERNATE mode is the same obtained by pressing the [ALT] key on a PC keyboard. On the F7400, it is activated with the [FUNC]-[SHIFT] sequence from the 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 NORMAL mode, press the [FUNC]-[SHIFT]-[SHIFT]-[7] keys in sequence.
For example, to press the [ALT]+[F1] key, press the [FUNC]-[SHIFT]-[FUNC]-[1] keys in sequence.

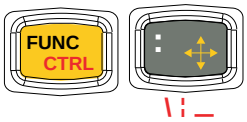
To summarize:

- The [SHIFT]-[FUNC] sequence is equivalent to pressing the [CTRL] key on the AT keyboard, and the combination is valid only for the next key pressed.
- The [FUNC]-[SHIFT] sequence is equivalent to pressing the [ALT] key on the AT keyboard, and the combination is valid only for the next key.
- The activity of the [FUNC] and [SHIFT] keys is in mutual exclusion, and is always valid in the [NORMAL], [ALT] and [CTRL] modes.
  For example, the [FUNC]-[1] sequence is always the same as pressing the [F1] key, whereas the [SHIFT]-[1] sequence is the same as pressing the [S] key, independently of the ALT and CTRL status.

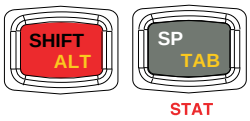
Below is a description of the remaining terminal keys:



The [*] 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.



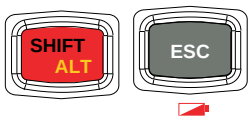
The [:] key, when in FUNC mode, activates the scroll function of the arrow keys. Pressing [FUNC]-[:] a second time returns the arrow keys to their predefined function.



The [SHIFT]-[SP] sequence allows you to display the state (STAT mode) of the keyboard by changing the cursor. By pressing [SHIFT]-[SP] again, the standard cursor is restored. When in stat mode the cursor takes the appearance as described in the following table:

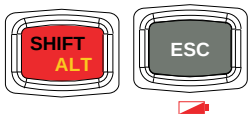
STATE	CODE	CURSOR
NORMAL	0x5F	' _ '
FUNC	0xDE	' ¦ '
SHIFT	0xDC	'▬'

Also, if the battery level drops below a certain level, the state of the keyboard will appear with its colors reversed.
This function depends greatly on the font chosen: if it replaces one of the codes indicated, the cursor will take on the appearance of the new pixel matrix.



By pressing the [SHIFT]-[ESC] keys, the cursor is replaced with a BATT icon that represents the battery's charge state or the $^{A}_{C}$ character that indicates the terminal has been inserted into the cradle. The codes used are from 251 to 255. If the sequence [SHIFT]-[ESC] is repeated, the system returns to the previous cursor.
Since the cursor can only indicate one state or character at a time, when more than one cursor indication is enabled the priority from higher to lower is:

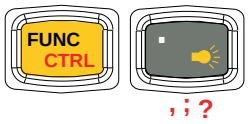
- Show the currently selected symbol or character key (SHIFT mode) from the three possible selections
- Show the battery state
- Show the keyboard state
- Show the DOS cursor



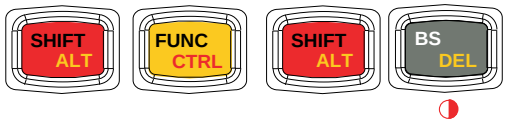
For example:

EVENT	CURSOR
1. Power up	shows standard DOS cursor
2. Press [SHIFT]-[SP] (enable)	shows keyboard state
3. Press [SHIFT]-[ESC] (enable)	shows battery level icon
4. Press [SHIFT]-[7]	shows A
5. Press [7]	shows B
6. Wait for 2 second timeout	shows battery level icon
7. Press [SHIFT]-[ESC] (disable)	shows keyboard state
8. Press [SHIFT]-[SP] (disable)	shows standard DOS cursor

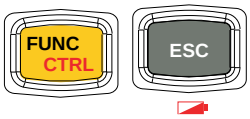
When in BATT mode, loading a new font may affect the cursor shape.



In FUNC mode, the [.] 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..



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.

6.5. PROTECTED RESET BUTTON

To activate the reset button insert a blunt-ended object into the hole.
The reset function will delete all RAM data.

NOTE

Rechargeable battery packs (NiMH) are not initially charged. Therefore the first operation to perform is to charge them in the appropriate cradle. See paragraphs 7.2 and 4.1.

7.1. CHARGING THE BATTERIES

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 F7400 terminal.

Recharging should be performed after using the terminal until the batteries are completely run down.

To recharge the batteries, insert the F7400 terminal into 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 F7400 terminal will not be used for a few days, we recommend that the battery pack be removed from the F7400 terminal to prevent the battery from being damaged from over-discharging.

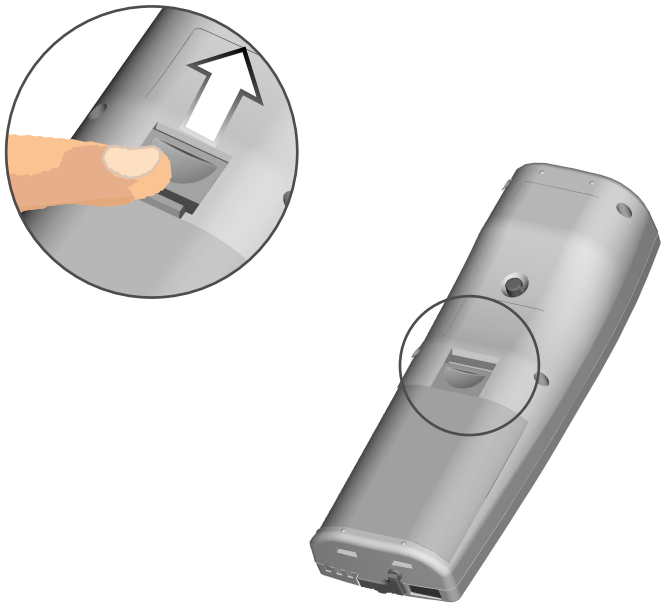
The maximum time required to recharge a completely run-down battery pack is about 2,5 hours.

7.2. REPLACING THE BATTERIES

To correctly replace the batteries, proceed as follows.

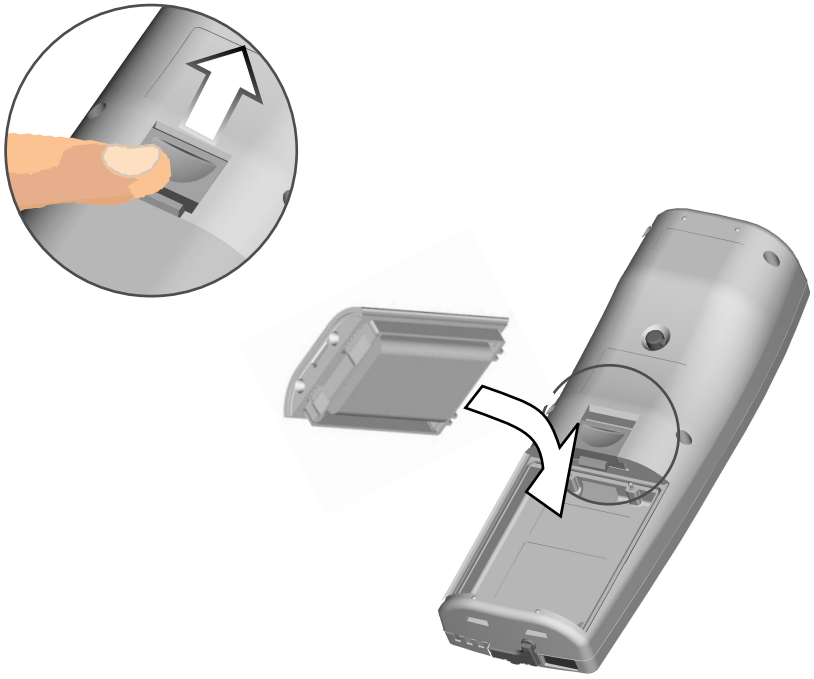
1 - Turn off the F7400 terminal.

2 - Turn the F7400 terminal over and press the lock runner as indicated in figure below:



3 - Remove the battery pack .

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



CAUTION

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

7.3. CLEANING THE TERMINAL

Periodically clean the F7400 terminal with a slightly dampened cloth.
Do not use alcohol, corrosive products or solvents.

Formula

A

PRODUCTS AND ACCESSORIES OF THE FORMULA 7400 LINE

❑ Formula 7400 Terminals

- Formula 7400 Laser Scanner
  Hand-held programmable laser micro-terminal.
- Formula 7400/RF Radio Frequency Laser Handheld PC
  Hand-held programmable laser micro-terminal, equipped with RF module for radio frequency transmission.

❑ Cradle

- Formula 970 Transceiver charger
  Battery charger and optical transceiver for connections between terminal and host computer in RS-232 and RS-485.
- Formula F970 Vehicle Transceiver charger
  Battery charger and optical transceiver for connections between F7400 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

❑ Software

- Development System for Formula 7400 and C Compiler
- Formula TN Client (only for F7400/RF)
  Formula TN Client is a complete terminal emulation software package based on the standard Telnet-TCP/IP protocol.

❑ Radio Frequency

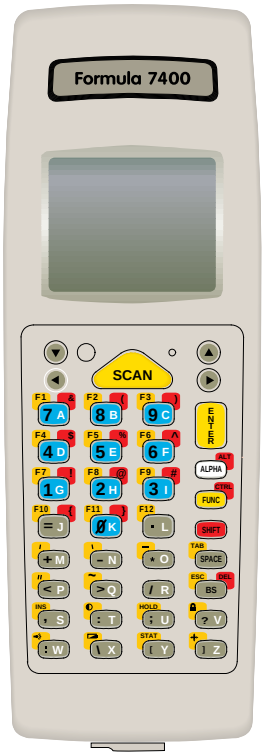
- Formula One AP 7520 Ethernet
- Formula One AP 7100 ISA

Formula

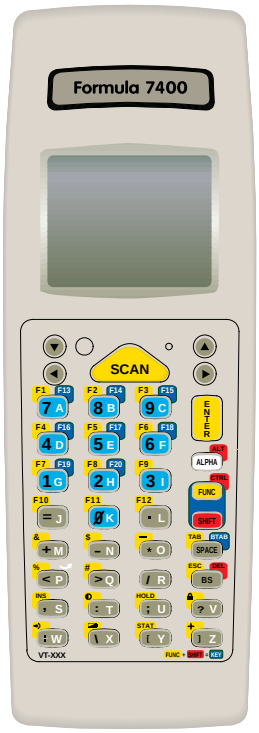
B

TERMINAL EMULATION KEYBOARD OVERLAYS

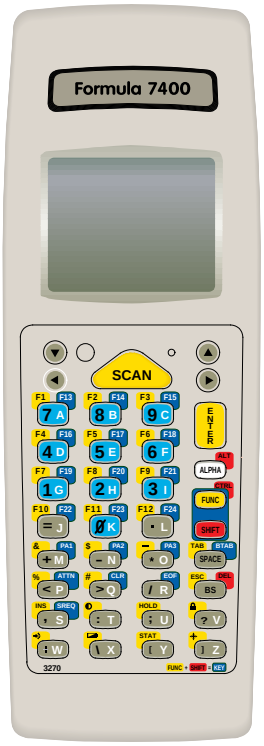
PC-LIKE



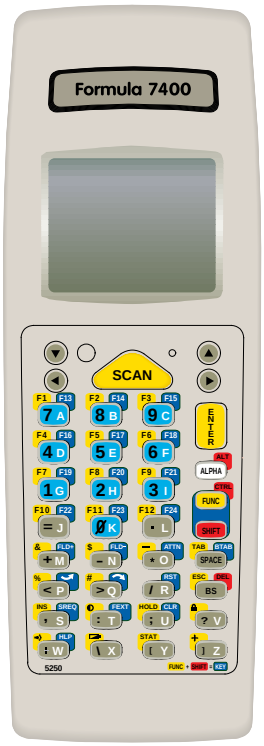
VT/HP


Formula 7400
SCAN
ENTER
ALPHA
FUNC
SHIFT
SPACE
BS
VT-XXX

3270


Formula 7400
SCAN
ENTER
ALPHA
FUNC
SHIFT
SPACE
BS
3270

5250



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Bar Code & More

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Formula 7400 24K	**Laser Hand-Held PC 24 keys**
Formula 7400 37K	**Laser Hand-Held PC 37 keys**
Formula 7400/RF 24K	**Laser Hand-Held PC 24 keys Radio Frequency**
Formula 7400/RF 37K	**Laser Hand-Held PC 37 keys Radio Frequency**
Formula 970	**IRDA Transceiver/Charger**
Formula 970/V	**IRDA Transceiver/Charger Vehicle version**

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	**EMC Directive**
92/31/EEC	**EMC Directive**
73/23/EEC	**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**
EN 60825-1	**Safety of information tecnology**
EN60825	**Radiation Safety of laser products**

Mogliano Veneto, 29.12.98

CE

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