MINEC 4x

User's Manual

DATALOGIC

Minec 4x

USER'S MANUAL

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REFERENCES

CONVENTIONS

This manual uses the following conventions:

"User" refers to anyone using a Minec 4x Terminal.
"Terminal" refers to the Minec 4x Terminal.
"You" refers to the System Administrator or Technical Support person using this manual to install, configure, operate, maintain or troubleshoot a Minec 4x Terminal.

REFERENCE DOCUMENTATION

For further information regarding Minec 4x refer to the SDK Help on-Line.

SERVICE, SUPPORT AND WARRANTY

Datalogic provides several services as well as technical support through its website. Log on to www.datalogic.com/services/support and click on the links indicated for further information including:

- **Datalogic Services - Warranty Extensions and Maintenance Agreements**

- **Downloads - Software Downloads, Manuals and Catalogues**

- **Contact Us - Listing of Datalogic Subsidiaries and Quality Partners**

- **Authorised Repair Centres**

SAFETY REGULATIONS

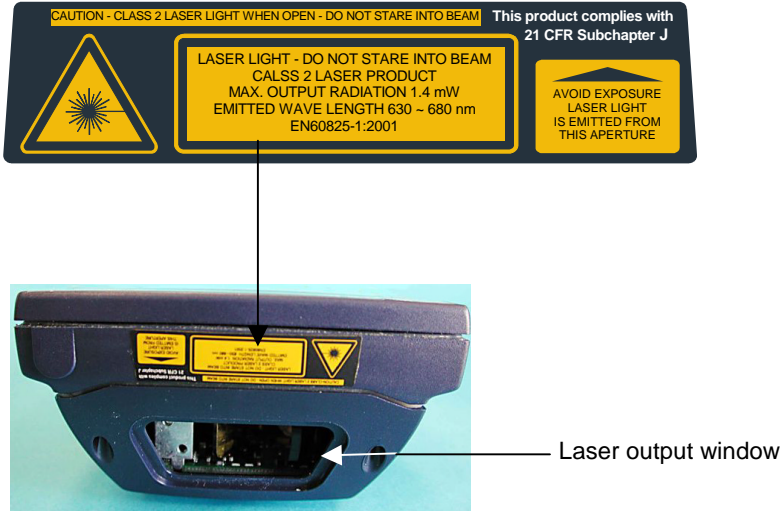|	
NOTE	*Read this manual carefully before performing any type of connection to the Minec 4x terminal.* *The user is responsible for any damages caused by incorrect use of the equipment or by inobservance of the indication supplied in this manual.*

GENERAL SAFETY RULES

–   Use only the components supplied by the manufacturer for the specific Minec 4x terminal being used.

–   Do not attempt to disassemble the Minec 4x 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 Minec 4x terminal, disposal must be performed in compliance with the laws in force.

–   Do not submerge the Minec 4x terminal in liquid products.

LASER SAFETY

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

Laser output window

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.	La 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 MINIMA POTENZA DI USCITA: LUNGHEZZA D'ONDA EMESSA: CONFORME A EN 60825-1 (2001)	LASERSTRAHLUNG NICHT IN DER STRAHL BLINKEN PRODUKT DER LASERKLASSE 2 MAXIMALE AUSGANGLEISTUNG: WELLENLÄNGE: ENTSPR. EN 60825-1 (2001)	RAYON LASER EVITER DE REGARDER LE RAYON APPAREIL LASER DE CLASSE 2 PUISSANCE DE SORTIE: LONGUER D'ONDE EMISE: CONFORME A EN 60825-1 (2001)	RAYO LÁSER NO MIRAR FIJO EL RAYO APARATO LÁSER DE CLASE 2 MÁXIMA POTENCIA DE SALIDA: LONGITUD DE ONDA EMITIDA: CONFORME A EN 60825-1 (2001)

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 EN 60825-1 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 utilizes 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.

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 EN 60825-1.
Non si rende mai necessario aprire l'apparecchio per motivi di installazione, utilizzo o manutenzione.

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

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.

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 EN 60825-1 und CDRH 21 CFR 1040 Normen für die Lasersicherheit.
Es ist nicht notwendig, das Gerät wegen Betrieb oder Installations-, und Wartungs-arbeiten zu öffnen.

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

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 EN 60825-1.
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 EN 60825-1.
No es necesario abrir el aparato para la instalación, la utilización o la manutención.

> ⚠️ **ATENCIÓN**
>
> *La utilización de procedimientos o regulaciones diferentes de aquellas descritas en la documentción 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.

RADIO COMPLIANCE

In radio systems configured with portable terminals and access points, the frequencies to be used must be allowed by the spectrum authorities of the specific country in which the installation takes place. Be absolutely sure that the system frequencies are correctly set to be compliant with the spectrum requirements of the country.

The Radio Card used in this product automatically adapts to the frequencies set by the system and does not require any parameter settings.

INFORMATION FOR THE USER

ENGLISH

Contact the competent authority responsible for the management of radio frequency devices of your country to verify the eventual necessity of a user license. Refer to the web site http://europa.eu.int/comm/enterprise/rtte/spectr.htm for further information.

ITALIANO

Prendi contatto con l'autorità competente per la gestione degli apparati a radio frequenza del tuo paese, per verificarne l'eventuale necessità della licenza d'uso. Inoltre puoi trovare ulteriori informazioni al sito:
http://europa.eu.int/comm/enterprise/rtte/spectr.htm.

FRANÇAIS

Contactez l'autorité compétente en la gestion des appareils à radio fréquence de votre pays pour vérifier la nécessité du permis d'usage. Pour tout renseignement vous pouvez vous adresser au site web:
http://europa.eu.int/comm/enterprise/rtte/spectr.htm.

DEUTSCH

Um die Notwendigkeit der Verwendungslizenz zu prüfen, wenden Sie sich an die Behörde, die auf der Radiofrequenzgerätsführung Ihres Lands bewandert ist. Weitere Informationen sind verfügbar auf dem Web Site:
http://europa.eu.int/comm/enterprise/rtte/spectr.htm.

Contacta con la autoridad competente para la gestión de los dispositivos de radio frecuencia de tu país, para verificar si es necesario la licencia de uso. Además se puede encontrar mas información en el sitio web:
http://europa.eu.int/comm/enterprise/rtte/spectr.htm.

FCC COMPLIANCE

This compliance refers only to the Minec 4x batch version.

⚠️ **CAUTION**	*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

GENERAL VIEW

Key:

A) User Programmable LED
B) Charging status LED
C) Display
D) Keyboard
E) Recharge contacts

F) IrDA port
G) Power supply connector
H) Laser beam output window
I) RFID emission window

Key:

A) Minec 4x data label
B) Battery cover
C) Wrist strap

1   INTRODUCTION

1.1   MINEC 4x TERMINAL DESCRIPTION

Thanks to its exceptional features and flexibility, Minec 4x is the ideal solution for typical warehousing applications in the retail market and manufacturing industry. It also satisfies specific applications in the transportation and logistics sector.

Minec 4x is a hand-held computer specifically designed for professional data collection. Equipped with a large graphic display and a practical 27-key backlit alphanumeric keyboard, this terminal offers the user top performance to solve both simple and complex applications. Ergonomic, lightweight and rugged, the Minec 4x unit also takes advantage of all the benefits gained by the standard Windows CE architecture. In fact, the standard graphic interface of this operating system permits the terminal to be used in a very intuitive way. Program development is provided by Windows CE standard tools (in either Visual Basic or C++ languages) which makes it possible to develop a solution quickly, according to the end-user's needs.

Minec 4x offers a wide range of models and accessories to satisfy both the most common barcode data capture requirements and the most challenging RFID solutions. Moreover, in order to exploit all the benefits of complete mobility both in small and large areas, Minec 4x provides standard WLAN IEEE802.11b (Wi-Fi) radio communication.

Minec 4x offers a unique combination of flexibility, reliability and ease of use for professional data capture computing and communication with an excellent price/performance ratio.

1.2   PACKAGE CONTENTS

The Minec 4x terminal package contains:

−   1 Minec 4x terminal with wrist strap;

−   1 CD-ROM Windows CE SDK;

−   1 user's manual;

−   1 rechargeable battery pack;

−   Datalogic Test Chart

Any other packages will contain the accessories necessary for the Minec 4x terminal connection to the host computer and to the network: the cradle and power supply.

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

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

👆 **NOTE**	*Rechargeable battery packs are not initially charged. Therefore the first operation to perform is to charge them. See paragraph 4.1.*

1.3   ACCESSORIES

❑   **Cradle**

   94A151085   Minec 4x Cradle RS232

❑   **Power Supply**
   94ACC1275   Minec 4x Power Supply

❑   **Various**

   94ACC1279   Minec 4x backstrap kit

2   CONNECTIONS

2.1   TERMINAL CONNECTIONS TO THE HOST COMPUTER

⚠️ **CAUTION**
Before continuing with this phase be sure both the computer and the Minec 4x terminal are turned off.

2.1.1   RS232 Connection

The Minec 4x terminal can communicate to a Host computer via RS232 when it is inserted into its cradle. The terminal communicates to the cradle through the IrDA port and the cradle transmits data to the PC through an RS232 connection.
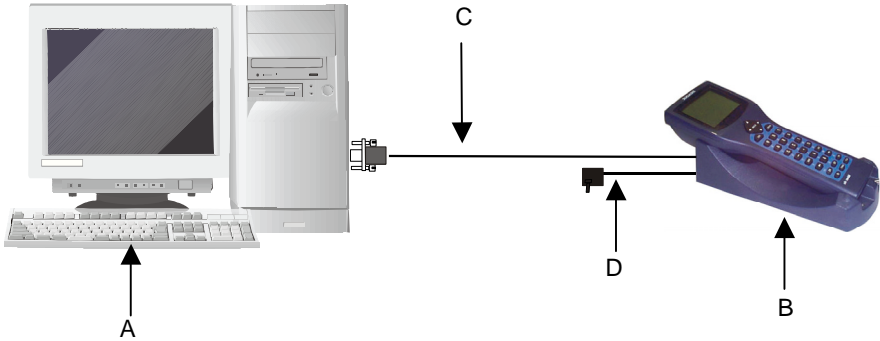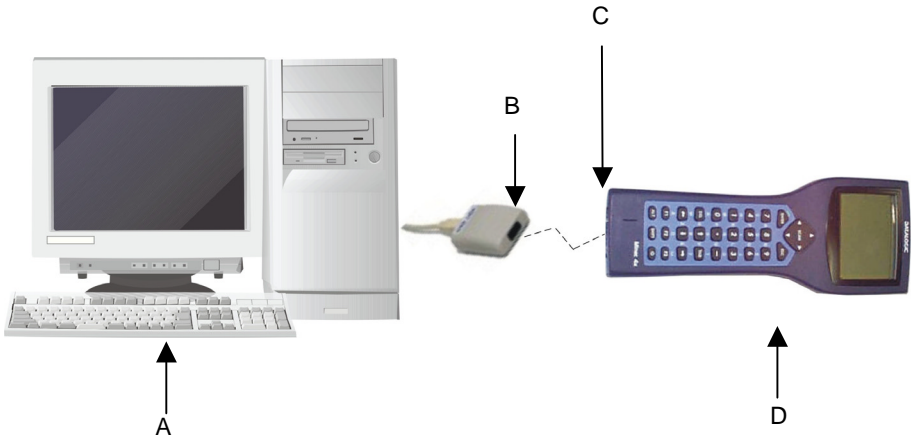

Key:

A Host computer   C RS232 cable
B Minec 4x terminal with cradle   D Power supply

2.1.2   IrDA Direct Connection

An IrDA direct connection is possible if the host computer has an IrDA port.
Place the terminal with its IrDA port in front of the host IrDA port as shown in the figure below.

Key:

A   Host computer   C   Terminal IrDA Port
B   PC IrDA Port   D   Minec 4x terminal

2.1.3   RF Connection

Minec 4x RF versions can communicate with the host using the on-board radio frequency module and an Access Point connected to the host computer.
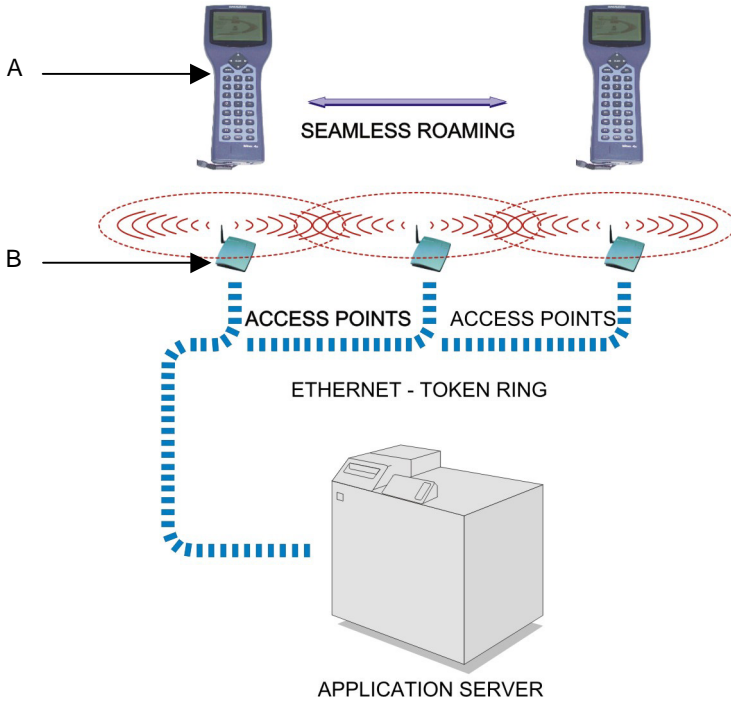
Key:
A)   Minec 4x terminals
B)   Access points

2.2   CRADLE CONNECTION
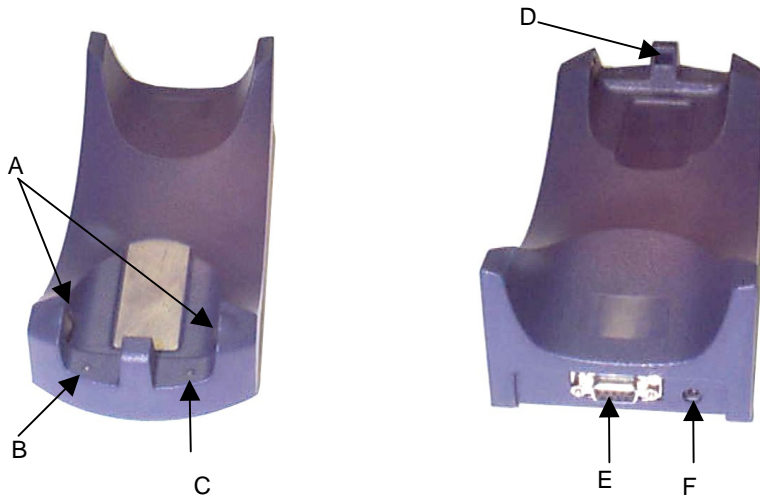
Key:

A Battery recharge contacts   D IrDA window
B Charging Status LED   E RS232 serial port
C Data Transfer LED   F Power supply connector

The Minec 4x cradle is a battery charger and also functions as a serial communication interface between the host computer and the IrDA optical interface on the Minec 4x terminal.

2.2.1 Cradle LED Indicators

The cradle has two LEDs: the **left LED** indicates the terminal battery status, the **right LED** indicates the data transfer between the cradle and the Host.

LED	STATUS	
Charging Status	green	terminal battery charged / cradle powered
	amber	terminal battery charging
Data Transfer	blinking	data transfer between terminal and Host.

2.2.2 Terminal / Cradle Positioning

The correct positioning of the terminal on the cradle is with the battery recharge contacts and the IrDA port as shown in the figure below.

2.3   POWER SUPPLY

The Minec 4x terminal can be powered with the Minec 4x Power Supply which can be connected directly to the terminal, or through the Minec 4x cradle for battery recharging.

3 USE AND FUNCTIONING

The use of the Minec 4x terminal depends on the application software loaded. However there are several parameters that can be set and utilities that can be used to perform some basic functions such as barcode or RFID tag scanning, communications, file management, etc.

> **NOTE**
> *In the following paragraphs, the use of the terms "scan", "scanner" and "scanning" are to be intended for both the Minec 4x laser model and for the RFID model.*

3.1 TERMINAL STARTUP

After the batteries are charged, use the [ON/OFF] key to turn on the terminal. Press the [ON/OFF] key for one second and released it to turn it off.

As soon as the terminal is on, the Windows CE desktop configuration will appear on the screen.
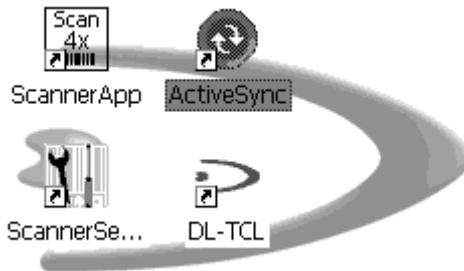
The terminal goes into power-off (low power with display off), when it is no longer used for more than a programmable timeout, which is defined in the POWER applet of the Control Panel. In this mode it can be awakened (resuming operation) by a press of the [ON/OFF] key.
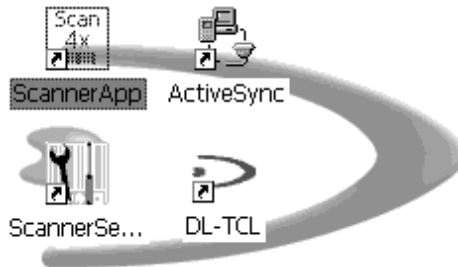
> **NOTE**
> *The terminal can also be awakened or turned off by the application program.*
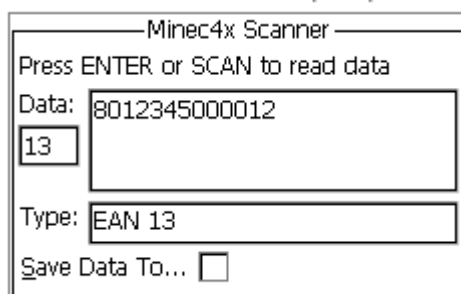
3.2   DATA COLLECTING

Even if no application program is running on the Minec 4x terminal, you can enable it
for barcode scanning or tag reading by choosing one of the following methods:

-     open the ScannerApp application.

-     from the Scanner Setup applet on the Desktop, set the parameter "Scan Always
      On" in the "Scan Parameters" menu.

3.2.1 Barcode Scanning

To scan barcodes, point the Minec 4x terminal laser beam onto the code from a distance within the reading range while pressing the [SCAN] key or the application defined key. See the reading diagram in chapter 5.2 for the reading range according to the code density.

The scan line emitted by the laser must completely intercept the barcode as shown in the figure below. If enabled, the Good Read LED and the emission of an acoustic signal will indicate that the scan has taken place correctly.
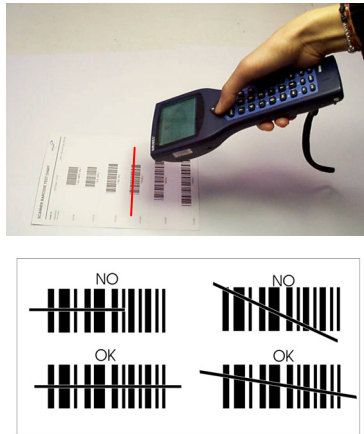
3.2.2 RFID Data Collection

Minec 4x RFID models (Radio Frequency Identification) can read and write tags.

To read a tag, place the Minec 4x terminal so that the RFID emission window is in front of and almost in contact with the tag, then press the [SCAN] key or the application defined key.

To write a tag, the RFID_Sample program is available on CD-ROM and must be copied onto the terminal.

3.3   DESCRIPTION OF THE KEYS

The Minec 4x terminal is equipped with a keyboard having a total of 27 keys.
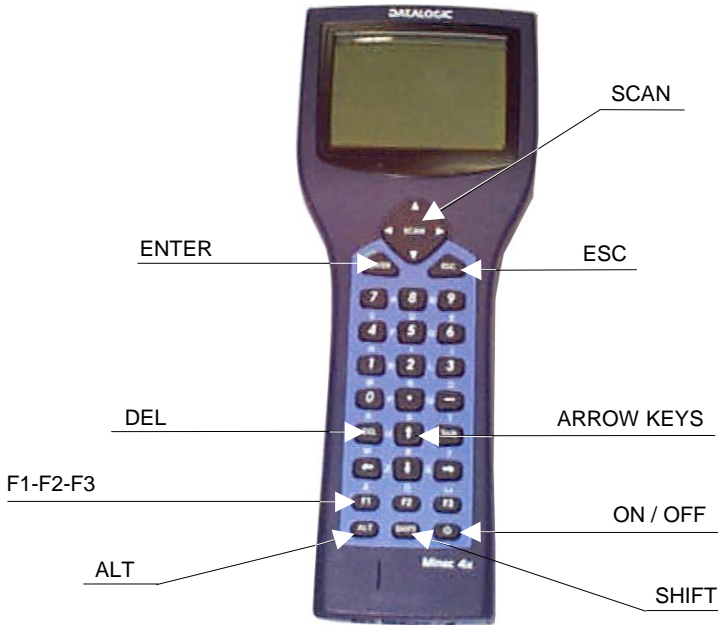
SCAN	The function of this key depends on which mode is enabled: Scan Mode (see par. 3.3.1) or Mouse Mode (see par. 3.3.2)
ENTER	Runs a selected application, confirms data or scrolls to the next menu choice.
ESC	Press this key to discontinue data entry or to return to the previous menu.
DEL	Equivalent to a PC Backspace key. Deletes the previous character.
← →	Press these keys to move forwards and backwards in the text fields.

F1　F2　F3	Function keys depending on the application program.
ALT	Press this key to open the present menu. Press this key and move forwards or backwards with the arrow keys to open another menu. Toggles ALT Lock if pressed alone. Press this key and another key simultaneously to generate hidden characters (see the table in par. 3.5).
SHIFT	A single press of this key equals the CapsLocks on a PC keyboard. Press this key and another key simultaneously to generate hidden characters (see the table in par. 3.5).
⏻	A short key press switches on/off the display backlight. Powers the terminal ON or OFF. To turn the terminal off this key must be pressed for one second and released.

⚠ *If the [ON/OFF] key is pressed for 8 times the terminal will be reset. The RAM or clock settings will be erased.*

CAUTION

3.3.1   Scan Mode

If the Scan mode is selected (and the scanner is enabled as described in par. 3.2), the [SCAN] key functions as follows: the "navigation arrows" are used to browse between fields or in menus. Pressing this key in the middle activates the laser scanner or the RFID tag reader. Scan mode can be selected by the pressing the [ALT] + [F1] key sequence.

3.3.2   Mouse Mode

If the Mouse Mode is selected, the [SCAN] key functions as a mouse cursor. The mouse cursor appears on the display and can be scrolled by the [SCAN] key arrows. Press this key in the middle to select an item (corresponding to a mouse click) or double press to launch an application. Mouse mode can be selected by the pressing the [ALT] + [F1] key sequence.

3.4   KEY SELECTION

The following image shows the alphanumeric and special characters provided on the keyboard.
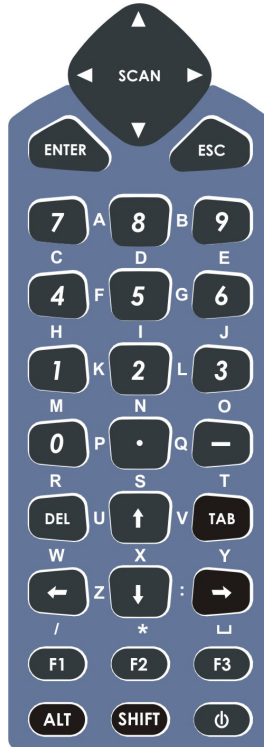
To select the letters and special characters provided on the keyboard overlay, simultaneously press the two adjacent keys (horizontal or vertical) corresponding to the desired letter/character.

Examples:

KEY SELECTION	LETTER/CHARACTER
7+8	**a**
7+4	**c**
[←]+ [↓]	**z**
[F1] + [←]	**/**
[F3] + [→]	[SPACE]

3.5   SPECIAL CHARACTERS SELECTION

Special hidden characters are selectable by pressing the SHIFT / ALT key and another key simultaneously, according to the following tables:

Special hidden characters with SHIFT

KEY SELECTION	SPECIAL CHARACTER
SHIFT + 7	&
SHIFT + 8	*
SHIFT + 9	(
SHIFT + 4	$
SHIFT + 5	%
SHIFT + 6	∧
SHIFT + 1	!
SHIFT + 2	@
SHIFT + 3	#
SHIFT + 0	)
SHIFT + •	>
SHIFT + -	_

Special hidden characters with ALT

KEY SELECTION	SPECIAL CHARACTER
ALT + 7	;
ALT + 8	,
ALT + 9	\
ALT + 4	£
ALT + 5	=
ALT + 6	:
ALT + 1	?
ALT + 2	"
ALT + 3	€
ALT + 0	/
ALT + •	<
ALT + -	+

3.6   SPECIAL KEY SEQUENCES

| KEY COMBINATIONS	DESCRIPTION
[TAB] then [ENTER]	If the Minec 4x display desktop is active, this combination opens the Start menu.
[ALT] + [TAB]	Presents the Task Manager where you can toggle between the running programs.
[ALT] + [↑] [ALT] + [↓]	Adjusts the contrast of the display. The arrow up means more contrast.
[ALT] + [DEL] + [ON/OFF]	If these keys are pressed simultaneously for about 1 second, a warm boot is performed. The RAM or clock settings will not be erased.
[ALT] + [F1]	Toggles between Scan Mode and Mouse Mode (see pars. 3.3.1 and 3.3.2).

If the [ON/OFF] key is pressed for 8 times the terminal will be reset. The RAM or clock settings will be erased.
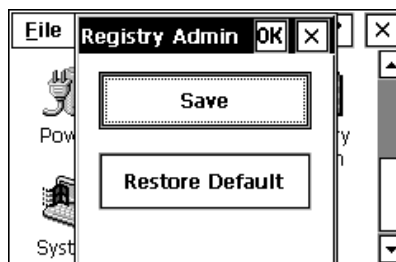
CAUTION

3.7   CONTROL PANEL

The main window of the Windows CE control panel is shown below as it appears on the terminal when launched from Start ->Settings ->Control Panel; APPLET programs are displayed on the desktop as icons; one icon corresponds to each APPLET.
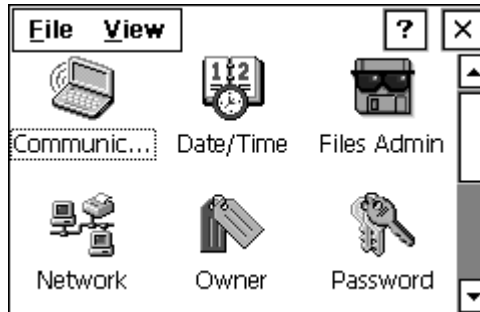
3.7.1   Registry

The REGISTRY ADMIN applet provides management of Windows CE registry.

Select the REGISTRY ADMIN applet by double clicking the Registry Admin icon.

The Registry Administration Main window appears. Two functions are available:

- Save Registry allows permanently saving the Windows configuration (example: custom configuration of power-off timeout, or network adapter configuration) to non-volatile memory (SAVE button)

- Restore Default Registry allows restoring the initial factory default configuration (Restore Default button). After restoring the factory default configuration, you must perform a software reset (see par. 3.6).

Saving the registry to non-volatile memory guarantees the persistence of the Windows configuration in case of battery replacement.
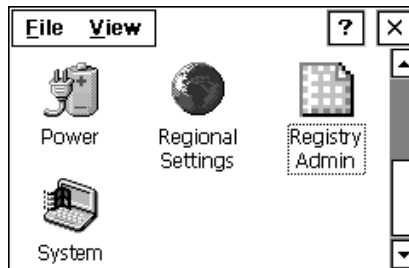
3.7.2   Files Admin

The FILES ADMIN applet enables control of the permanence of files in the System Folder. Two functions are available on the Files Admin Main window by means of two buttons:
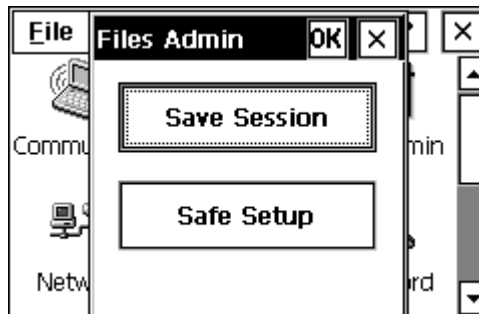

Save Session: with this button all files will be permanently saved in the \Windows directory in non-volatile memory. This function guarantees the steady maintenance of every file produced during the current working session - even of sub-directories and relevant files - with the exception of the files belonging to the FLASH image.
These current working session files will be backed-up in the \Backup\Windows directory.

At the next hardware reset, the files previously saved in the \Backup\Windows directory will be restored to the Windows directory (see BACKUP DIRECTORY FILE MANAGEMENT 3.9).

Safe Setup: with this button, the installation of software programs will be saved to non-volatile memory (Backup directory). Before doing this, it will be checked that the Backup directory has enough space to save the files. If the directory space is not enough, an error message will be shown and the program will exit the Safe Setup function.

Two activating procedures are available:

1. Select an installation file (for example, a .CAB cabinet file) from the Safe Setup mask.
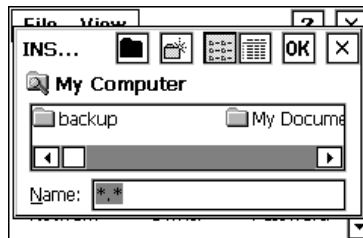
Safe Setup First Mask

Then select \Windows or a relevant sub-directory in the path box. Then, Safe Setup will recognize the new files and directories present in the \Windows directory, and will copy them to the \Backup\Windows directory. At the next hardware reset, these files will be restored (see BACKUP DIRECTORY FILE MANAGEMENT 3.9).

2. Simply skip the first mask. When it closes, a new mask will pop up: it will enable any type of installation (even remote ones like ActiveSync installations). Make sure the installation directory is \Windows or one of its sub-directories. After installation, select OK: Safe Setup will save the new files in the \Backup\Windows directory.

Safe Setup Second Mask

3.7.3   Scanner Setup

This applet, available on the Desktop, contains the configuration parameters of the barcode scanning or of the RFID reading in a directory tree structure. The available barcode / RFID parameters are divided into two groups: Reader Parameters and Scan Parameters.

The Reader Parameters depend on the type of data capture collector installed on the terminal. If it is a laser module, it allows barcode configuration (i.e. enable/disable Code 39, check digit control, etc.). If it is an RFID module, it allows the selection of the tag type (i.e. ISO-15693). It is possible to select only one tag at a time. To select a different tag, this parameter must be set again.

The Scan Parameters allow control of the data capturing process (i.e. beeper control, LED control, scanning timeout, etc.).

Each Barcode Setup screen window corresponds to a branch of the tree, and the name of the current branch is displayed at the bottom of each screen window.
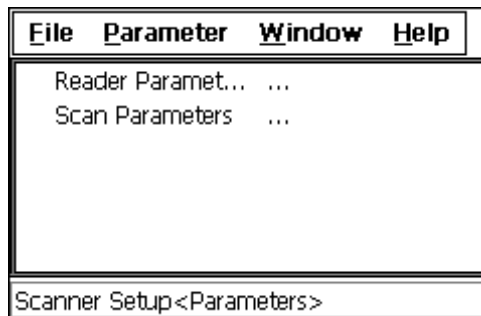
The screen format shows two columns where the left column indicates branches or parameters. Branches have three dots in the right column (...). You can navigate through the tree structure using the keyboard arrows directly on the item field or from the menu.

Parameters have their corresponding current values in the right column. You can edit parameter values using the keyboard arrows directly on the item field or from the menu. To change a value for example, select the line of the value to be changed, choose Edit from the Parameter Menu then choose a new value from the values listed in the box (see following figures).
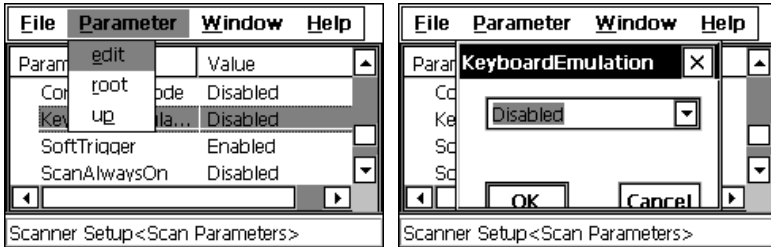
To activate a new configuration select the File ->Save Menu to send the new configuration to the decoding software and save the new configuration. This will save the configuration to non-volatile memory preventing loss at the next system reset.

Reader Parameters

The reading parameters and values are dependent upon the type of module (laser or RFID) mounted in your terminal. For a list of default values see the following paragraph, "Default Values". For a detailed list of parameters and of their configuration procedures, please refer to the SDK Help file on the CD.

Scan Parameters

The Scan Parameters are common to all modules (laser or RFID) and allow control of the scanning device. The Scan parameters are described as follows:

Scan Timeout: the maximum time, in milliseconds, during which the laser / RF emission remains on without decoding any barcode or RFID tag.

Beep Duration: the time interval, in milliseconds, during which the beeper will sound when the scanner reads a barcode or RFID tag. To disable the beeper, set this value to 0.

Beep Frequency: determines the frequency in Hertz of the beeper.

LED Duration: determines the duration in milliseconds of each 'Good Read LED' pulse.

LED Pulses: determines the number of pulses the 'Good Read LED' will blink when the scanner reads a barcode or RFID tag.

Continuous Mode: when enabled, the scansion can only be turned off by the application program if Soft Trigger is enabled. Continuous Mode overrides Scan Timeout.

Keyboard Emulation: if enabled all scanned data are transformed into keyboard events and can therefore be displayed and saved to a file as if input from the terminal keyboard.

Soft Trigger: when enabled, the scansion can be turned on/off by the application software.

Scan Always On: enables the scanner for barcode or RFID tag reading independently from the application software.

Default Settings

The following tables contain the default values for the major barcode setup / RFID parameters. For a complete list of parameters and of their configuration procedures, please refer to the SDK Help file on the CD.

Laser Scanner Parameters

SCAN PARAMETERS	VALUES
Scan Timeout	5000
Beep Duration	20
Beep Frequency	2000
LED Duration	0
LED Pulses	0
Continuous Mode	Disabled
Keyboard Emulation	Disabled
Soft Trigger	Enabled
Scan Always On	Disabled

BARCODE MAIN PARAMETERS	VALUES
Barcode Symbology Identifier	None
Security Level	1
Direction Redundancy	Disabled

SYMBOLOGY SPECIFIC READER PARAMETERS	VALUES
UPC A	Enabled
UPC E	Enabled
UPC E1	Disabled
EAN 8	Enabled
EAN 13	Enabled
EAN Bookland	Disabled

SYMBOLOGY SPECIFIC READER PARAMETERS	VALUES
Code 39	Enabled
Code 39 Full ASCII	Disabled
Code 32	Disabled
Code 39 Trioptic	Disabled
2/5: Interleaved	Enabled
2/5: Industrial	Enabled
Code 128	Enabled
EAN 128	Enabled
ISBT 128	Disabled
Codabar	Disabled
MSI	Disabled
Code 93	Disabled

RFID Parameters

RFID-HF MAIN PARAMETERS	
Tag Type	I.CODE Iso-15693
Read Type	Identifier

The list of all the selectable tag types is found in the Technical Features tables (see par. 5.1).

3.7.4 WLAN Setup Radio Configuration

To access the menus and screen options available for terminals with WLAN PC cards installed, it is necessary to first launch the WLAN SETUP applet.

Any changes made to the configuration parameters will be maintained in permanence only by performing the Save Registry procedure as described in par. 3.7.1.

3.8   MICROSOFT® ACTIVESYNC®

Microsoft ActiveSync gives you the possibility to connect your desktop computer to your Minec 4x terminal and synchronize the information on them. Synchronization compares the data on the Minec 4x terminal with that on the desktop computer and updates both computers with the most recent information.

ActiveSync is a simple solution for transfer of information between a Minec 4x terminal and a PC with an IrDA port. Files are automatically synchronized between the terminal and the PC. It is also possible to build applications that synchronize through ActiveSync.

The program handles the ActiveSync communication between the PC and the terminal, a shortcut to this program is provided on the desktop. The ActiveSync communication will use the infrared (IrDA) port.

With ActiveSync, it is possible to:
- Back up and restore Minec 4x Terminal data.
- Copy files between Minec 4x Terminal and desktop computer.
- Synchronize files by selecting a synchronization mode.

It is possible to constantly synchronize while connected to a desktop computer or, alternatively, synchronization can be performed only when the synchronize command is chosen. You can select which information types are synchronized and control how much data is synchronized.

NOTE

By default, ActiveSync does not automatically synchronize all types of information. Use ActiveSync options to turn synchronization on and off for specific information types.

For example:
Synchronize Microsoft Word and Microsoft Excel files between the Minec 4x Terminal and the desktop computer. The files will automatically be converted to the correct format.

There are three different methods to make the ActiveSync connection between your PC and your terminal depending on the model as described in the following paragraphs.

3.8.1 PC IrDA to Terminal IrDA Connection

For this connection, the Minec 4x IrDA port can be used for ActiveSync by placing it within the range of the PC IrDA port. The necessary drivers are already installed on the PC.

3.8.2 Cradle Connection

The ActiveSync connection can also be made using the Minec 4x Cradle. In this case, to guarantee a correct connection between the host and the Minec 4x terminal through the Minec 4x cradle, the necessary RS232 driver has to be installed, and is either already present in the operating system, or can be installed from the CD-ROM.

In order to install the RS232 driver, it is necessary to have at least the following:
- PC with a Pentium processor;
- One of the following operating systems:
    Windows 2000
    Windows XP

> *Once the RS232 driver has been installed, the communication between PC and cradle will be performed through a virtual Infrared port.*
>
> **NOTE**

Before performing the installation, ensure that the Minec 4x cradle has already been connected to the PC serial port.

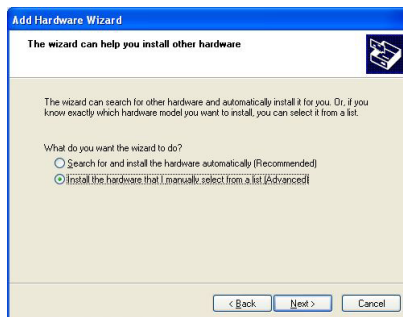1. Start the "Add/Remove Hardware Wizard" in the PC Control Panel:

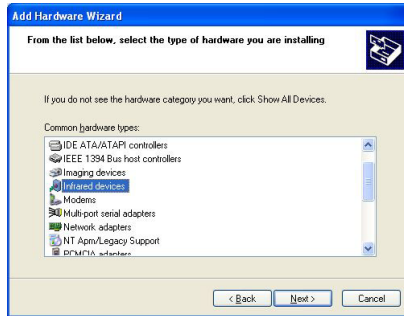2. Select "Yes, I have already connected the hardware":
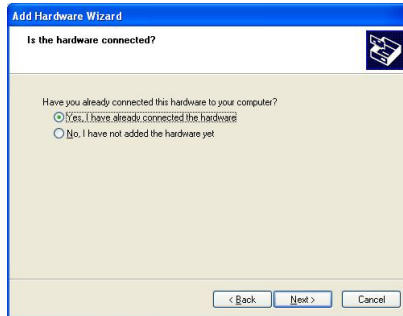
3. Select the "Add a new hardware device" option from the list below to add the new driver:
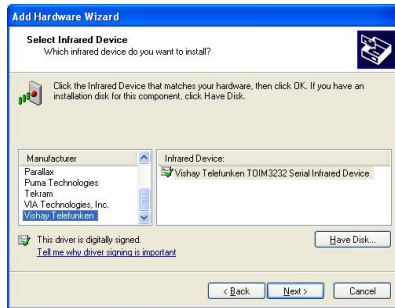

4. Choose the option allowing to manually select the hardware to be installed:
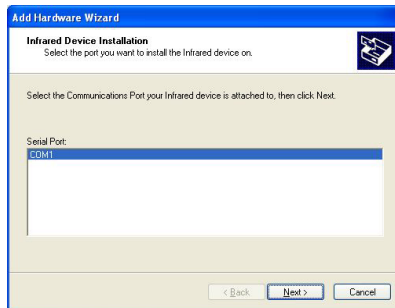
5. Select "Infrared device" as hardware type:

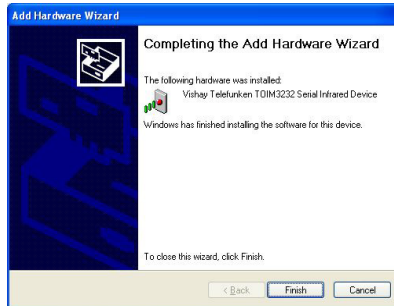6. Select "Vishay Telefunken" as Infrared device to be installed:

Then, a further window will appear to confirm the selection of the infrared device.

7. Select the COM port to which you are installing the selected infrared device:

8.   Click on the "Finish" button to complete the procedure:

> *Only one infrared device at a time must be active. To disable other infrared devices, use the Device Manager available in the Control Panel\System\Hardware folder.*

NOTE

3.8.3   RF Remote Connection

For RF models, it is possible to make a remote connection as follows:

1.   A partnership must be established between the terminal and the PC using one of the methods previously described (PC IrDA to Terminal IrDA Connection or Cradle Connection).

2.   Disconnect the ActiveSync connection.

3.   Perform the Save Registry procedure as described in par. 3.7.1.

4.   Launch the "repllog /remote" command from the Run Menu (available from the Start Button).
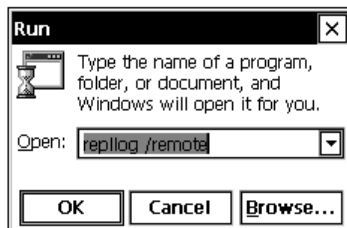
5.   In the dialog box that will appear, it will be possible to choose a method to connect to the PC. Choose Network Connection and press the Connect button.

3.9   BACKUP DIRECTORY FILE MANAGEMENT

All of the Windows CE system files reside in RAM (volatile memory) except for the Backup directory, which resides in FLASH (non-volatile memory). Therefore the contents of the Backup directory are persistent even if the terminal is re-booted or the battery is changed.

You can save your more important files that you don't want to lose due to terminal re-boot, in the Backup directory or create a sub-directory within Backup.

Even though the Windows Directory resides in RAM, it often contains files or sub-directories created by the user or by installation programs that you don't want to lose at re-boot. To keep these files persistent it is necessary to copy them to the directory \Backup\Windows. This directory doesn't exist originally (only Backup exists), and therefore it must be created. At the next cold boot, before activating the shell, Windows CE will copy the contents including all sub-directories of \Backup\Windows to \Windows.

Likewise, to maintain files that must be run at Windows CE startup, (i.e. .exe, .lnk, .vb, .htm, etc.), it is necessary to copy them to the directory \Backup\Startup. This directory does not exist originally (only Backup exists), and therefore it must be created. The application programs will be run after any type of re-boot (both warm and cold boot).

As an alternative to the Safe Setup function, it is possible to copy the .cab files to the directory \Backup\Cabfiles (the Cabfiles sub-directory doesn't exists originally and must therefore be created) and perform a terminal cold boot to have the application installed. Once these files are copied to the directory \Backup\Cabfiles, the application will be run after each re-boot.

From the second cold boot on, a message may be displayed such as "<application name> is already installed. Re-install?". This message blocks the boot process. Press the [Enter] key to continue the system initialization.

3.10 TERMINAL LED INDICATORS

The Minec 4x provides two different LEDs under the display, a user programmable one on the left and a charging status one on the right of the display, signaling the terminal status as described in the following table.

LED	STATUS	
*User programmable / Good Read	blink	loading Windows CE
	single blink every 2 sec.	terminal in Suspend mode
	user defined	Good Read
Charging Status	off	batteries charged
	red blinking	battery low, precharge ongoing
	red constant	fast charge in progress

*This LED can be programmed from the application.

4   MAINTENANCE

> **NOTE**
>
> *Rechargeable battery packs are not initially charged. Therefore the first operation to perform is to charge them. See par. 4.1.*

4.1   CHARGING THE BATTERIES

The battery autonomy varies according to factors, such as the frequency of barcode scanning, RF usage, etc.

When the batteries are low, the red LED positioned beneath the right lower corner of the display blinks.

It is possible to recharge the batteries by using the Minec 4x power supply directly connected to the terminal or by inserting the terminal into the Minec 4x cradle (see par. 2.3).

The charging process is signaled by the red LED positioned beneath the right lower corner of the display (see par. 3.10) and also by the LED positioned on the left of the cradle IrDA port (see par. 2.2.1).

> **CAUTION**
>
> *If the batteries are new or have not been recharged for a long time, it is necessary to perform two or three charging and discharging cycles (complete use) before they can reach their maximum charge capability.*
> *The maximum time required to recharge a completely run-down battery pack is about 3 hours for Li-Ion batteries.*

4.2 REPLACING THE BATTERIES

To correctly replace the batteries, proceed as follows.

1- Turn off the Minec 4x terminal.

2- Unscrew the 3 battery cover screws on the back of the terminal.

3- Remove the battery pack and carefully pull out the battery connection cable.

4- Connect the new battery pack's connection cable carefully and then insert the new battery pack.

5- Put the battery cover back in place and screw it tight.

> ⚠️ *Dispose of the old batteries as required by the relevant laws in force.*
>
> **CAUTION**

4.3 CLEANING THE TERMINAL

Periodically clean the Minec 4x terminal with a slightly dampened cloth.
Do not use alcohol, corrosive products or solvents.

5   TECHNICAL FEATURES

5.1   TECHNICAL DATA

Optical Features	
Maximum resolution	0.13 mm / 5 mils
Skew angle	± 65 °
Pitch angle	± 65°
Scan rate - horizontal	36 ± 3 scan/sec
Depth of field	See reading diagram on the next page
Light source laser scanner	VLD, wavelength in the range 630 ~ 680 nm
Safety class	Class II EN 60825-1/CDHR
RFID Features	
Frequency	13.56 MHz
Power output	in compliance with ETS 300-328
Readable RFID Tags	Philips I.CODE, Texas Instr. Tag-It, Iso-15693 Compliant Tags, Tag-It Iso-15693, I.CODE Iso-15693, Infineon
Electrical Features	
Power	
DC supply	7 - 10 V ± 5%
Battery pack	Li-Ion battery pack 3.7 V. 1800 mAh
Hardware Features	
FLASH	32 MB
RAM	16 MB
Microprocessor	MiPS architecture 66 MHz
Mechanical Features	
Dimensions (LxHxW)	22.5 x 2.5 x 4.5 - 8.5 cm (8.9 x 1 x 1.8 - 3.4 in)
Weight	310 g (11 oz) incl. battery
Buzzer	1 electromagnetic buzzer
LED	Charging Status (red LED) User Programmable (green LED)
Display	240 x 160 pixels, max 20 lines of 30 characters. 8 lines of 20 characters at default cell size; monochrome transflective EL backlit, fully graphic LCD screen, adjustable contrast; active viewing area 58 x 38 mm
Keyboard	27 rubber keys; scan key is also cursor control key; backlit keyboard standard

Environmental Features	
Working temperature	-20° to 55 °C / -4° to 131 °F
Storage temperature	-30° to 60 °C / -22° to 140 °F
Humidity	95% non condensing
Protection	IP64
ESD protection	4 KV contact discharge, 8 KV air discharge
Drop resistance	1.5 m / 5 ft
Programming Features	
Operating system	Windows CE 3.0
Decoded barcodes - laser 1D	EAN/UPC; Code 128; Code 39; Code 93; 2/5 Codes; Discrete 2 of 5; Codabar; MSI UCC/EAN 128 ; TriOptic Code 39
Communication Features		

		Windows CE COM Port
Optical interface	IrDA 1.0	COM2 with RAW Protocol

5.2 READING DIAGRAM

Minec 4x Laser Scanner Models

Reading Zones (10° skew angle)
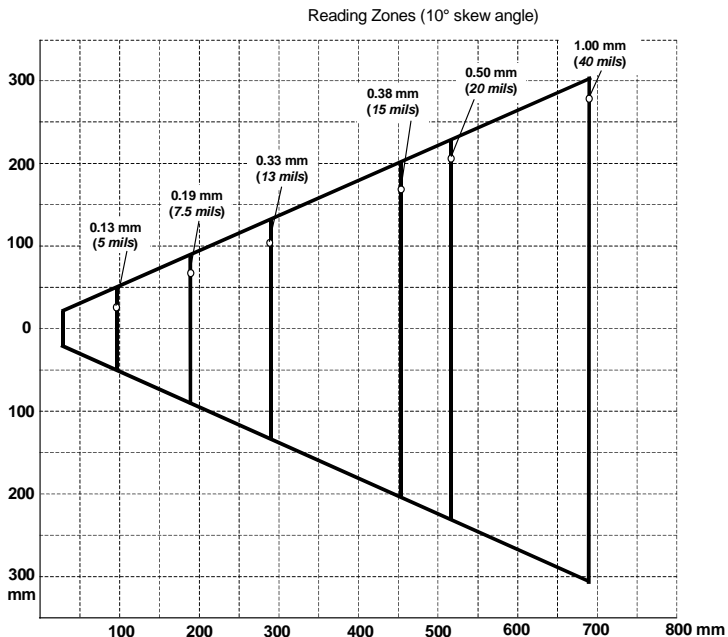
GLOSSARY

Access Point

A device that provides transparent access between Ethernet wired networks and IEEE 802.11 interoperable radio-equipped mobile units. Hand-held terminals, or other devices equipped with radio cards, communicate with wired networks using Access Points (AP). The mobile unit (terminal), may roam among the APs in the same subnet while maintaining a continuous, seamless connection to the wired network.

Barcode

A pattern of variable-width bars and spaces which represents numeric or alphanumeric data in binary form. The general format of a barcode symbol consists of a leading margin, start character, data or message character, check character (if any), stop character, and trailing margin. Within this framework, each recognizable symbology uses its own unique format.

Baud Rate

A measure for data transmission speed.

Bit

Binary digit. One bit is the basic unit of binary information. Generally, eight consecutive bits compose one byte of data. The pattern of 0 and 1 values within the byte determines its meaning.

Bits per Second (bps)

Number of bits transmitted or received per second.

Byte

On an addressable boundary, eight adjacent binary digits (0 and 1) combined in a pattern to represent a specific character or numeric value. Bits are numbered from the right, 0 through 7, with bit 0 the low-order bit. One byte in memory can be used to store one ASCII character.

Decode

To recognize a barcode symbology *(e.g.,* Codabar, Code 128, Code 3 of 9, UPC/EAN, etc.) and analyze the content of the barcode scanned.

EEPROM

Electrically Erasable Programmable Read-Only Memory. An on-board non-volatile memory chip.

Flash Disk

Non-volatile memory for storing application and configuration files.

Host

A computer that serves other terminals in a network, providing services such as network control, database access, special programs, supervisory programs, or programming languages.

IrDA (Infrared Data Association)

An industry-sponsored organization set up in 1993 to create international standards for the hardware and software used in infrared communication links. In this special form of radio transmission, a focused ray of light in the infrared frequency spectrum, measured in terahertz, or trillions of hertz (cycles per second), is modulated with information and sent from a transmitter to a receiver over a relatively short distance. Infrared radiation (IR) is the same technology used to control a TV set with a remote control.

Liquid Crystal Display (LCD)

A display that uses liquid crystal sealed between two glass plates. The crystals are excited by precise electrical charges, causing them to reflect light outside according to their bias. They use little electricity and react relatively quickly. They require external light to reflect their information to the user.

Light Emitting Diode (LED)

A low power electronic light source commonly used as an indicator light. It uses less power than an incandescent light bulb but more than a Liquid Crystal Display (LCD).

RAM

Random Access Memory. Data in RAM can be accessed in random order, and quickly written and read.

RF

Radio Frequency.

RFID (radio frequency identification)

A technology that incorporates the use of electromagnetic or electrostatic coupling in the radio frequency (RF) portion of the electromagnetic spectrum to uniquely identify an object, animal, or person. RFID is coming into increasing use in industry as an alternative to the barcode identification.

RTC

Real Time Clock.

Terminal

A Datalogic portable computer product.

INDEX

DATALOGIC S.p.A.,
Via Candini, 2
40012 - Lippo di Calderara
Bologna - Italy

$C \in {}_{04}$

dichiara che
declares that the
déclare que le
bescheinigt, daß das Gerät
declare que el

Minec 4x Hand-Held Terminal

e tutti i suoi modelli
and all its models
et tous ses modèles
und seine modelle
y todos sus modelos

sono conformi alla Direttiva del Consiglio Europeo sottoelencata:
are in conformity with the requirements of the European Council Directive listed below:
sont conformes aux spécifications de la Directive de l'Union Européenne ci-dessous:
der nachstehenden angeführten Direktive des Europäischen Rats entsprechen:
cumple con los requisitos de la Directiva del Consejo Europeo, según la lista siguiente:

1999/5/EEC R&TTE

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 las siguientes normas:

EN 60950-1, December 2001:	INFORMATION TECHNOLOGY EQUIPMENT – SAFETY – PART 1: GENERAL REQUIREMENTS
ETSI EN 300 328-2, December 2001:	ELECTROMAGNETIC COMPATIBILITY AND RADIO SPECTRUM MATTERS (ERM); WIDEBAND TRANSMISSION SYSTEMS; DATA TRANSMISSION EQUIPMENT OPERATING IN THE 2,4 GHz ISM BAND AND USING SPREAD SPECTRUM MODULATION TECHNIQUES; PART 2: HARMONIZED EN COVERING ESSENTIAL REQUIREMENTS UNDER ARTICLE 3.2 OF THE R&TTE DIRECTIVE
ETSI EN 300 330-2 JUNE 2001 :	ELECTROMAGNETIC COMPATIBILITY AND RADIO SPECTRUM MATTERS (ERM); SHORT RANGE DEVICES (SRD);RADIO EQUIPMENT IN THE FREQUENCY RANGE 9 kHz TO 25 MHz AND INDUCTIVE LOOP SYSTEMS IN THE FREQUENCY RANGE 9 kHz TO 30 MHz; PART 2: HARMONIZED EN UNDER ARTICLE 3.2 OF THE R&TTE DIRECTIVE
ETSI EN 301 489-3 , AUGUST 2000 :	ELECTROMAGNETIC COMPATIBILITY AND RADIO SPECTRUM MATTERS (ERM); ELECTROMAGNETIC COMPATIBILITY (EMC) STANDARD FOR RADIO EQUIPMENT AND SERVICES; PART 3: SPECIFIC CONDITIONS FOR SHORT-RANGE DEVICES (SRD) OPERATING ON FREQUENCIES BETWEEN 9 kHz AND 40 GHz
ETSI EN 301 489-7, AUGUST 2002 :	ELECTROMAGNETIC COMPATIBILITY AND RADIO SPECTRUM MATTERS (ERM); ELECTROMAGNETIC COMPATIBILITY (EMC) STANDARD FOR RADIO EQUIPMENT AND SERVICES; PART 7: SPECIFIC CONDITIONS FOR MOBILE AND PORTABLE RADIO AND ANCILLARY EQUIPMENT OF DIGITAL CELLULAR RADIO TELECOMMUNICATIONS SYSTEMS (GSM AND DCS)

ETSI EN 301 489-17, September 2000: ELECTROMAGNETIC COMPATIBILITY AND RADIO SPECTRUM MATTERS (ERM); ELECTROMAGNETIC COMPATIBILITY (EMC) STANDARD FOR RADIO EQUIPMENT AND SERVICES; PART 17: SPECIFIC CONDITIONS FOR WIDEBAND DATA AND HIPERLAN EQUIPMENT

ETSI EN 301 511 , DECEMBER 2000 : GLOBAL SYSTEM FOR MOBILE COMMUNICATIONS (GSM); HARMONIZED STANDARD FOR MOBILE STATIONS IN THE GSM 900 AND DCS 1800 BANDS COVERING ESSENTIAL REQUIREMENTS UNDER ARTICLE 3.2 OF THE R&TTE DIRECTIVE (1999/5/EEC) (GSM 13.11 VERSION 7.0.1 RELEASE 1998)