T200 TERMINAL
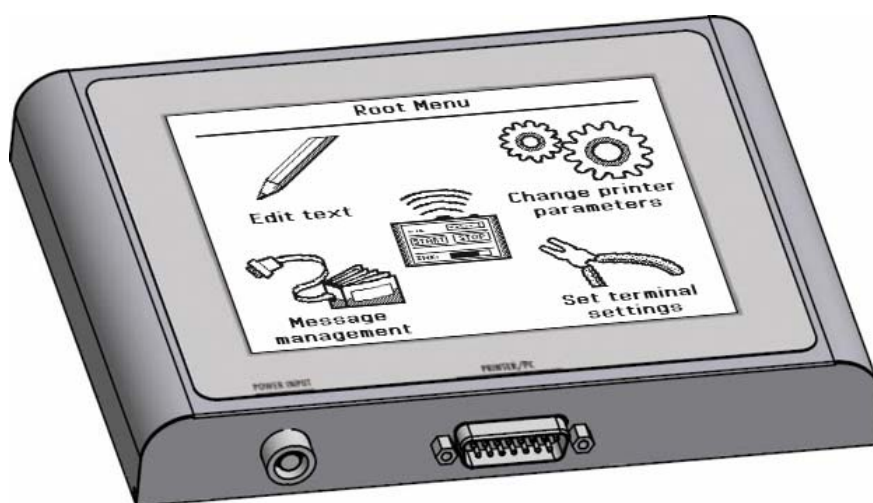## USER'S MANUAL

VERSION: 20080129#1.0

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Dear Users of EBS Ink-Jet Systems equipment,

Please read this manual necessarily in order to get full information about the operation of your device.

Disclaimer:

- *We shall bear no responsibility for damage to the device if it is operated improperly, i.e., inconsistently with this manual.*
- *As we wish to keep pace with permanently progressing technological development and individual requirements of our clients, we need to reserve the right to change the form, make and technical solutions of our devices. Therefore no data, illustrations or descriptions of this manual shall form any grounds for claims.*
- *We spare no effort to ensure that this manual is reliable, includes all modifications and is free from errors. However, the drawing up and publication process is complex and an error can occur in spite of our endeavours and wishes. We shall bear no responsibility for the consequences of editorial and printing errors in this manual.*

If your device contains a particular piece of equipment or needs performing an operation that have not been illustrated or described in this manual, or if you have queries on reading this manual, please contact any EBS Ink-Jet Systems agent for additional information.

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These instruction apply to the T200 terminal that is equipped with firmware version 1.0.29. The firmware version is displayed on splash screen – see Fig. 6.1.

1. Application

The **T200** terminal is a stationary device designed for controlling **EBS-230** printers. It can replace a PC in operating the printers, which is advantageous, especially in the places where the application of a PC is impossible or hindered. With the terminal, a user can change the printer parameters, edit text files, send the files to the printer and also start or stop printing. Owing to the application of a touch pad, the device can be operated intuitively and with ease.

This document contains information about the terminal only and supplements the *EBS-230 Printer User's Manual*.

2. Safety Requirements

There are no dangerous voltages or other hazards in the device. For this reason the conditions for safe use of the **T200** terminal do not exceed the safety requirements described in *EBS-230 Printer User's Manual*.

3. Conformity Marking

The **EBS-230** printer has been subjected to conformity assessment procedure, which ended with the issue of Declaration of Conformity. The Declaration forms the basis for the statement that the **EBS-230** printer together with the manufacturer equipment, to which the Declarations also applies, meets the requirements of the following European Community Directives, provided that the printer and equipment are installed and used in compliance with the manufacturer's instructions:

2006/95/EEC, **89/336/EEC**, **91/263/EEC**, **92/31/EEC**, **93/68/EEC**

and meet the following norms, which are harmonised with the above directives:
EN 61000-6-2:2001,   EN 61000-6-4:2001,   EN 60950-1:2001

On this basis, the following marking has been placed on the **EBS-230** printer and **T200** terminal since 2007:

$$C\,E$$

4. Environmental Protection

T200 terminal working in the EBS-230 printing system is not subject to Directive **2002/96/EC** of the European Parliament and of the Council on waste electrical and electronic equipment (WEEE). However, following the European Community's generally accepted policy on environmental protection, we recommend that after the **T200** terminal has been put out of service, it should be separated from municipal waste and processed in an environmentally friendly way according to the applicable local regulations.

5. Installation

The **T200** terminal is supplied as a self-contained device in combination with a holder. The cabling needed to link it to the system is available in **R230** cable distributor.
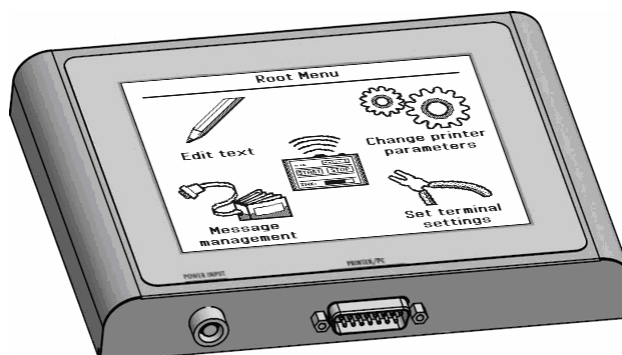
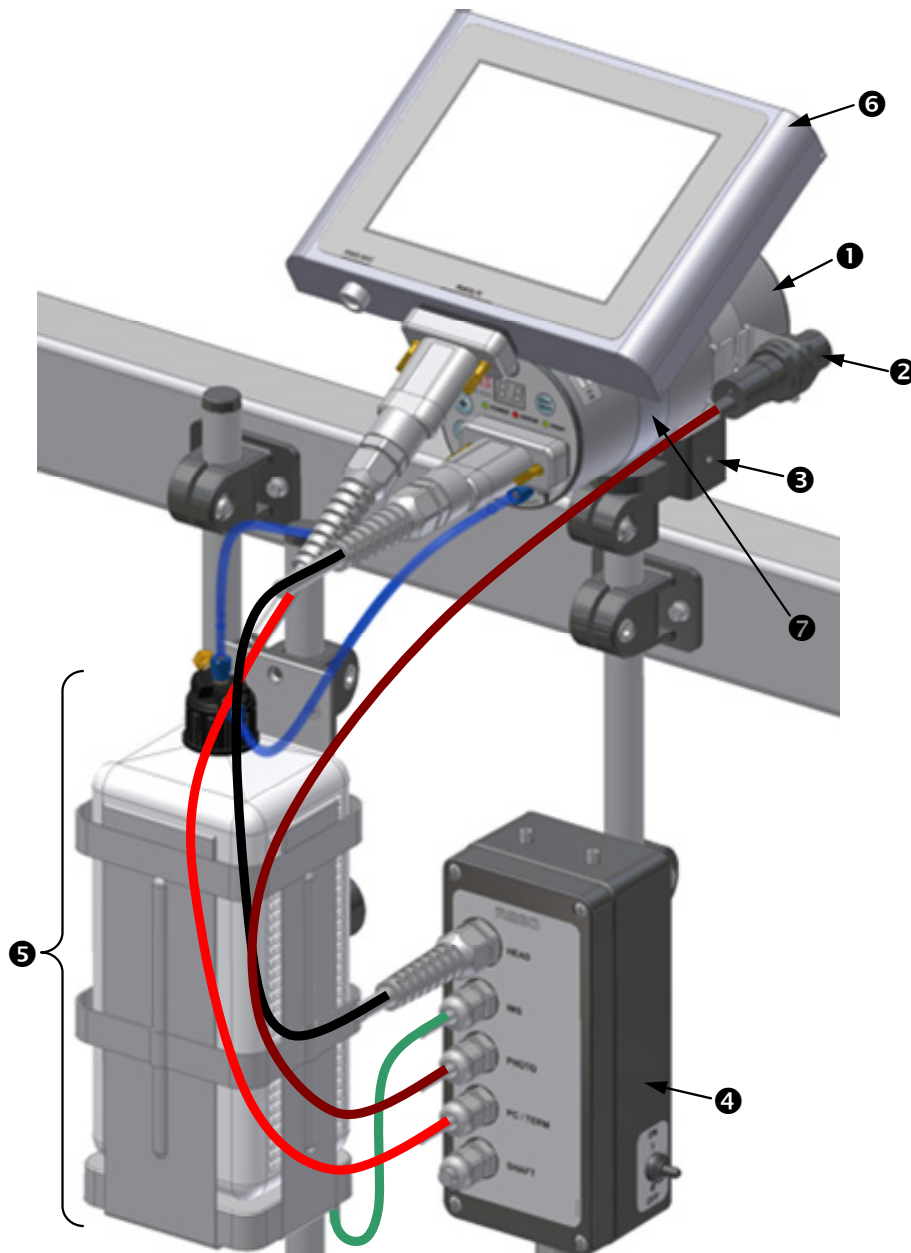A diagram of a printing system with the **T200** terminal is shown in **Fig. 5.1**.

Fig. 5.1

The system consists of the following subassemblies:
➢ **EBS-230** printer, ❶,
➢ Photo-detector, ❷,
➢ Printer holder, ❸,
➢ **R230** cable distributor, ❹,
➢ Ink system with IMS module, ❺,
➢ **T200** terminal, ❻,
➢ Holder, ❼, to fix the terminal to the printer,
➢ Printer holder, fixtures and tubes,
➢ Other holders and tubing.

In order to install the terminal on the existing system, you need to do the following (see **Fig. 5.2**):
1. Attach the terminal holder to the **EBS-230** printer,
   a) Put a clamping ring, ❶, on the printer casing,
   b) Screw tight the bolt ❷ with an Allen wrench,

2. Fix the **T200** terminal in the holder with snap fastener that is located at the holder's back wall,
3. Detach **PC/TERM** cable, ❹, from the **R230** cable distributor pack and connect it to **PRINTER/PC** connector on the terminal.
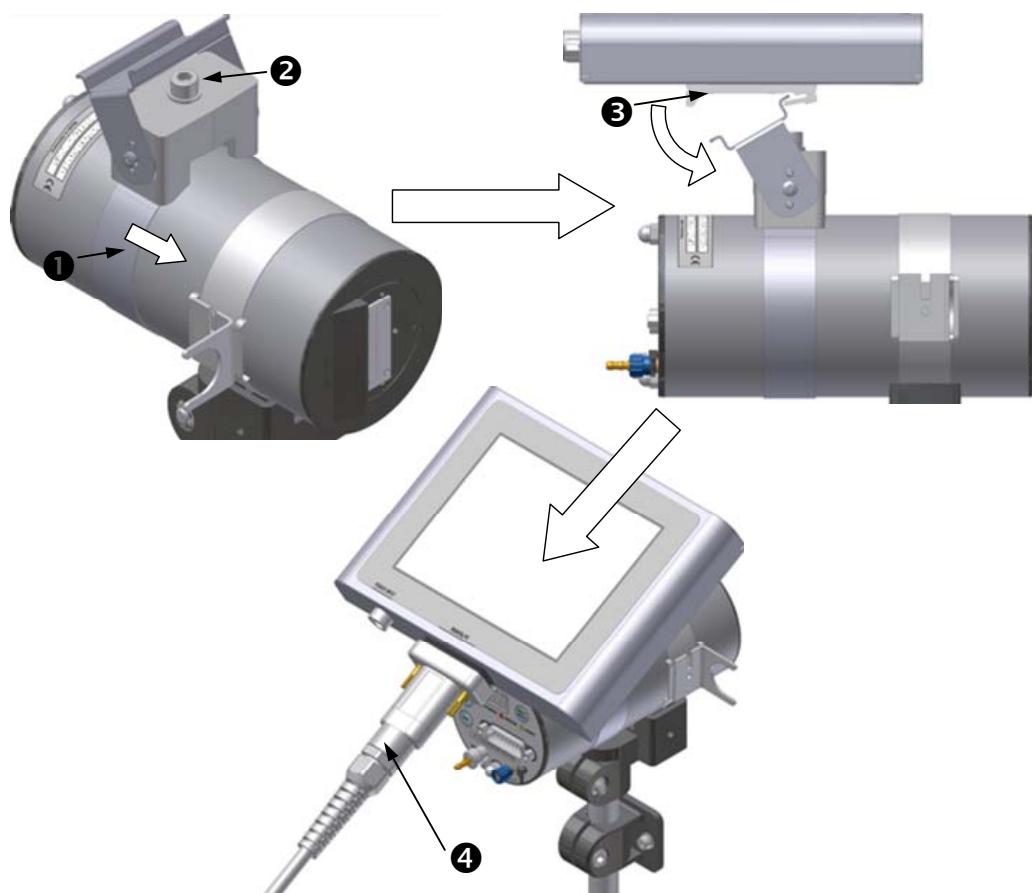

<p style="text-align:right">Fig. 5.2</p>

NOTE: You can detach the **T200** terminal from your printing system and use it for preparing printing projects (texts, graphics, variable fields, printing parameters) in a place that is convenient for you. As the terminal needs energizing from an external source, connect a separate power pack to the terminal socket marked as **POWER INPUT**. The power pack is available against a special order.

6. Operation

Starting Up

On connecting the **T200** terminal according to the description given in Chapter *5 Installation*, set the power switch of the **R230** cable distributor to the **ON** position. The operation causes the terminal to start and splash screen (shown on the right) to be displayed. The screen contains the manufacturer logo, firmware version and *Safe Mode* button (see section *Safe Mode* for more details).

<p style="text-align:center">Fig. 6.1</p>

Using the Root Menu

The **Root Menu** screen appears on the display three seconds after the terminal has been switched on; the splash screen is displayed in the meantime (see section ***Starting Up***).
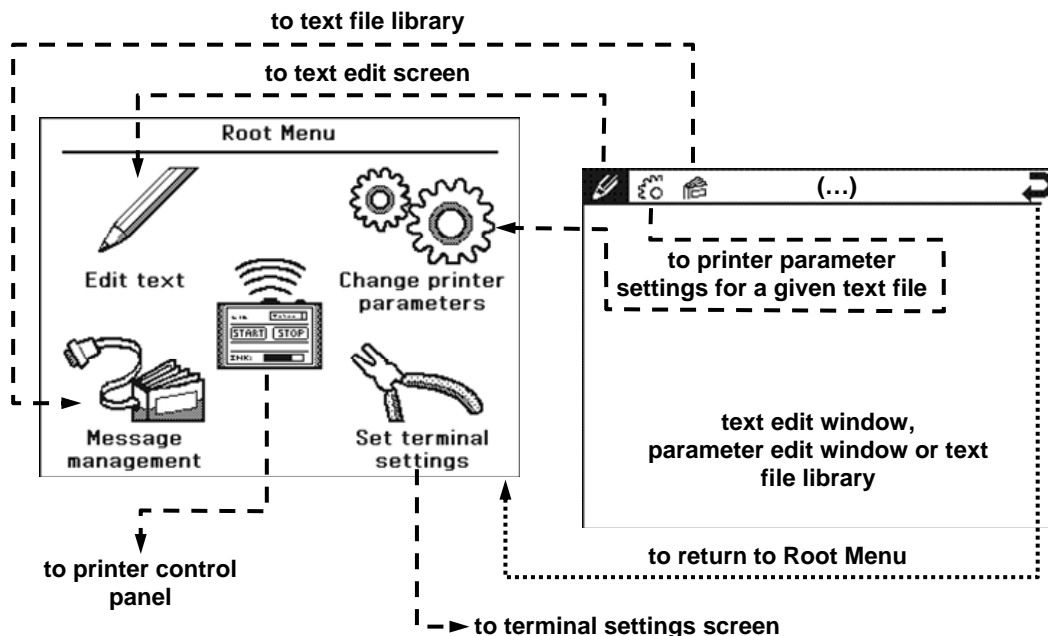

Fig. 6.2

The **Root Menu** consists of five buttons which perform the following functions:

Icon	Name used further below	Description/navigation		
Edit text	**Text editor**	To go to text edit screen.	✐	Simplified navigation via title bar icons
Change printer parameters	**Parameter editor**	To go to the screen where you can edit the printer parameters that are related to a given text file.	⚙	
Message management	**Text file library**	To go to text file library, where you can also communicate with the printer in order to send or receive projects.	🗂	
Printer control	**Printer control**	To go to the screen where you can start and stop printing. It is available from the **Root Menu** only.		
Set terminal settings	**Set terminal settings**	To go to the screen where you can customise the terminal to a user's requirements. It is available from the **Root Menu** only.		

In order to return to the **Root Menu** screen, use the ↩ icon on the title bar.

Customising the Terminal

Before you start using the terminal, you can configure it to satisfy your needs. In order to do that, select the **Set terminal settings** button on the **Root Menu** screen (see **Fig. 6.2**). A terminal settings screen ❶, is displayed.
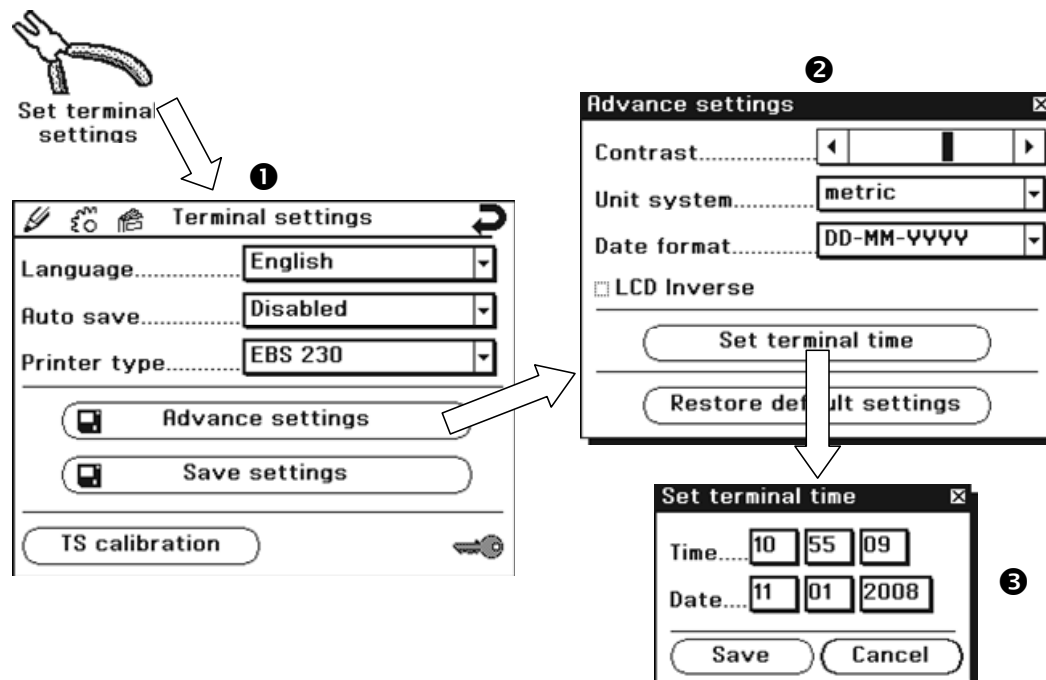
Fig. 6.3

The terminal settings screen ❶ (see **Fig. 6.3**) allows you to modify the following parameters:

Parameter	Description
Language	To choose a language for communication. English is set by default.
Auto save	To set a time interval after which the parameters being edited are saved automatically.
Printer type	To set the type of printer the terminal is to work with. For future application.
Advance settings	To go to the advanced settings window ❷.
Save settings	To save the current parameter settings to the terminal memory.
TS calibration	To calibrate the touch screen. **NOTE:** **Improper calibration may destabilise operation of the terminal!!**

When you go to the **Advance settings** window, ❷ (see **Fig. 6.3**) you can modify the following parameters:

Parameter	Description
Contrast	To adjust screen contrast.
Unit system	To switch to the unit system to be used to define certain quantities, e.g. distance.
Date format	To select a date coding format.
LCD Inverse	To inverse colours on display.
Set time	To set the date and time on the terminal. When this button is pressed, the set-terminal-time window ❸ appears on the display and you can adjust the date and time settings in the terminal memory.
Restore default settings	To restore factory-made settings.

Except for modifying the above mentioned parameters, the **Set terminal settings** menu is a tool for defining administrator and user passwords and also for defining user authorisations. This is done with the ⚷ icon. See section **Changing User Authorisations** for more details on how to modify user authorisations.

Control Panel – Starting/Stopping Printing

The **Printer control** window is accessed through selecting button ❶ on the **Root Menu** screen.
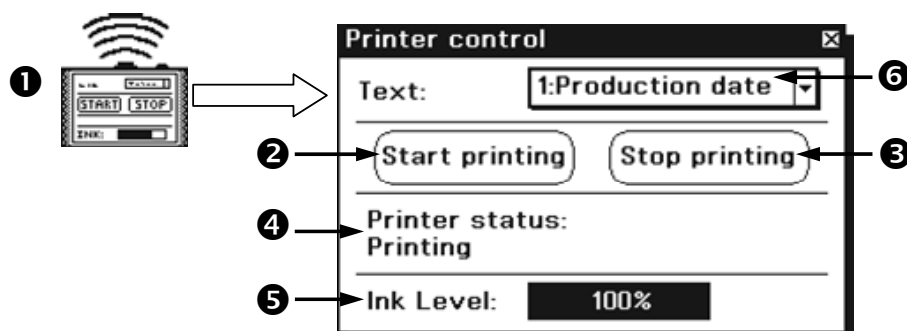
Fig. 6.4

Printer control performs two functions:
➢ Displays information that has a vital impact on printing: the printer status and ink level in ink bottle,
➢ Enables a user to start printing (with the **Start printing** button, ❷) of a selected text file, ❻, and to stop printing (the **Stop printing** button,❸).

Setting Printer Parameters

The printer parameters are closely associated with a selected text. The name and number of a text file in the library are shown on the title bar. Except for the title bar, the parameter setting screen consists of two parts:
➢ Basic parameter window (upper part of the screen),
➢ Additional parameter tabs window. The contents of the window varies according to the tab you select.

Filename in library — Text number in library

Ink drop intensity in text to be printed →

Character resolution in text to be printed →

Production date (1)

Print delay

Distance between print iterations

Refresh variable fields with each iteration

Text rotation vertical and horizontal

Number of text iterations

Automatic restart of printing after unpredictable suppression

Param 1 Param 2 Param 3 Param 4 ►

Txt.repetitions....... 1

Print delay............. 0   □ Auto start

Rep. distance......... 0

□ Refresh var.fields

Selective character spacing

Param 1 **Param 2** Param 3 Param 4 ►

Bold................................ 1

Generator.................... Fixed speed

Character spacing............................. 2

Selective char. spacing................... 2

Number of repetitive printing of every vertical row

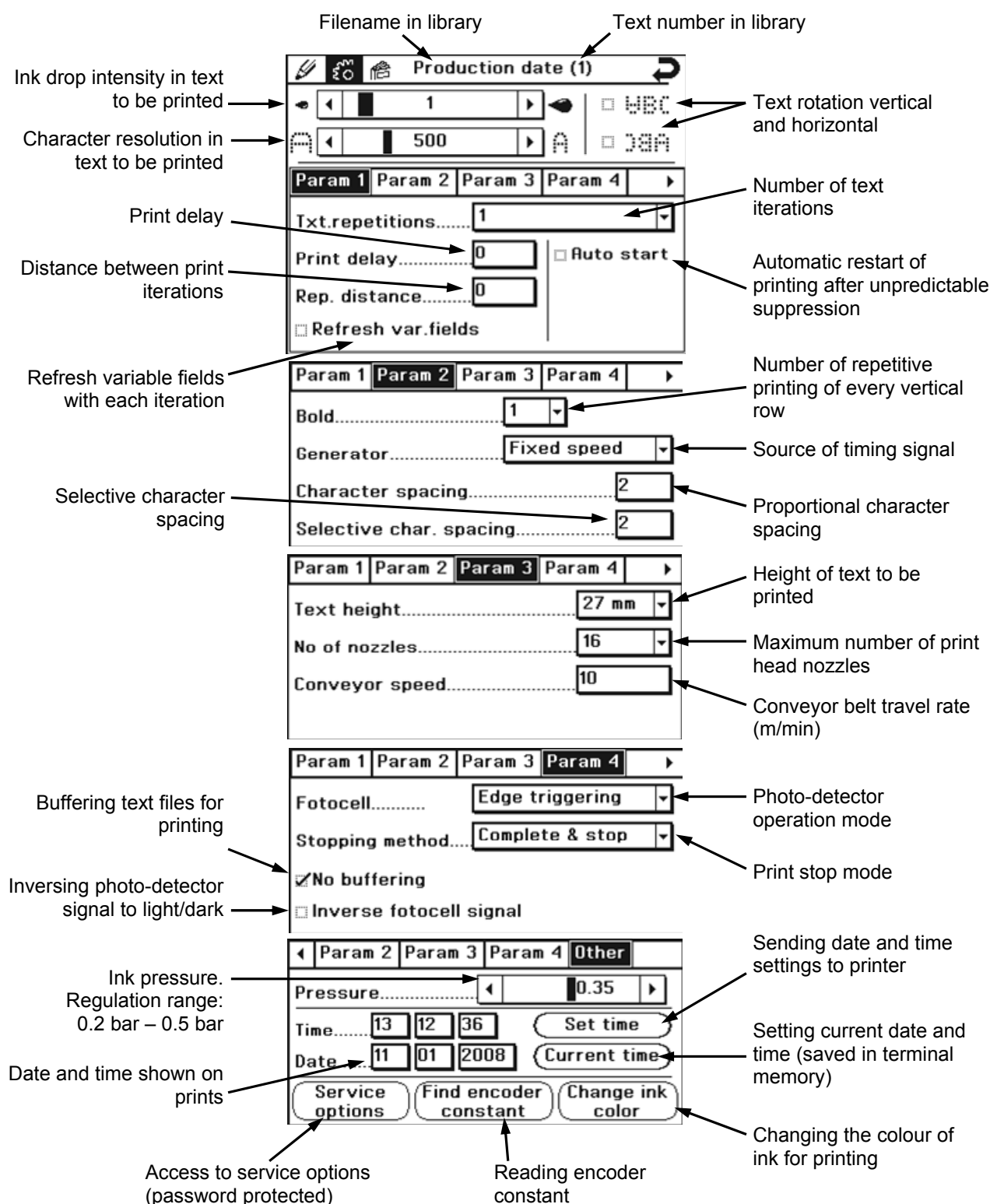Source of timing signal

Proportional character spacing

Param 1 Param 2 **Param 3** Param 4 ►

Text height.............................. 27 mm

No of nozzles....................... 16

Conveyor speed........................... 10

Height of text to be printed

Maximum number of print head nozzles

Conveyor belt travel rate (m/min)

Buffering text files for printing

Inversing photo-detector signal to light/dark

Param 1 Param 2 Param 3 **Param 4** ►

Fotocell.......... Edge triggering

Stopping method.... Complete & stop

☑ No buffering

□ Inverse fotocell signal

Photo-detector operation mode

Print stop mode

Ink pressure. Regulation range: 0.2 bar – 0.5 bar

Date and time shown on prints

◄ Param 2 Param 3 Param 4 **Other**

Pressure................... ◄ 0.35 ►

Time....... 13 12 36   (Set time)

Date....... 11 01 2008   (Current time)

(Service options) (Find encoder constant) (Change ink color)

Sending date and time settings to printer

Setting current date and time (saved in terminal memory)

Changing the colour of ink for printing

Access to service options (password protected)

Reading encoder constant

Fig. 6.5

A precise description of, and setting range for, each of the parameters are given in **EBS-230** *Printer User's Manual*. **Fig. 6.5** contains only basis information about these parameters.

Editing Text Files

Text Edit Screen Structure

After the **Edit text** button has been selected on the **Root Menu** screen (see **Fig. 6.2**), the following screen is displayed:
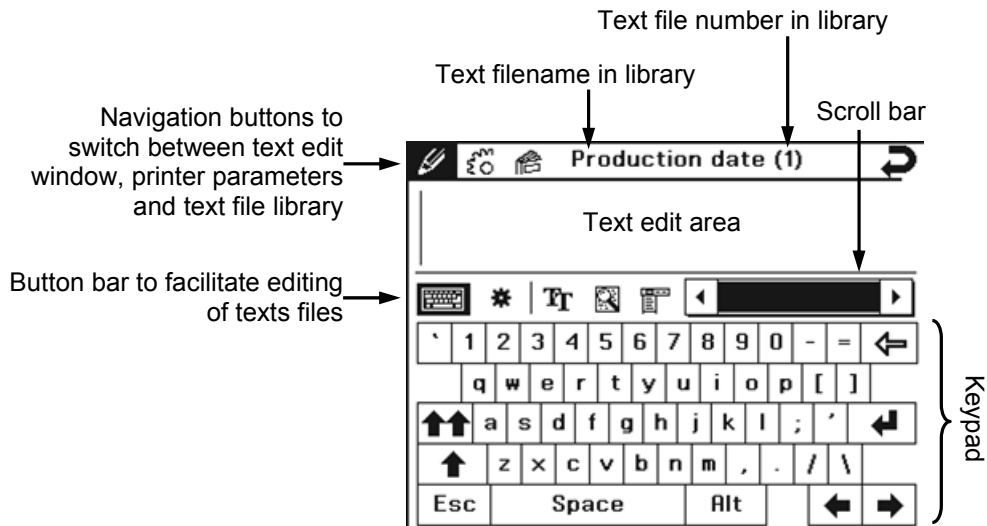

Text file number in library

Text filename in library

Scroll bar

Navigation buttons to switch between text edit window, printer parameters and text file library

Text edit area

Button bar to facilitate editing of texts files

Keypad

Fig. 6.6

Keypad Layout

Text files are edited with the use of a QWERTY keypad whose arrangement is the same as that for PCs. As the display area is limited, it may happen that the area of each of the buttons is insufficient to use the terminal conveniently. You can rearrange the keypad and ensure that the button areas are greater. In order to do that, use the ⌨ button on the button bar (see **Fig. 6.6**).

Button bar
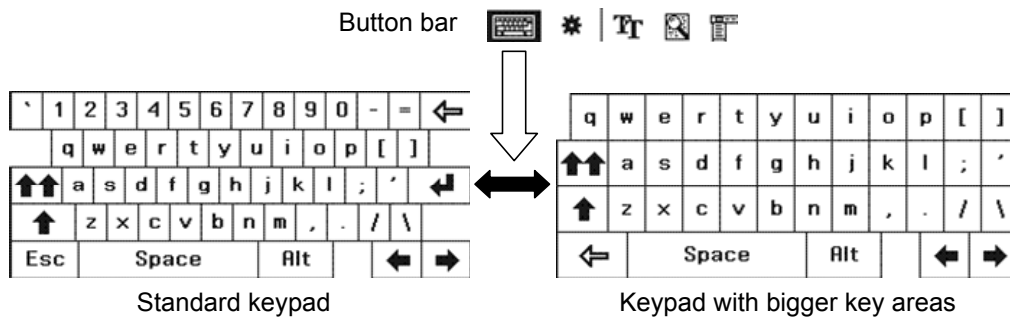
Standard keypad

Keypad with bigger key areas

Fig. 6.7

Using the terminal, you can insert characters of embedded fonts for the Latin and Cyrillic alphabet, and also special characters defined by the manufacturer. If you wish to insert characters of other alphabets (e.g. Arabic or Chinese) it is necessary to use the PC program for controlling the printer.

In order to select the type of build-in font, press the 𝐓𝐓 button on the button bar (see **Fig. 6.6**).

Button bar

Latin 7
Cyrylic 7
Spec 7
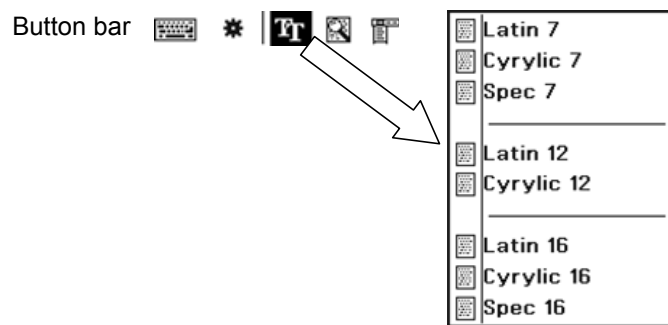
Latin 12
Cyrylic 12

Latin 16
Cyrylic 16
Spec 16

Fig. 6.8

The **SHIFT** and **Caps Lock** keys and the **Alt** key are used to type in capital letters and diacritical national characters, respectively, in the same way as on regular PCs. If you press the **SHIFT**, **Caps Lock** and **Alt** keys, the characters available are displayed on the terminal screen.

Using Variable Fields

Texts to be input via the terminal can contain not only key characters but also the data that is updated during printing, such as date, time or counters. Variable fields account for such data. For more information about the variable fields see **EBS-230** *Printer User's Manual*. In order to use a variable field in a given text, press the ✿ button on the button bar (see **Fig. 6.6**). The following screen is displayed in place of the keypad:
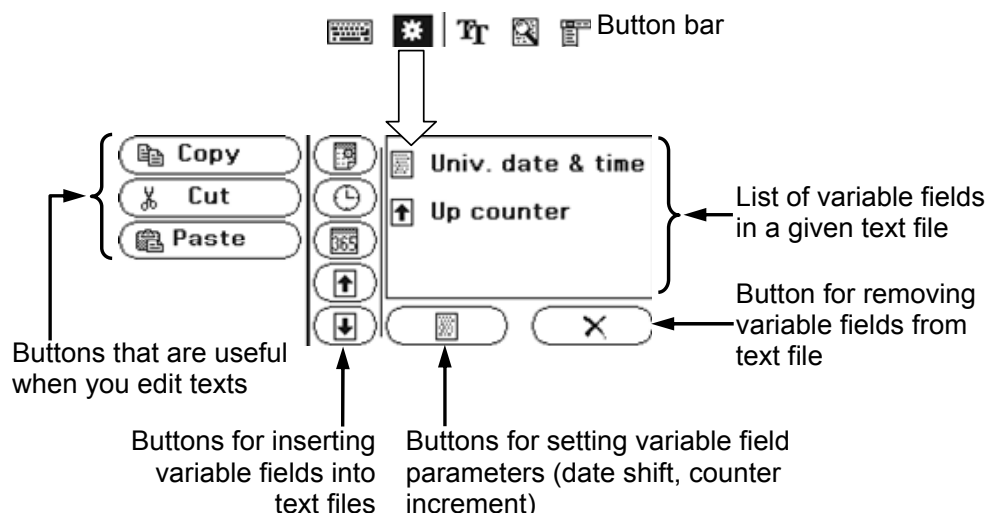

Fig. 6.9

The below table contains a list of variable fields that are available for use and also the field components and code characters.

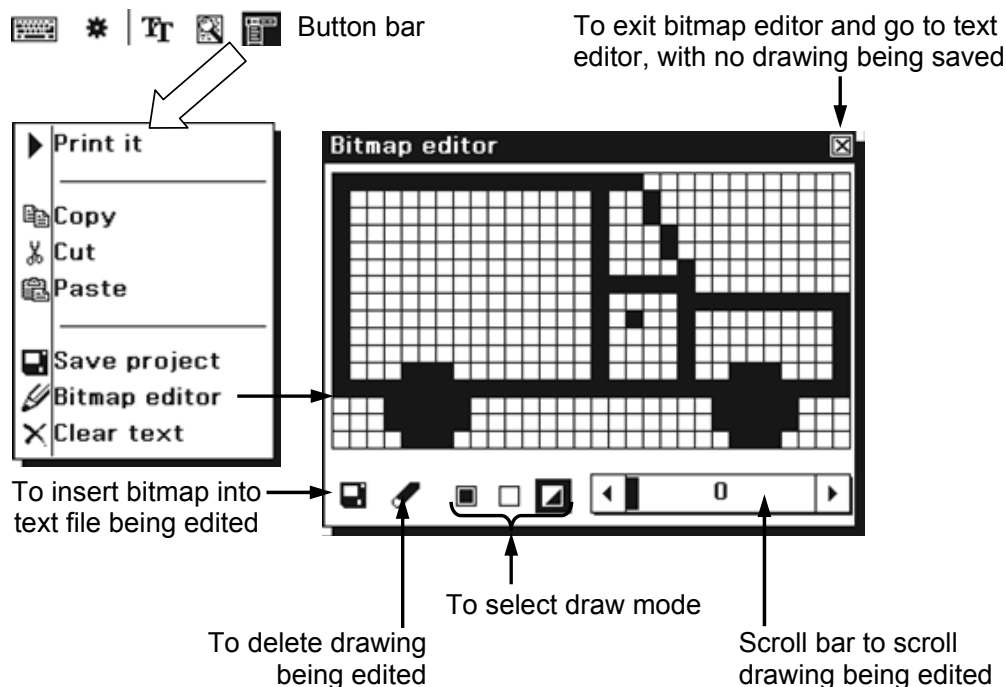| Symbol	Variable field	Component	Code characters
🖻	**Univ. date & time**	day-month-year	DA-MO-RLYE
🕐	**Univ. date & time**	hour-minute-second	BC-IJ-TU
🗓	**Univ. date & time**	number of day of the year	PQS
⬆	**Up counter**	number	0001
⬇	**Down counter**	number	0001

When a variable field is inserted into a text file, it is replaced with the characters shown in the *Code characters* column of the above table. When a text file is printed, the characters are replaced with the current data. The order of the code characters can be modified within a given variable field and so can the initial settings of the counters. The components that are not needed for a given application can be removed or new ones can be added.

For more information about the variable field components see **EBS-230** *Printer User's Manual*.

Graphics Editor

The graphics (bitmap) editor enables a user to create and edit drawings which can then be inserted into texts to be printed.

In the *Text editor* window press the auxiliary menu button available on the button bar (see **Fig. 6.6**). Select **Bitmap editor** from the drop-down menu that appears afterwards. The editor window is displayed on the screen.

Button bar

To exit bitmap editor and go to text editor, with no drawing being saved

To insert bitmap into text file being edited

To delete drawing being edited

To select draw mode
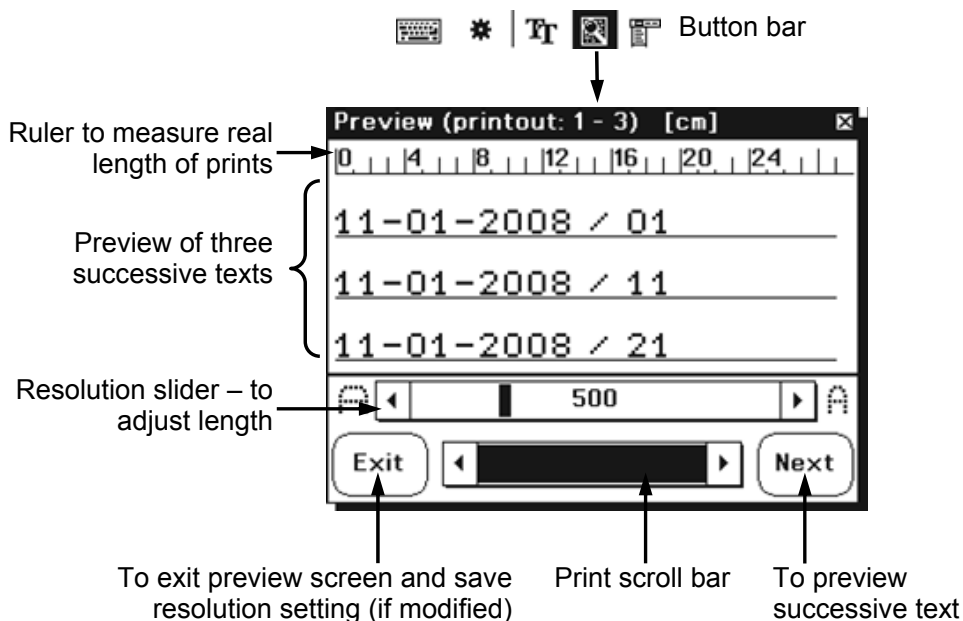
Scroll bar to scroll drawing being edited

Fig. 6.10

The window where graphics can be created/edited consists of dots and enables a user to generate graphics with a maximum height of 16 dots and length of 60 dots. Graphic drawings shall be created with a blunt tool (see the message that is displayed before you run the editor for the first time) so as not to damage the display surface.

Text Preview

You can preview a text being edited at any time in order to see what it will look like after printing. The feature is useful especially when variable fields are used to create the text file.
In the *Text editor* window (see **Fig. 6.6**) press the button on the button bar. A text preview screen is displayed.

Button bar

Ruler to measure real length of prints

Preview of three successive texts

Resolution slider – to adjust length

To exit preview screen and save resolution setting (if modified)

Print scroll bar

To preview successive text

Fig. 6.11

Text File Library

In order to display the contents of the text file library, select the **Message management** button from the root menu (see **Fig. 6.2**). The following screen is displayed.
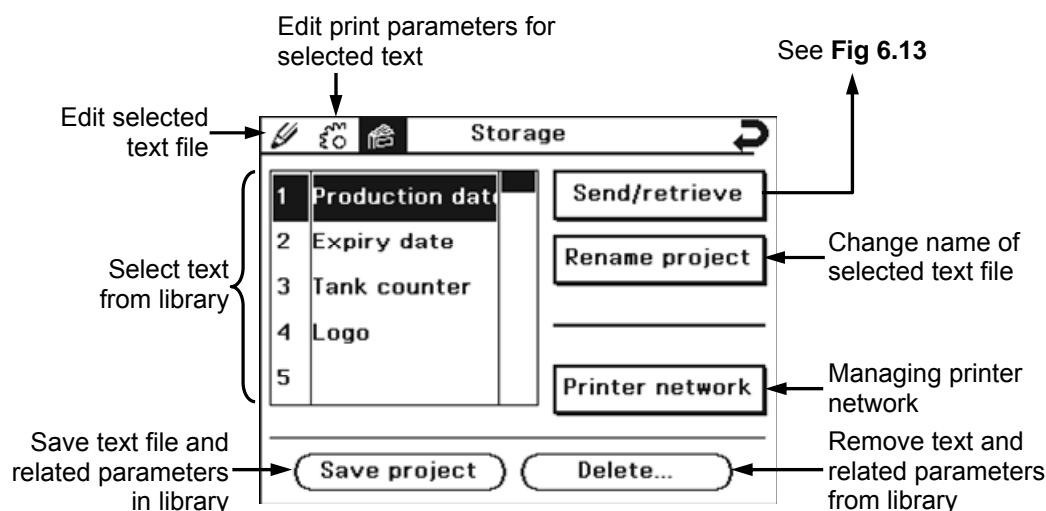

Edit print parameters for selected text

See **Fig 6.13**

Edit selected text file

Select text from library

Change name of selected text file

Managing printer network

Save text file and related parameters in library

Remove text and related parameters from library

Fig. 6.12

Transferring Projects between Printer and Terminal

Every text file and the associated parameters form a project. All projects generated with the use of the terminal are stored in library. From there they can be transferred to printer both one by one or all of them (the entire library) at once. The projects can also be downloaded from printer to the terminal, e.g. to get texts or parameters edited. Either single projects or the entire library can be downloaded as before.

In order to transfer projects to (or from) printer, go to the **Storage** menu (see **Fig. 6.12**) and select the **Send/retrieve** button. The following screen is displayed.

Transfer selected project or entire library to printer

Fetch selected project from printer

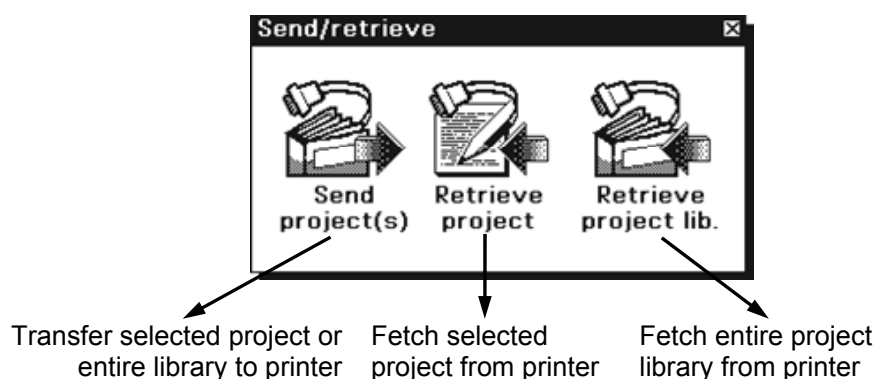Fetch entire project library from printer

Fig. 6.13

If the system is connected properly (see chapter *5 Installation*), then communication with the printer should be established after any of the buttons shown in **Fig. 6.13** has been selected.
The successful transfer (fetching) of a project or the project library are confirmed with the **Operation successful** message.

Example of How to Prepare and Print a Simple Text File

This section contains a description of how to create a simple text file using a variable field, how to set basic parameters for the text, send them to printer and start printing.

The text file used in this example is called *Production date* and looks like as follows:
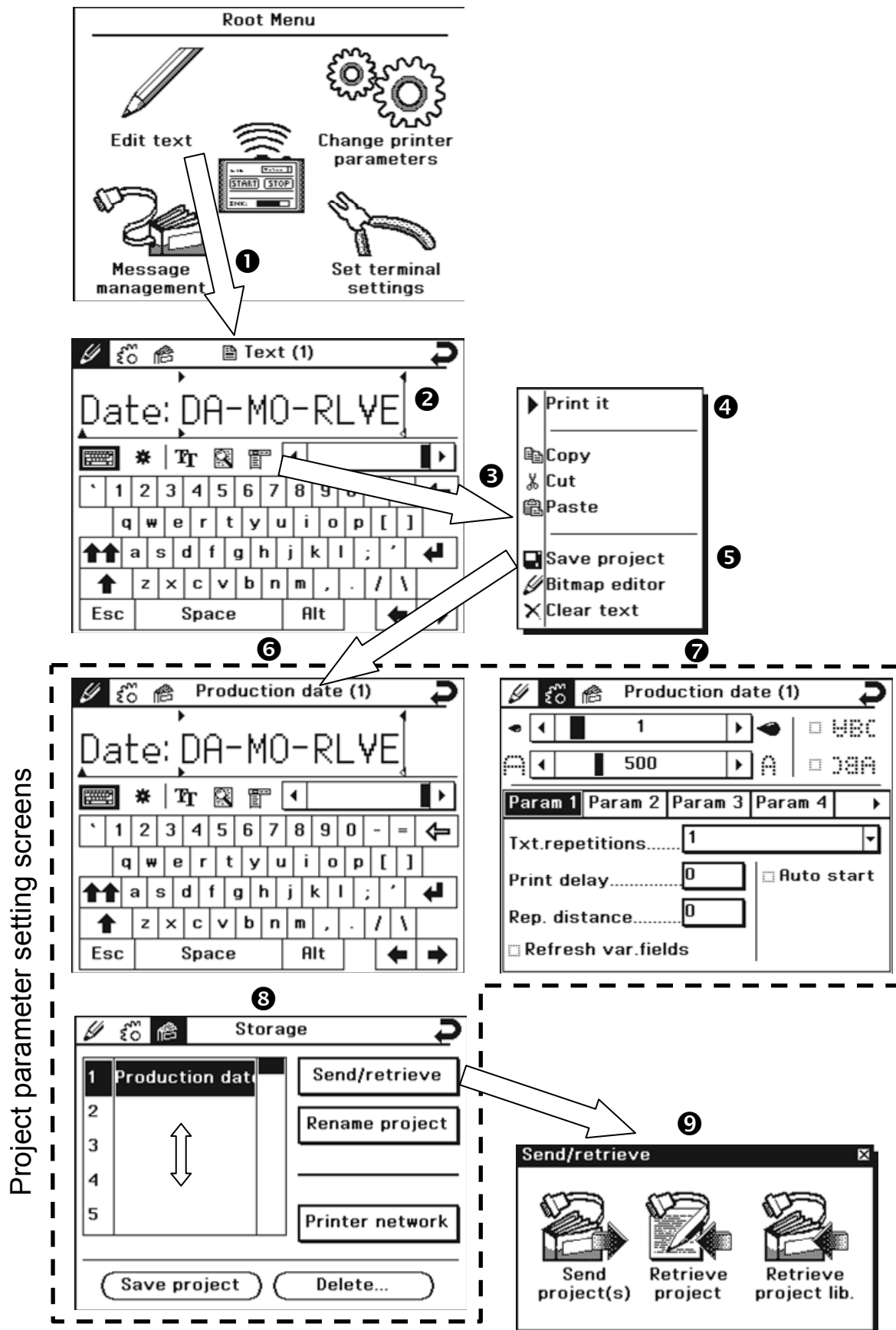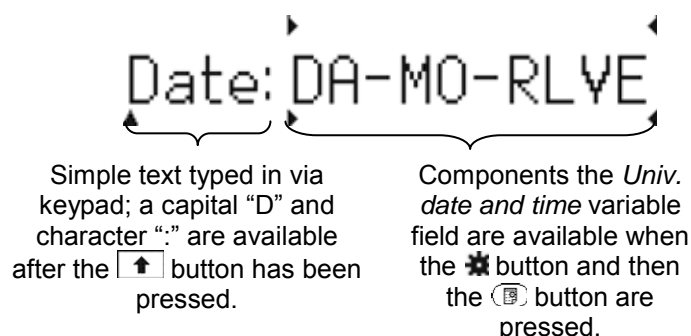
Project parameter setting screens

Fig. 6.14

The settings of the **Auto save** function are used to save every modification to the project parameters.

In order to prepare a text for printing, you need to perform the following operations (the numbering of successive operations corresponds to that shown in **Fig. 6.14**):

❶ - Select the **Edit text** button on the **Root Menu** screen,

❷ - Prepare the text for printing following the description given in section *Editing Text* . The format of the text in question is as follows:

Simple text typed in via keypad; a capital "D" and character ":" are available after the ⬆ button has been pressed.

Components the *Univ. date and time* variable field are available when the ✳ button and then the 🔲 button are pressed.

❸ - Go to auxiliary menu by pressing the 📑 button,

❹ - If you wish to pre-print the text in question, select the **Print it** item. The text is sent to printer and then it is printed but not saved in the printer memory.

❺ - In order to save the project, select the **Save project** item. If the project has not been saved before, you are prompted to give its name. Once you type it in, the name appears on the title bar, ❻, automatically. The same name is also given to the text file in text file library, ❽.

❼ - Set the printer parameters that apply to the text you are editing. You can move easily among the text editor, ❻, parameter edit window for a given text file, ❼, and text file library, ❽, thanks to simplified navigation via icons on the title bar.

NOTE:

You can edit the contents, ❻, and parameters, ❼, of a text file which is highlighted in the library at a given moment. In order to move to another text or its parameters (or create a new one), you should select another item (from 1 to 30) from the library.

On finishing editing send the text file to printer. In order to do that, select the **Send/retrieve** button from the **Connect** menu, ❽. When you do that, menu ❾ is displayed on the terminal. Then press the **Send project(s)** button. The terminal display shows the question whether the active project (currently highlighted in the library) or all projects stored in the library should be sent. In the example in question it is enough to send the active project. Since then the text file together with its associated parameters is in the printer memory.

Start printing the text. In order to do that, move to the **Root Menu** screen (via the ⬏ button available on the title bar).
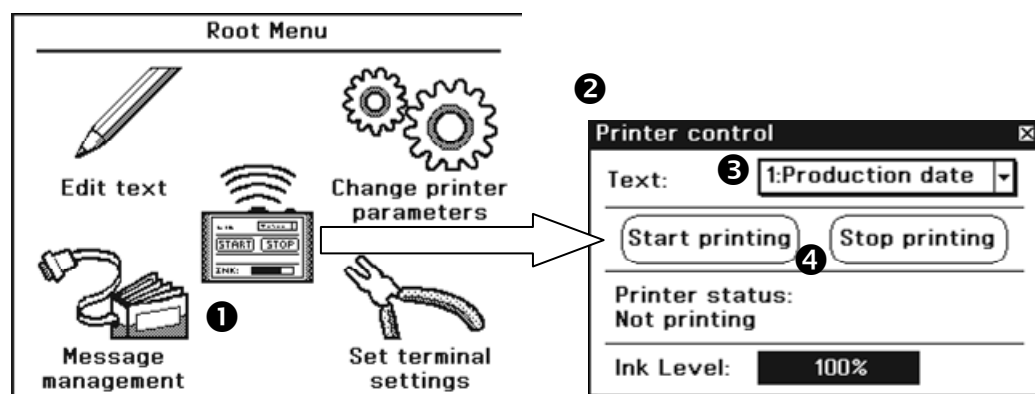

Fig. 6.15

On the **Root Menu** screen, select button ❶ (see **Fig. 6.15**). The **Printer control** screen (❷) appears on the terminal display. If the information (status and ink level) displayed in that window is correct, select the text (❸) which you wish to print from the drop-down menu, and then press the **Start printing** button (❹). The printer moves to the *print* state and awaits a signal from the photo-detector to start printing.

In order to suppress printing, press the **Stop printing** button in the **Printer control** window.

7. Advanced Information

Safe Mode

The *Safe Mode* allows a user to start the terminal using default settings. The feature can be useful, when, for example, any of the terminal settings makes operation impossible or hindered (for example, due to improper calibration). As all user settings (including passwords) are deleted when the user enters the *Safe Mode*, access to the mode is protected. In order to avoid entering the mode accidentally, the *Safe Mode* button must be pressed three times. The position of the button on the display changes each time the button is pressed (left bottom corner, ❶ → right bottom corner, ❷ → left top corner, ❸). The button needs to be pressed successively three times within 3 seconds. Otherwise the device switches on in the regular mode and displays the root menu, ❻. After the *Safe Mode* button has been pressed three times, the safe mode window, ❹, is displayed, prompting a user to type in a four-figure password (via the numerical keypad, ❺). If the password is correct, the terminal displayed the **Set terminal settings** window. However, if the user does not know the password or would like to start the device in the regular mode, it is enough to leave the password box empty and press the *OK* button.
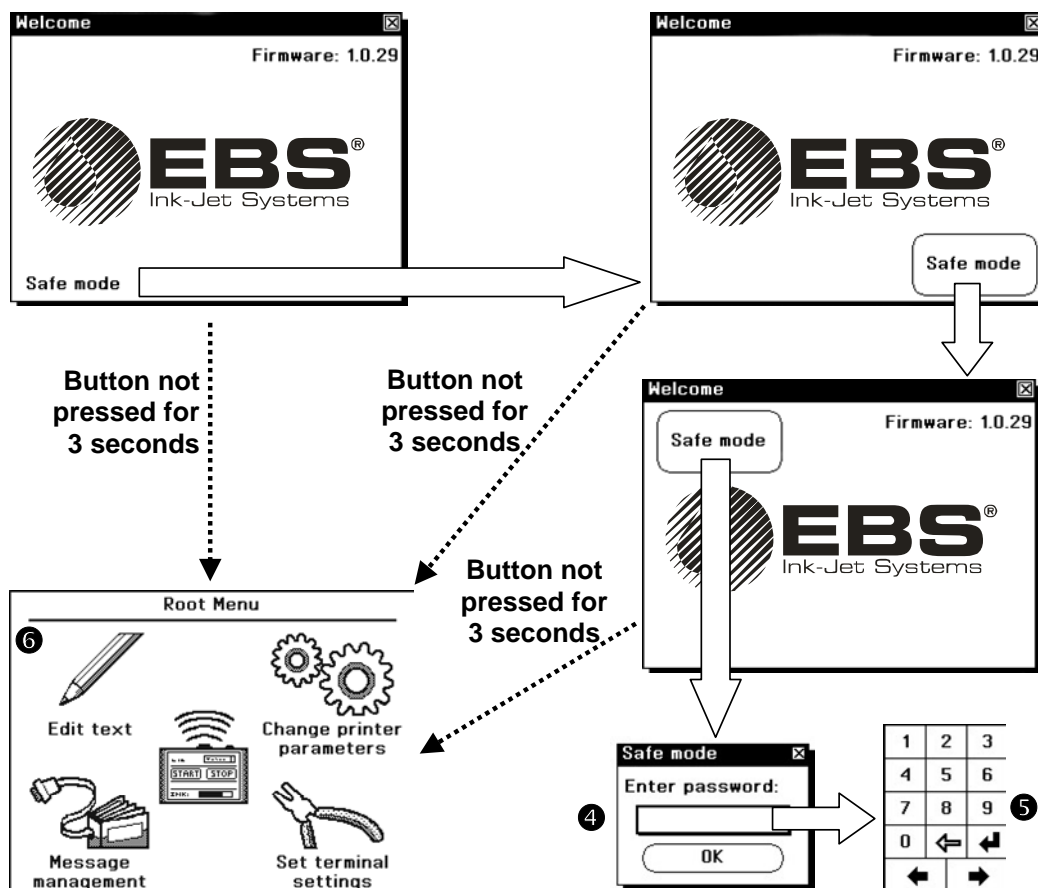

Fig. 7.1

Changing User Authorisations

The **T200** terminal offers different access levels. In the system, a password can be defined by the administrator, who will be able to exercise full control over the device, and by a user, whose access rights can be modified. A user password can be saved only when an administrator password has been defined. The options are available in the **Set passwords** window (see **Fig. 7.2**).
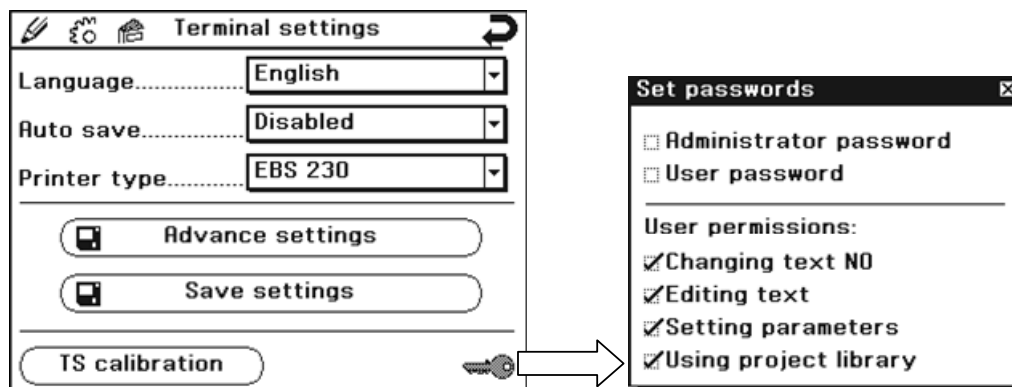

Fig. 7.2

If all four user authorisations (shown in **Fig. 7.2**) are ticked while the user password is being defined, the user is only unauthorised to enter the **Set terminal settings** window. Then, the relevant icon is visible in the menu, but remain inactive.

If the administrator password is set in the terminal and no user passwords are defined, then only the administrator who knows the password can use the terminal. A prompt to enter password is displayed after the splash screen has been displayed. If the access permissions are different from the default settings (where both administrator and user passwords are defined), the symbol of a key is displayed on the **Root Menu** screen. Depending on whose password is typed in after the device has been switched on, the terminal starts operation with the authorisations that are typical of the administrator (full rights), or of a user (given by the administrator) or the icons on the **Root Menu** screen remain inactive if a wrong password is typed in. In the latter case you need to press the key and try to type in the password again or contact the administrator in order to gain access to the device.
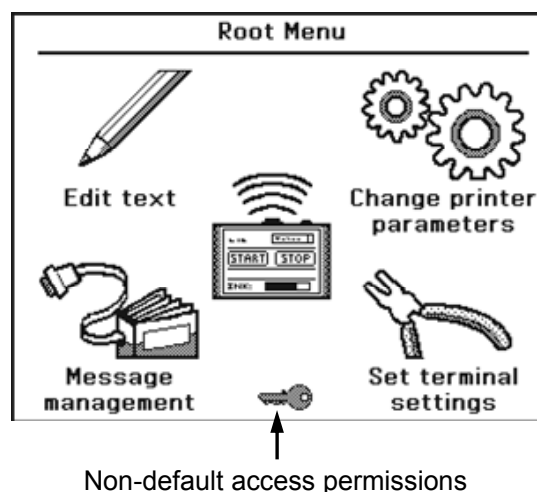

Non-default access permissions

Fig. 7.3

8. Technical Parameters

Parameter	Value
Working position	**any**
Number of text files and print parameter sets to be stored in the terminal memory at the same time	**1 to 30**
Maximum number of characters in a text	**1300** (together with control characters)
Graphics (logo, special graphics characters) **editor**	Graphic symbols and text files can be edited with bitmap editor
Special characters	National diacritical characters, graphic, warning or transport characters (a collection of characters determined by manufacturer), etc.
Special registers (texts with dynamically changing content based on occurrence of a specific event)	date and time in any format, expiry dates, incremental counter, decremental counter,
Power supply (power pack integrated with **R230** cable distributor) or	**24 V DC**
optionally, an external power supply to use terminal in a convenient place	**IN: 100-240 V~, 50-60 Hz / 0,66-0,34 A** **OUT: 24V⎓, max. 1A**
Power consumption	**120 mA**
Operating temperature range	from **+5°C** to **+40°C**
Storage temperature range (long term)	from **-10°C** to **+45°C**
Class of Protection ensured by housing according to EN 60529:1991	**IP54**
Weight	**approx. 650 g**
Dimensions	housing: height: **145 mm**, width: **185 mm**, depth: **36 mm** touch screen: height: **85 mm**, width: **115 mm**