



USER MANUAL

T07

INTEGRATED MARKING PROGRAM



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Table of contents

A - Introduction	5
1. General characteristics of the program	5
2. Program functions	5
■ Customization	5
■ Type of blocks	5
■ Character styles	6
■ Marking management	6
■ Adjustable settings	6
■ Various functions	6
■ User memory	7
■ Exchange of files via USB key	7
3. Character encoding	7
■ Introduction	7
■ UTF-8 encoding	7
■ Practical consequences	8
4. Starting-up the program	10
5. Using the touch screen	10
6. The different program menus	12
■ Main menu	12
7. Definition of a marking file	12
8. Creating a marking file	13
B - "Marking" menu	14
1. Marking "N times"	14
2. "Infinite" marking	15
3. "Independent" marking	15
C - "Edit file" menu	16
■ Create a new marking file	16
■ Open the last file used	16
■ Open an existing file	16
1. Preparing a marking block	17
■ Block number	17
■ Block name (label)	17
■ Type of marking	18
■ Text to be marked	23
■ X-Y coordinates	27
■ Character size	27
■ Text angle	27
■ Marking force	27
■ Pause after a block	27
■ Character font	28
■ Compression	29
■ Inclination	29
■ Spacing	29
■ Alignment	29
■ Marking effects	31
■ Marking direction	32
■ Movement speed	33
■ Marking speed	33
■ Marking quality	33
■ Dot density per millimeter (continuous action)	33
2. "Edit" menu sub-menus	34
■ Copy/paste a block	34
■ "Edit" sub-menu	34
■ "Marking" sub-menu	35
■ Save the file in progress / save as the file in progress	36
■ Activation / deactivation of the blocks	37

- D - Functions 38
 - 1. Add (optional) 38
 - 2. CSV List (optional) 39
 - 3. Goto 40
 - 4. IF (optional) 40
 - 5. Var in 42
 - 6. Var set 44
 - 7. Write Line (optional) 45

- E - "File management" menu 46
 - 1. File management 46
 - Rename file(s) 47
 - Delete file(s) 47
 - Select all / unselect all 47
 - Exchange of files via USB key: export file(s) 47
 - 2. USB key: data importation 48
 - Rename file(s) 49
 - Delete file(s) 49
 - Select all / unselect all 49
 - Add folder 49
 - Import file(s) 49

- F - "Machine configuration" menu 50
 - 1. "System info" menu 50
 - 2. Time and date settings 51
 - 3. Language 51
 - 4. Display settings 52
 - 5. Deleting all the files (reset) 53
 - 6. Machine parameters 53
 - Off-limits control 53
 - Conversion of the units into inches 54
 - Screenshot(s) 54
 - Security mode 54
 - Password 55
 - 7. Update 55
 - Software update 56
 - Power firmware update 57
 - Activate an option 59

- G - "Communication" menu 60
 - 1. Activation / deactivation of FTP server (optional) 60
 - 2. FTP communication management (optional) 61
 - 3. Serial management 62
 - Deactivate 62
 - Raw data 62

- H - "Variables" menu 63
 - 1. Configuring counters 64
 - 2. Configuring variables 68
 - Programming within a marking file 69
 - Compiling a series of variables 69
 - 3. Configuring Day/Month/Year format 70
 - Year variable (YS) 70
 - Month variable (MS) 71
 - Day in the month variable (JS) 71
 - Day of the week variable (DS) 72
 - Hour variable (HS) 73
 - 4. Configuring shifts 74

I - Use 76

- 1. Marking process flowchart 76
- 2. Initiation to marking 77
 - Step 1: Switching on the machine 77
 - Step 2: Creating a marking file 78
 - Step 3: Preview 83
 - Step 4: Position the part 83
 - Step 5: Marking simulation 84
 - Step 6: Marking the part 84

J - Appendix 85



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Thank you for choosing T07 Technifor.

For more information on products, visit www.technifor.com website.

This manual corresponds to the 2.01 version of the program.

Some screenshots may be different from those displayed in the program.

1. General characteristics of the program

The T07 standard marking program is integrated in a Control Unit, or in the main board of the machine (viewed on an LCD screen). It is used to:

- program files for marking:
 - set text
 - variable text:
 - . date (using various set or customized formats)
 - . counter (incrementation, decrementation)
 - logos...

2. Program functions

■ Customization

- multilingual: program language selection (Communication interface, keyboard)
- units (mm or inches)

■ Type of blocks

- marking:
 - linear (choice of the angle)
 - radial
- logos
- 2D code
- functions

■ Character styles

- marking effects:
 - normal
 - inverted
 - mirror
 - reflected
- alignment
- compression / expansion
- inclination
- spacing between characters

■ Marking management

- standard marking:
 - marking N parts
 - infinite marking
- independent marking

■ Adjustable settings

- customized speeds for marking and movement
- force (depth)
- date and time (CCU clock)
- variables:
 - 10 numeric, alphanumeric, alphabetic or hexadecimal counters, which can be reset each time there is a change in year, month, day, hour, day of the week, shift
 - 10 alphanumeric variables
 - shift codes (Q) set according to the day of the week (up to 5 shifts per day)
 - date and time based on CCU system, using the keywords:
 - . DD - MM - YYYY - YY - Y - hh - mm - ss - WW - CCC
 - . m (mark first digit of the minutes)
 - . customized formats DS (day/week), JS (day/month), MS (month) and YS (year)
- choose a character font

■ Various functions

- download logos (LO3 format)
- transfer marking files between PC and the machine (Backup / Restore)
- simulate marking file (no marking on part)
- off-limits management
- date and time display
- graphic preview before marking

■ User memory

Several hundred files may be saved, depending on their size (Maximum: 2000).

Maximum:

- 100 blocks per file
- 255 characters per block

■ Exchange of files via USB key

It is possible to import and export certain files via USB key (FAT32 file system only):

- marking file
- logo
- character font
- log file
- .csv file
- screenshot

3. Character encoding

■ Introduction

The previous marking programs used "8 bit" fonts, which could only contain $2^8 = 256$ characters. The font change was necessary for each language, display and marking were impossible for languages including over 256 characters.

Marking and display fonts used in the T07 program are "16 bit" programs, which may contain up to $2^{16} = 65536$ characters (less in practical terms, certain are reserved). These fonts are based on the setup of the characters of the ISO/IEC 10646 standard, in the Basic Multilingual Plan. This standard, which specifies a set of universal characters (Universal Character Set), also defines other characters (over 1.1 million). These are not generated by the T07 program and must therefore not be used.

The 16 bit fonts are used to manage new languages and an increased compatibility with the actual operating systems (Windows, Unix...). However, the numerous materials and applications still use the 8 bit fonts. In order to have the best possible compatibility with these materials, the characters emitted and received by the program (files or character strings) are encoded in UTF-8 (UCS Transformation Format, 8 bits). UTF-8 is used to represent the 16 bit characters by using 8 bit codes. This font does not allow old 8 bit systems to manage 16 bit characters, but it allows to manipulate the acceptable data and to transmit them with no loss of information.

■ UTF-8 encoding

UTF-8 was designed to be compatible with certain software initially foreseen for the processing of one-byte characters. Each 16 bit character is encoded on a chain of 1 to 4 bytes.

UTF-8 is normalised in the RFC-3629 (UTF-8, a transformation format of ISO 10646). Encoding is also defined in the 17 technical report of the Unicode standard. It is part of the standard on chapter 3 "Conformance" and is approved by the International Standard Organisation (ISO), the Internet Engineering Task Force (IETF) as well as most of the national standardization organisations.

Encoding

The numbered characters from 0 to 127 are encoded on 1 byte(s) whose most significant bit is always 0. The characters with a number greater than 127 are encoded over several bytes. In this case, the most significant bits of the first byte form a series of 1 as long as the number of bytes used to encode the character, the following bytes having 10 as the most significant bit.

Definition of the number of bytes used

UTF-8 binary representation	Meaning
0xxxxxxx	1 byte(s) coding 1 to 7 bits (from 0 to 127)
110xxxxx 10xxxxxx	2 byte(s) coding 8 to 11 bits (from 128 to 2047)
1110xxxx 10xxxxxx 10xxxxxx	3 byte(s) coding 12 to 16 bits (from 2048 to 65535)
11110xxx 10xxxxxx 10xxxxxx 10xxxxxx	4 byte(s) coding 17 to 21 bits (from 65536 to 2097151)

This idea could be applied up to 6 bytes but UTF-8 sets the limit to 4. This idea also allows the use of more bytes than needed to code a character but the UTF-8 forbids it.

Note: The UTF-8 representation over 4 bytes corresponds to a character code greater than 65535, which must not be used with the T07 program.

Example

Example of the UTF-8 encoding

Character	Character number	UTF-8 binary encoding
A	65	01000001
é	233	11000011 10101001
€	8364	11100010 10000010 10101100

In any UTF-8 character string, any 0 most significant bit byte encodes a US-ASCII character on a byte. The characters whose codes are included between 0 and 127 are therefore represented the same way as in ASCII (non-accentuated, capital and small letters, numbers and some frequent initials).

■ Practical consequences

The old systems using the ASCII 8 bit fonts may communicate with the T07 program, which uses 16 bit fonts. To allow this interoperability, 2 methods are possible:

- The ASCII and UCS tables are common for the characters numbered from 0 to 127. For these characters, compatibility is guaranteed.
- For other characters, UTF-8 encoding is used to specify the 16 bit character code by using the sequences of several 8 bit "characters", which can be managed by 8 bit systems.

Using the T07 program

As long as the program doesn't exchange data with the exterior, it uses the 16 native bit fonts. The user can benefit from extended linguistic support.

Manual editing of the marking files

The marking files (.tml files) in TML format (Technifor Marking Language) are saved in UTF-8 format. This format is automatically recognized when a file is opened with Note Pad (notepad.exe) in Windows (2000 or more recent).

For an exact display, select a compatible display font, such as "Arial Unicode MS".

When saving, make sure the UTF-8 format is well selected (especially when creating a new file).

Data reception/emission (RS232, telnet)

The characters received must be encoded in UTF-8. Characters emitted are encoded in UTF-8.

If a device sends to the machine characters in ASCII encoding, they are only recognized if their codes are included between 0 and 127. In this manner, this device may correctly receive the characters whose codes are included between 0 and 127.

To use other characters, these must be encoded in UTF-8.

Example: To send the "é" character, the device cannot use the ASCII encoding of the Latin 1 character page which assigns this character the code 130.

It must use UCS encoding which assigns it the code 133. In UTF-8, the code is written as follows: 11000011 10101001

It must thus send 2 bytes: 195 - 169.

DataMatrix

This format only allows the encoding of character strings of 8 bits. The internal strings of the program are thus converted in UTF-8 before being encoded in DataMatrix, which enables encoding of all 16 bit characters to be managed. The size of the DataMatrix needed for this encoding is greater than 8 bit character encoding as several 8 bit characters are needed to carry out UTF-8 encoding of a 16 bit character.

When the encoded characters have ASCII or UCS codes between 0 and 127, DataMatrix encoding is made in the classic way and the size of the DataMatrix generated is the same.

Unicode

Unicode is an international standard which defines a set of universal characters, as in the ISO/IEC 10646 standard. The Unicode character codes correspond to those in the ISO/IEC 10646 standard and the Unicode standard includes the ISO/IEC 10646 completely as a sub-set.

The Unicode standard adds to the ISO/IEC 10646 standard a representation model and complete word processing, by assigning to each character a set of standardized or informative properties and by accurately describing the semantic relations which may exist between several successive characters of a text. It also standardizes the processing algorithms which preserve semantics of transformed texts to a maximum, while spreading interoperability of the representation of these texts on heterogeneous systems.

This allows, for example, to specify the meaning of a text, so that two characters may be associated and form one, etc...

Unicode management is complex and is not currently implemented in the T07 program. In the future, certain Unicode rules will be added to the software, therefore allowing a partial support of Unicode according to needs.

4. Starting-up the program

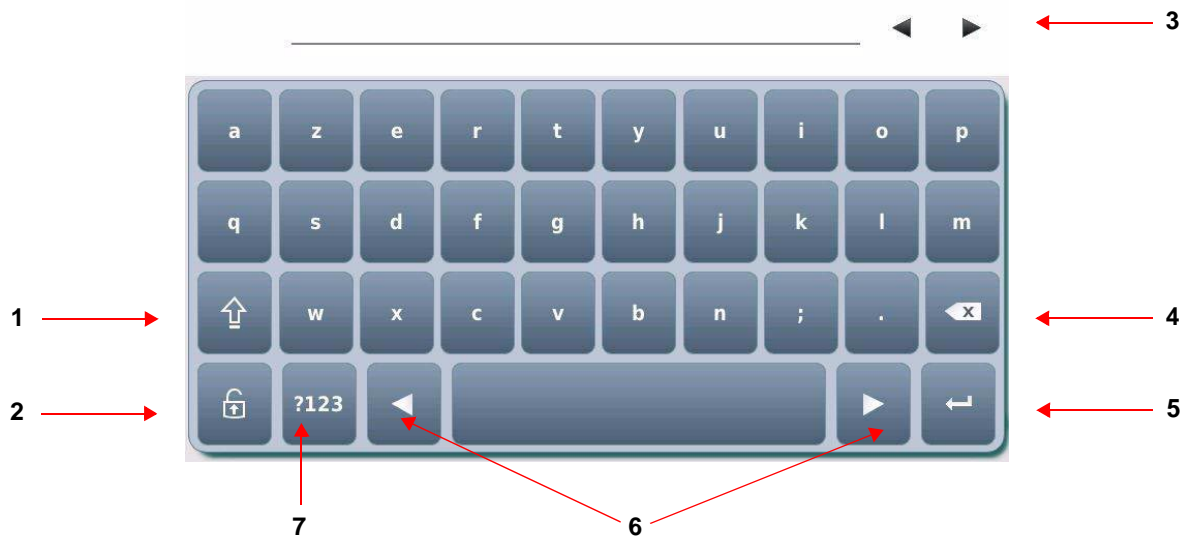
Switch on the machine.

A presentation screen will appear for a few seconds, followed by the main menu screen.

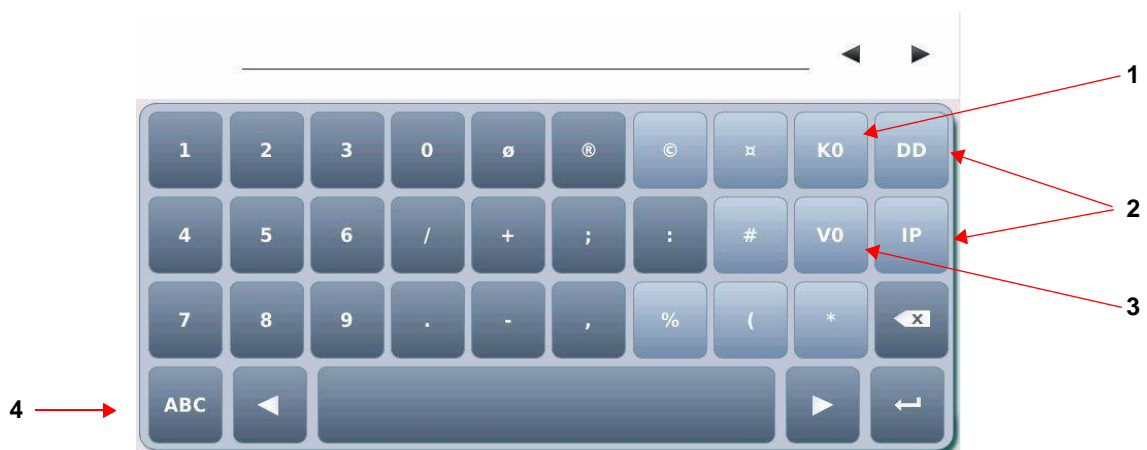
5. Using the touch screen

The machine operates via a touch screen. Press directly on the screen to access the various functions. Only use the touch screen with the finger (gloves may be worn) or the screen pen provided by Gravotech.

To enter text, a touch keypad appears on-screen. The touch keyboard contains 2 pages. The program adapts the keys of the keyboard to the keyboard language selected ("Machine configuration" menu - Language).

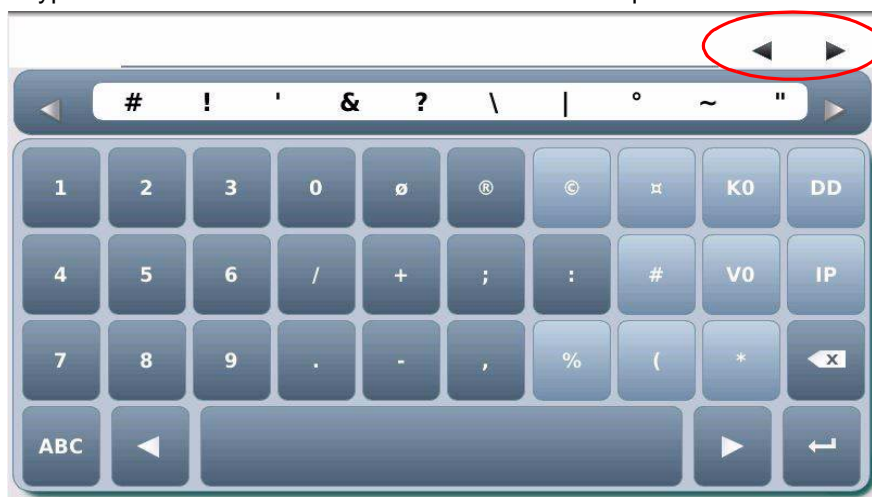


- 1 : Capital / lower case letters
- 2 : Caps lock
- 3 : Move to previous / next field
- 4 : Corrections
- 5 : Validation of the entered data / exit keypad
- 6 : Movement
- 7 : Next page: entering numeric values



- 1 : 10 counters
- 2 : List of key words
- 3 : 10 alphanumeric variables
- 4 : Return to previous screen

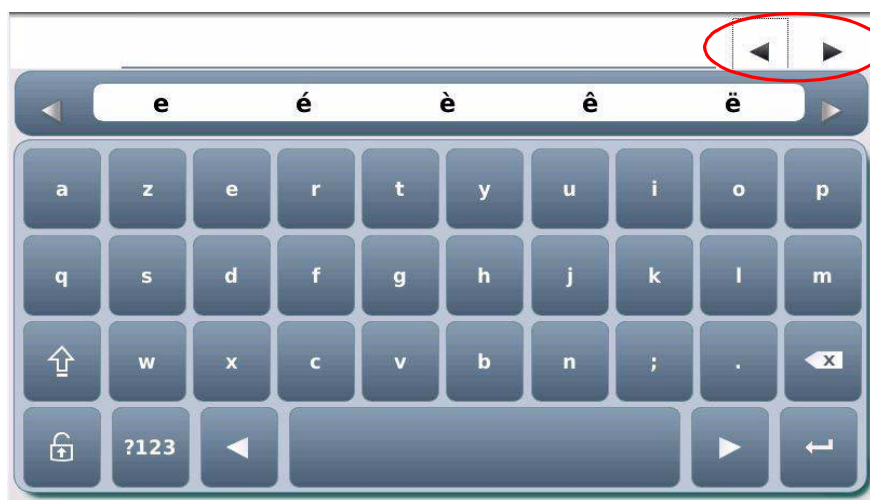
When a key represents more than one character: press and hold the required key. The characters appear in the bar at the top of the keypad. Use the arrows on the sides to select the required character.



To select an accented character: press and hold the required key. The characters appear in the bar at the top of the keypad. Use the arrows on the sides to select the required character.

Press and release: non-accented character

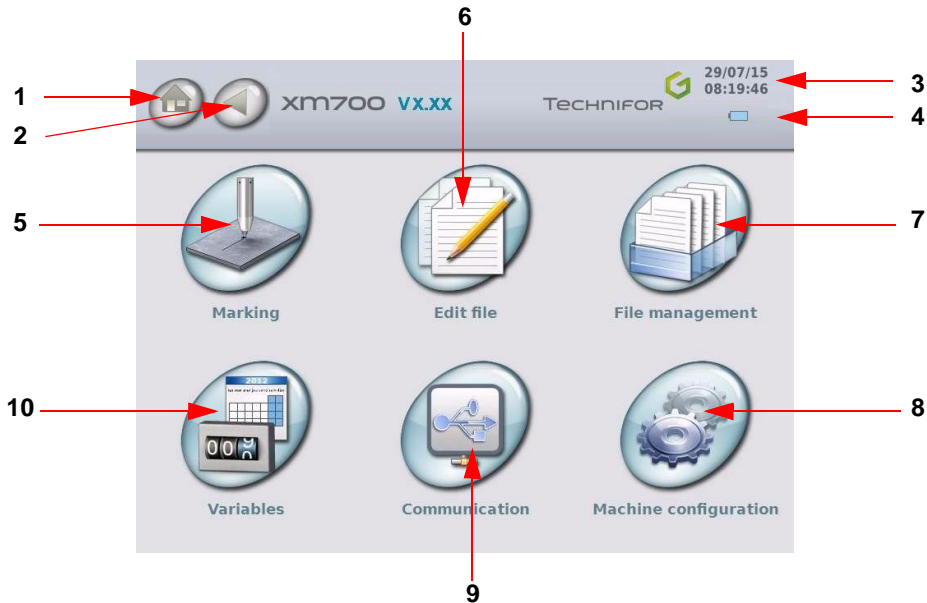
Press and hold: list of accented characters



6. The different program menus

■ Main menu

The main menu is composed of 6 menus, each represented by an icon.



- 1 : Icon used to return to the main menu, followed by the name of the menu. This icon appears several times in the program.
- 2 : Return to previous screen
- 3 : Date/Time
- 4 : Status of the battery
- 5 : "Marking" menu
- 6 : "Edit file" menu
- 7 : "File management" menu
- 8 : "Machine configuration" menu
- 9 : "Communication" menu
- 10 : "Variables" menu

The display at the top of the screen is fixed. To go back to the main menu or to the last screen, press the corresponding icon.

7. Definition of a marking file

A marking file contains all the data to be marked on a part.

It may be composed of one or several lines.

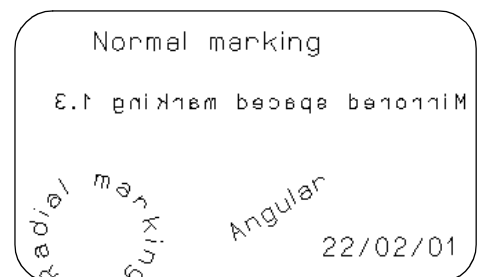
In Technifor jargon, a marking file is composed of marking blocks.

A marking block may contain alphanumeric text, a logo, a line, a square...

A marking file can contain anywhere from 1 to 100 marking blocks.

The marking file used to create this plate contains 5 marking blocks.

The following pages describe the preparation of various types of marking blocks.

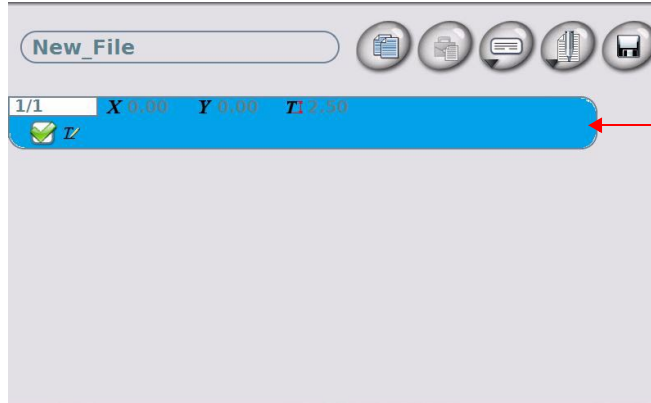


8. Creating a marking file

To create a new marking file, select the "Edit file" menu.

Select the "Create a new file" icon.

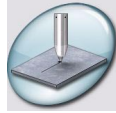
An empty block will appear. Double-click on a block to enter data. See: "Preparing a marking block".



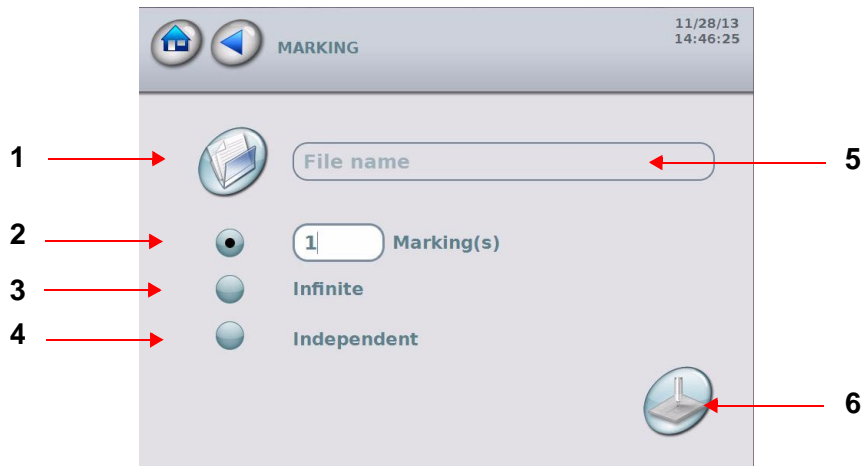
Used to access the details of a block.

"Marking" menu

Select this menu from the main menu, represented by the icon:



The screen below appears:



- 1 : Open file
- 2 : Marking "N times"
- 3 : "Infinite" marking
- 4 : "Independent" marking
- 5 : Name of the file to be opened
- 6 : "Start marking" icon

1. Marking "N times"

Used to mark the same marking file a set number of times
Select the number of markings requested. The default value is 1.
Select the "Open" icon. Choose the file to be marked.



- 1 : Quick search
- 2 : Select the files from the file tree structure.

Move to the "Start marking" icon. The screen below appears:



1 : "Start marking" icon

2 : "Stop marking" icon

3 : Status of marking

This screen provides information concerning the file to be marked and the status of the marking.

Start-up marking: move to the "Start marking" icon or press the trigger on the machine.

If the text to be marked is off-limits, an error message appears on-screen ("Machine configuration" menu - Off-limits control: activated parameter).

To stop marking, place the cursor on the "Stop marking" icon. Marking is stopped.

2. "Infinite" marking

It is a marking mode similar to "N times" except that the marking is repeated infinitely.

Choose the file to be marked. Select "Infinite".

Start-up marking: move to the "Start marking" icon or press the trigger on the machine.

If the text to be marked is off-limits, an error message appears on-screen ("Machine configuration" menu - Off-limits control: activated parameter).

To stop marking, place the cursor on the "Stop marking" icon. Marking is stopped.

3. "Independent" marking

Used to obtain markings identical to those in "Infinite" mode, the only difference being that when the machine is switched back on after an interruption during marking (reset, power outage...) marking is resumed by clicking on "Start marking".

Choose the file to be marked. Select "Independent".

Start-up marking: move to the "Start marking" icon or press the trigger on the machine.

If the text to be marked is off-limits, an error message appears on-screen ("Machine configuration" menu - Off-limits control: activated parameter).

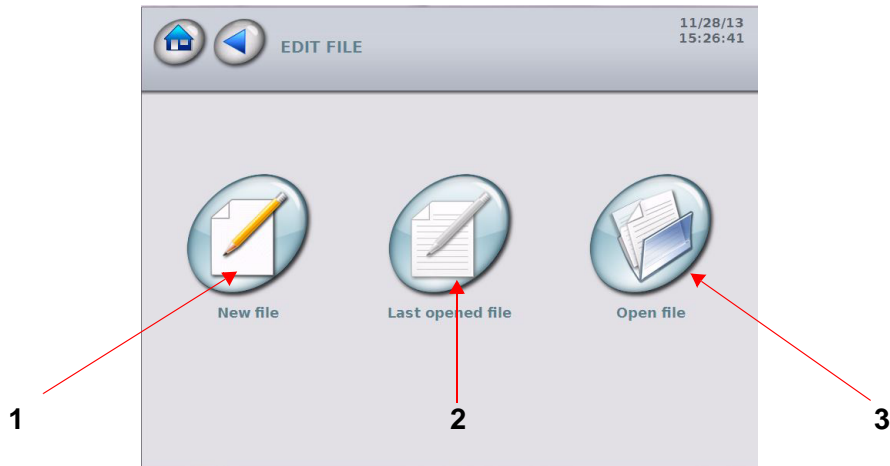
To stop marking, place the cursor on the "Stop marking" icon. Marking is stopped.

"Edit file" menu

Select this menu from the main menu, represented by the icon:



The screen below appears:



- 1 : Create a new marking file
- 2 : Open the last file used
- 3 : Open an existing file

■ Create a new marking file

Gives access to an "empty" marking file to prepare marking blocks. See: "Preparing a marking block".

■ Open the last file used

Used to directly open the last file used. If no files are stored in the memory, the explorer is empty.

Go to "Create a new file" to prepare blocks for a new file.

■ Open an existing file

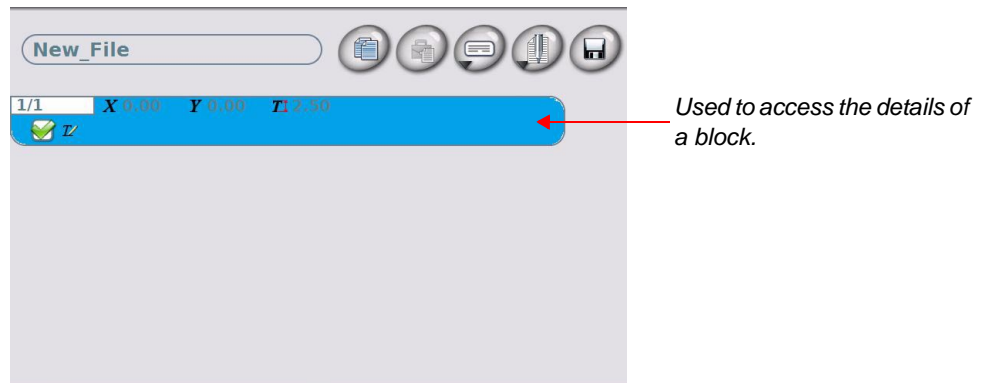
Used to open a specific file. The screen below appears:



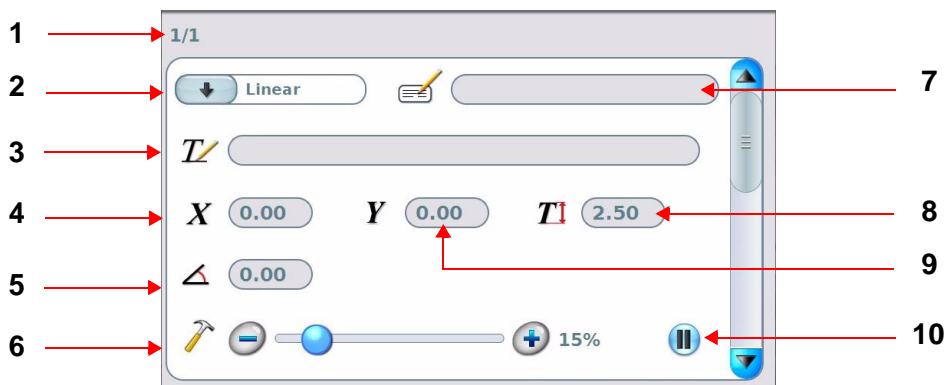
Choose the file to be opened.

1. Preparing a marking block

When a file is created, an empty block appears on the screen.



Double-click on a block to enter data. The screen below appears:



- 1 : Block number
- 2 : Type of marking
- 3 : Text to be marked
- 4 : X coordinate
- 5 : Text angle
- 6 : Marking force
- 7 : Block name (label)
- 8 : Character size
- 9 : Y coordinate
- 10 : Pause after a block

■ Block number

Each block is identified by a number. This number evolves automatically when blocks are added or deleted.

The first number indicates the number of the selected block. The second number corresponds to the total number of blocks in the file.

■ Block name (label)

Used to name each marking block. This optional, free access data entry field can be used to add information about the block or instructions for the operator which will be displayed during the marking of the block in question.

■ Type of marking

This field defines the type of marking to be carried out in the block being prepared. Certain types of marking involve new data entry fields.

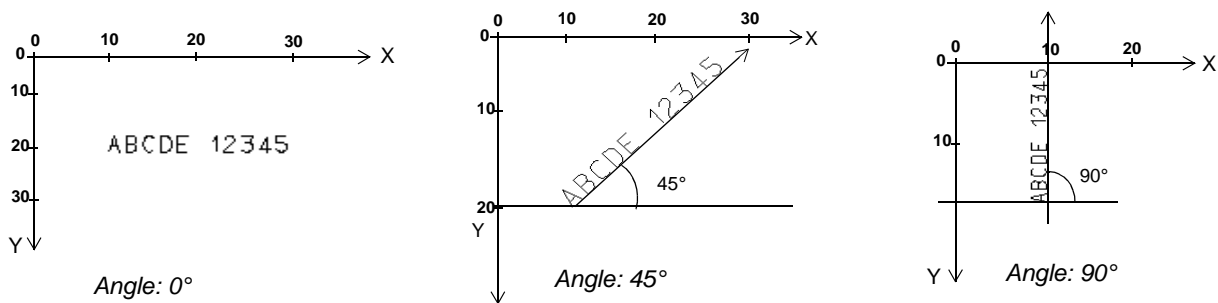
To drop down the menu, press the arrow. Select the option required. Linear marking is selected by default.

Linear marking

Used to mark straight lines of text at an angle.

To obtain a marking parallel to the X axis, set the angle at 0° in the corresponding (5) field.

To obtain a marking parallel to the Y axis, set the angle at 90° .



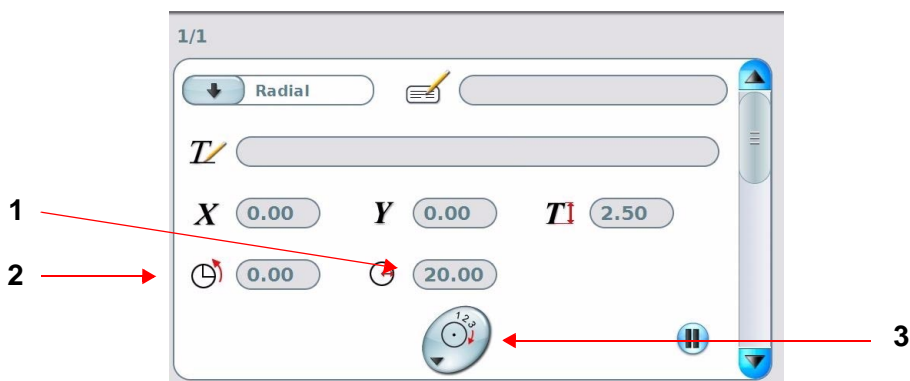
Radial marking

Used to obtain texts along the circumference of a circle. When this type of marking is selected, a new field (1) for entering the circle radius value appears on the screen.

The angle value in degrees corresponds to the positioning angle of the marking on the circle.

The X-Y coordinates correspond to the center of the base circle for the marking.

A new icon (3), used to choose the marking direction, appears at the bottom right side of the screen.



1 : "Radius" field

2 : Text to be marked: initial angle

3 : Marking direction icon

Clockwise marking / counter-clockwise marking

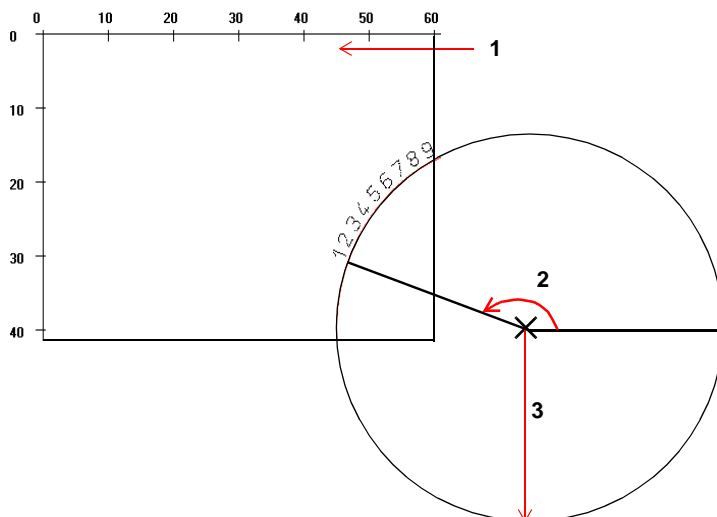
Marking direction icon: to drop down the menu, press the arrow. Select the option required. Clockwise marking is selected by default.

Initial angle	Clockwise marking	Counter-clockwise marking
Angle: 90° Centering		
Angle: 270° Centering		

Special situation

It is possible that the center of the circle is located outside the marking zone. In this case, the X and Y coordinates are superior or inferior to the marking area. Check that the text to be marked is within the marking area.

Example of a circle outside the marking area:



1 : Marking area: 60 mm (2.362 in) x 40 mm (1.575 in)

2 : Angle: 160°

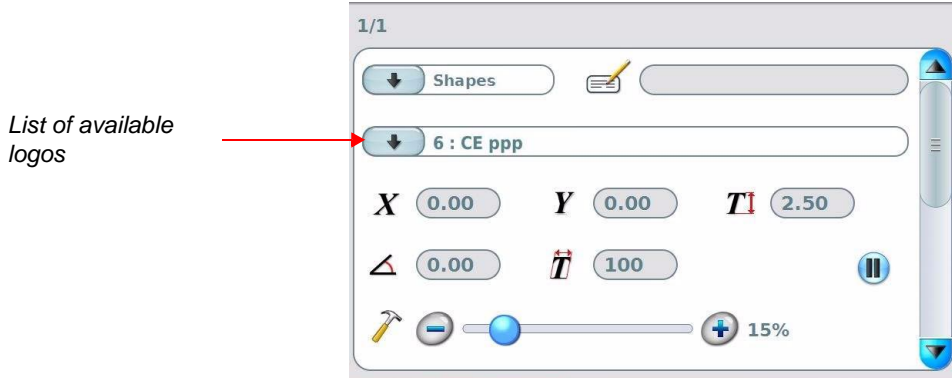
3 : Radius: 50 mm (1.969 in)

Shapes

• Logos

Used to mark the logos saved in the CCU.

The screen below appears:



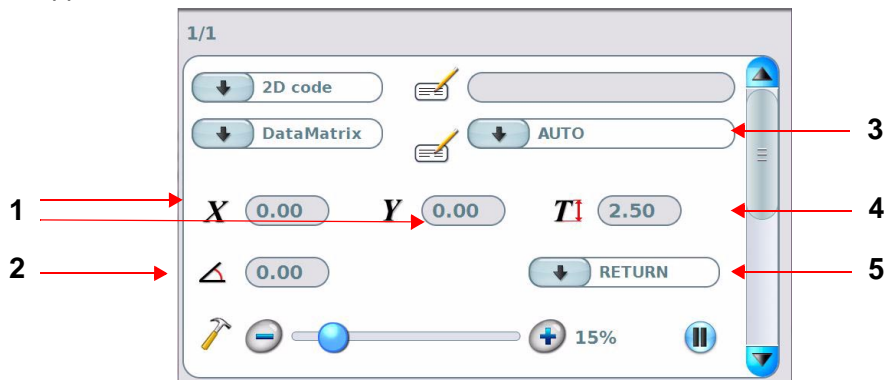
List of available logos: to drop down the menu, press the arrow. Select the option required.

2D code

• DataMatrix

Used to mark DataMatrix codes.

The screen below appears:



1 : X-Y coordinates

2 : Angle in degrees

3 : Matrix format (automatic mode)

4 : Size of the DataMatrix code (height)

5 : One way marking / Return marking / Spiral marking

Position and size of the DataMatrix code:

X-Y coordinates: the values entered in the X and Y fields determine the start position of the DataMatrix marking.

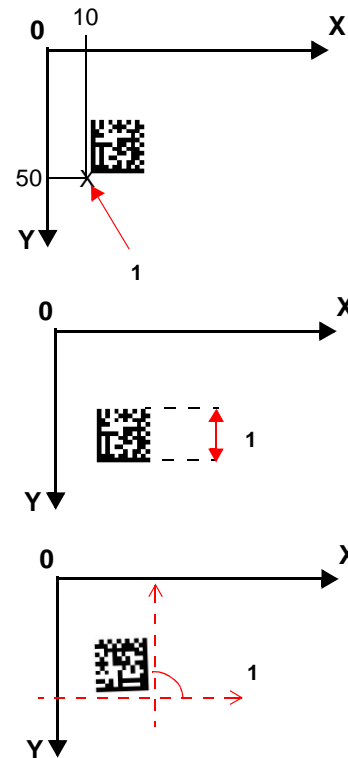
1 : The X represents the start marking point (X-Y coordinates).

Size of the DataMatrix code (height): the value entered in this field defines the height of the DataMatrix code.

1 : Size of the DataMatrix code

Angle: the value entered in this field determines the angle in degrees along which the DataMatrix code is marked.

1 : Angle in degrees



Note

To maintain a high marking quality, the angle value must be a multiple of 90° (0°, 90°, 180°, 270°).

Matrix format:

Choose the "Auto" format to have the program calculate automatically the number of lines and columns necessary to encode the text to be marked.

One way marking / Return marking / Spiral marking:

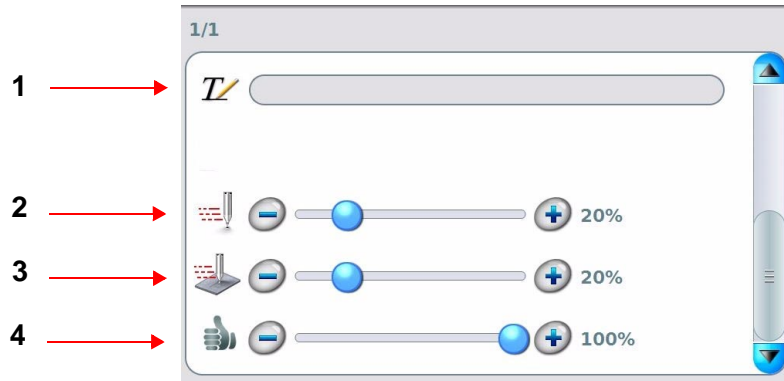
To drop down the menu, press the arrow. Select the option required.

One way marking: the stylus always restarts from the left at the beginning of each line. It favors mark quality over speed.

Return marking: the stylus marks the first line of the code from left to right, then the second from right to left, etc... It favors the marking speed.

Spiral marking: marking starts with the "L" of the code then the data zone is marked in a spiral. This marking mode can reach a high speed without the marking quality deteriorating.

To enter other information, use the scroll bar.



- 1 : Text to be marked
- 2 : Movement speed
- 3 : Marking speed
- 4 : Marking quality

Text to be marked:

Insert the text to be encoded in DataMatrix. See: Text to be marked

Movement speed - Marking speed - Marking quality

See page(s) 33

Functions

Used to access to certain automation functions, operations on the variables, etc.
Some functions are optional.

For a detailed description of the marking functions: See: Functions

■ Text to be marked

Enter the text to be marked in the appropriate block. The text may be composed of:

- capital / lower case letters
- numbers
- key words

The maximum number of characters per block is 255.

The characters that can be marked depend on the font.

To enter text, a touch keypad appears on-screen. See: Using the touch screen



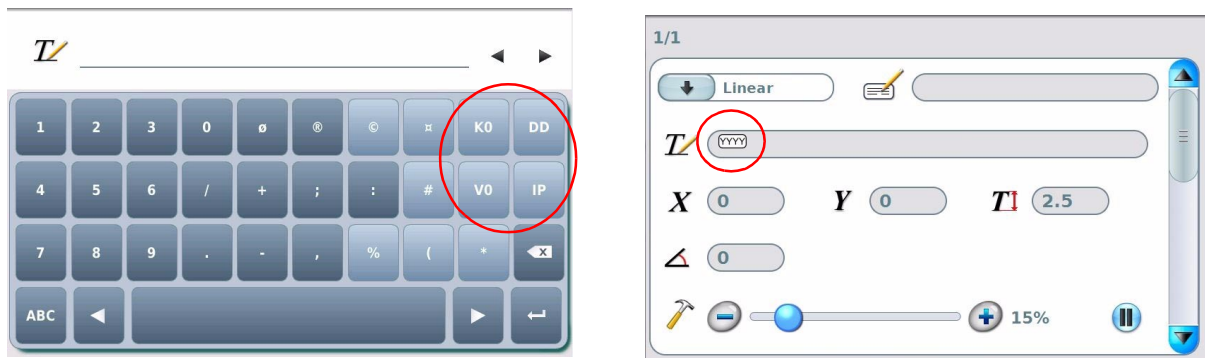
Key words

Key words are codes interpreted by the program. They are not actually marked but rather "recorded" before marking.

It is possible to define several keywords in the same text area.

Insertion of a key word in the "Text" field: Hover over the "Text" field.

To enter text, a touch keypad appears on-screen. The keywords are listed on page 2 of the keypad (see: Using the touch screen). Select the option required. The selected keyword appears in the "Text" field.

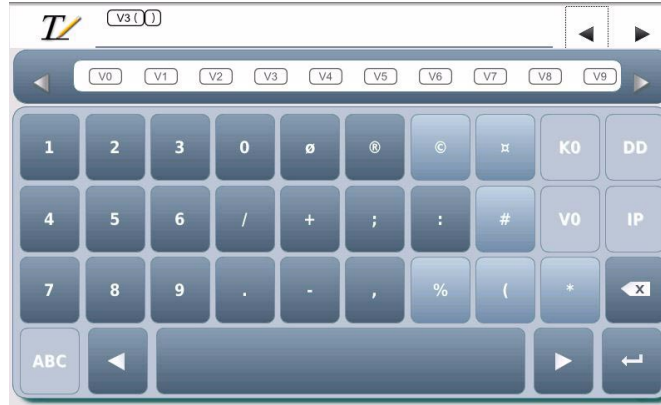


The keywords are indivisible units. When a keyword is inserted, it appears in a frame, it is impossible to delete part of a keyword. Each keyword is considered a single character.

For Kn - Vn keywords, select the number of the variable (K0 - K9, V0 - V9).

Splitting a variable

A portion of the contents of a variable may be selected and marked. When a variable is inserted in text, the screen below appears:



To mark all the content of the variable, leave the brackets empty.

To mark part of the content of the variable, indicate between brackets the first and last character to take into account, separated by a semi-colon (;).

Characters (syntax: Vn[a;b])

Possible values	Meaning	Note
N	N character	$0 < N < 256$
0	last character	
0!	last character (not included)	
&u	first character for which the Unicode is <i>u</i>	
&u!	first character for which the Unicode is <i>u</i> (not included)	
#u	last character for which the Unicode is <i>u</i>	
#u!	last character for which the Unicode is <i>u</i> (not included)	
%u	first character for which the Unicode is not <i>u</i>	$0 < u < 65536$
%u!	first character for which the Unicode is not <i>u</i> (not included)	
*u	last character for which the Unicode is not <i>u</i>	
*u!	last character for which the Unicode is not <i>u</i> (not included)	

"Edit file" menu

Examples:



Contents of variable V3: "7 0€ 2\$ 4b00z"

Marking obtained: " 0€ 2\$ "

It is possible to mark the content of a variable from right to left.

The 0 number represents the end of the variable.

Characters	7	Space	0	€	2	\$	Space	4	b	0	0	z
Code: Unicode	55	32	48	8364	50	36	32	52	98	48	48	122

Examples	Result
V0[]	7 0€ 2\$ 4b00z
V0[1;0]	7 0€ 2\$ 4b00z
V0[0!;1]	00b4 \$2€ 0 7
V0[4;10]	€ 2\$ 4b0
V0[8;3]	4 \$2€ 0
V0[&50;10]	2\$ 4b0
V0[&50;&98!]	2\$ 4
V0[&48;0]	0€ 2\$ 4b00z
V0[4;&98]	€ 2\$ 4b
V0[#32!;0]	4b00z
V0[%55!;*122]	0€ 2\$ 4b00
V0[&8364!;*122!]	2\$ 4b0

Note: If it is not possible to determine the result (string too short, character sought absent, etc.), the result is an empty string.

List of key words

Key words	Definition	Marking
DD	number of the day in the month (from 01 to 31)	09 - for the 9th day in the month
MM	month number (01 to 12)	05 - for the month of May
YYYY	year in 4 digit(s)	2007
YY	year in 2 digit(s)	07
Y	year in 1 digit(s)	7
hh	hours (00 to 23)	12 - for 12 h 28 min 35 sec
mm	minutes (00 to 59)	28 - for 12 h 28 min 35 sec
m	first number for block of ten minutes (0 to 5)	2 - for 12 h 28 min 35 sec
ss	seconds (00 to 59)	35 - for 12 h 28 min 35 sec
WW	week number (01 to 53)	01 - for January 3 2001
CCC	number of the day in the year (001 to 366)	028 - for January 28 2001
HS	time interpretation code	
DS	interpretation code for the day of the week	
JS	interpretation code for the day of the month	
MS	interpretation code for the month	
YS	interpretation code for the year	See: ""Variables" menu"
Kn	interpretation code for the counters	
Q	interpretation code for shifts according to time block	
Vn	interpretation code for variables	
Vm	last text marked	
MAC	MAC address	
IP	IP address	
SN	serial number	
CM	number of markings already carried out	
NM	number of markings to execute	

■ X-Y coordinates

The X-Y coordinates determine the position of the text in the marking area. They are given:

- in millimeters or in inches, depending on the unit chosen
- with an accuracy of 0.01 mm (0.01 in)
- in absolute value with relation to the origin

■ Character size

The "Size" field defines the actual height, in either millimeters or inches, of characters marked in capital letters.

The size can range from 0.5 mm (0.02 in) to 45 mm (1.772 in) (with an accuracy of 0.01 mm (0.01 in)).
The default value is 2.5 mm (0.10 in).

■ Text angle

Used to define the angle at which the text is marked. See: "Linear marking".

The default value is 0°.

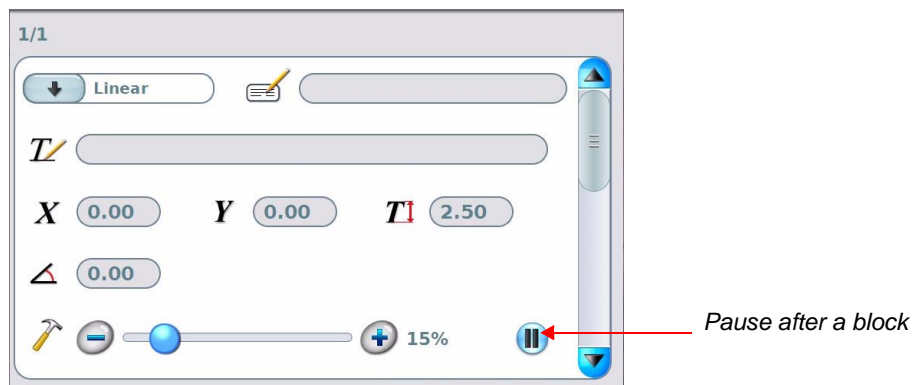
■ Marking force

The width and depth of the marked line varies with the defined value.

The higher the force, the deeper the mark. This value is expressed as a percent. The default value of the "Force" area varies according to the machine's configuration.

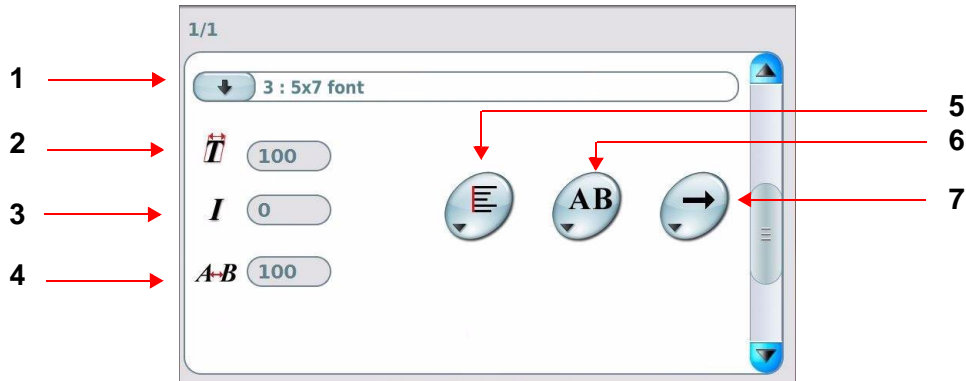
■ Pause after a block

To activate the pause after a block, press the corresponding symbol.



When this function is activated, the machine pauses after the block concerned.

To enter other information, use the scroll bar.



- 1 : Character font
- 2 : Compression
- 3 : Inclination
- 4 : Spacing
- 5 : Alignment
- 6 : Marking effects
- 7 : Marking direction

■ Character font

The various fonts saved are identified by a number followed by their name. Go to the font area to select the character font to be used in the marking block being prepared.

List of available fonts:

- 0: continuous action
- 1: Standard EM font
- 3: 5x7 font
- 8: Low density EM font
- 9: Medium density EM font
- 10: High density EM font

Note: For the list of characters available, contact Gravotech.

■ Compression

Used to modify character width without modifying their height. The compression factor modifies the space between the characters. This value is expressed as a percent. It must be between 25% and 500%, with increments of 1%. The default value is 100%.

Compression 50%: —————> ABCDE
Compression 100%: —————> ABCDE
Compression 150%: —————> ABCDE

■ Inclination *I*

Used to determine the value, in degrees, of the inclination angle of the characters in relation to the vertical. It must be between 0° and +75°, with increments of 1°. The default value is 0°.

Inclination 0°: —————> ABCDE
Inclination +30°: —————> *ABCDE*

■ Spacing *A→B*

Used to modify the inter-character spacing, without changing their width or height. This value is expressed as a percent. It must be between 25% and 500%, with increments of 1%. The default value is 100%.

Spacing 50%: —————> ABCDE
Spacing 100%: —————> ABCDE
Spacing 150%: —————> ABCDE

■ Alignment

Used to align the text to the left, right or center.

In case of left alignment, the value of X corresponds to the beginning of the text to be marked.
In case the text is centered, the value of X corresponds to the center of the text to be marked.
In case of right alignment, the value of X corresponds to the end of the text to be marked.
In radial mode, text justification is done in relation to the start angle.

By default, the text is aligned to the left.

"Edit file" menu

C

Examples

Alignment	Result		
	Linear marking Angle: 0°	Linear marking Angle: 45°	Radial marking Clockwise marking
Left alignment	<p>X = 20 mm</p>	<p>X = 20 mm</p>	<p>X = 20 mm Angle: 90°</p>
Centering	<p>X = 20 mm</p>	<p>X = 20 mm</p>	<p>X = 20 mm Angle: 90°</p>
Right alignment	<p>X = 20 mm</p>	<p>X = 20 mm</p>	<p>X = 20 mm Angle: 90°</p>

The X represents the start marking point (X-Y coordinates).



The text to be marked may become off-limits if the X or Y value, or the character size, is too large. To correct this anomaly, reduce or increase one or the other of these values.

"Edit file" menu

■ Marking effects



Several marking directions are proposed in order to adapt marking to the specificities of certain parts. In radial mode, only the normal and mirror effects are available.

Marking obtained:

Marking effects	Result		
	Linear marking Angle: 0°	Linear marking Angle: 35°	Radial marking Centering Angle: 90°
Normal AB			
Mirror: symmetry along Y AB			
Inverted: symmetry along X-Y AB			
Reflected: symmetry along X VB			

The X represents the start marking point (X-Y coordinates).

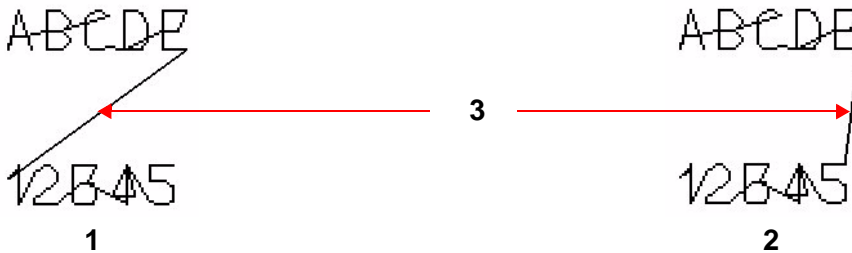
■ Marking direction



Used to choose the movement direction of the stylus during marking, from left to right or from right to left. This function is used to optimize marking time and must not be confused with the direction of writing (marking effects).

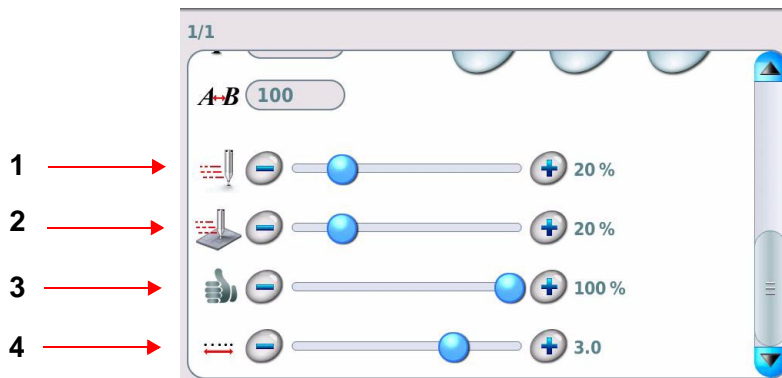
The default marking direction is from left to right.

In the following example, the marking direction from right to left reduces the movements of the stylus between the first block and the second one.



- 1 : Marking direction from left to right for the 2 blocks
- 2 : Marking direction from right to left for the second block
- 3 : Segments of movement of the stylus

To enter other information, use the scroll bar. The screen below appears:



- 1 : Movement speed
- 2 : Marking speed
- 3 : Marking quality
- 4 : Dot density per millimeter (continuous action)

■ Movement speed

Used to determine the speed of the stylus when moving without marking.

This value is expressed as a percent. It must be between 0% and 100%, with increments of 1%. The default value is 20%.

■ Marking speed

Used to determine the speed of the stylus during the marking.

This value is expressed as a percent. It must be between 0% and 100%, with increments of 1%. The default value is 20%.

The faster the marking, the lower the quality. A very high quality marking requires a slow marking speed.

■ Marking quality

This value is expressed as a percent. It must be between 0% and 100%, with increments of 1%. The default value is 100%.

This value guarantees the best quality for a given speed. For faster marking, when quality is not the priority, this value can be reduced. In all other cases, it is recommended to use the default value. This is especially important for automated reading applications.

■ Dot density per millimeter (continuous action)

Used to define the number of dots per millimeter produced by the stylus, in electromagnetic.

Preference should be given to the use of electromagnetic dot by dot fonts. For marking certain characters, a continuous line font can be used. In this case, adjust the density of the points.

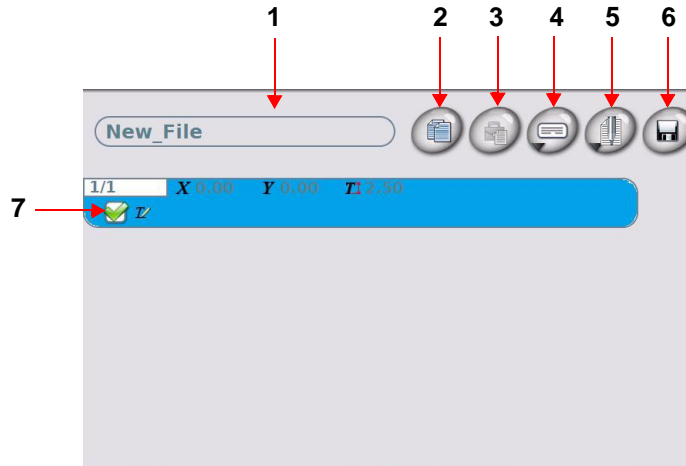
The higher the density, the closer the dots are to each other. The default value is 3.

As speed increases, the density of dots per millimeter becomes limited.

2. "Edit" menu sub-menus

When block preparation is complete, press the arrow at the top of the screen to validate the block and go back to the previous screen.

The program goes back to the marking file and the sub-menus are then accessible. They are used to edit the file in progress.



- 1 : File name
- 2 : "Copy" symbol
- 3 : "Paste" symbol
- 4 : "Edit" sub-menu
- 5 : "Marking" sub-menu
- 6 : Save the file in progress
- 7 : Activation / deactivation of the blocks

■ Copy/paste a block

Used to copy a block with its characteristics.

Select the block to be copied. Press the "Copy" symbol. Hover over the block after which the copied block is to be pasted. Press the "Paste" symbol. The stored block is pasted after the selected block.

■ "Edit" sub-menu

• Add a block at the end of the file

Used to add "empty" marking blocks at the end of a file.

"Edit" sub-menu: select "Add". The program then automatically updates the numbering.

• Insertion of a block before the selected block

Used to insert an "empty" block before the selected block.

"Edit" sub-menu: select "Insert". The program then automatically updates the numbering.

• Deleting the selected block

Deletes a marking block

"Edit" sub-menu: select "Delete". The program then automatically updates the numbering.

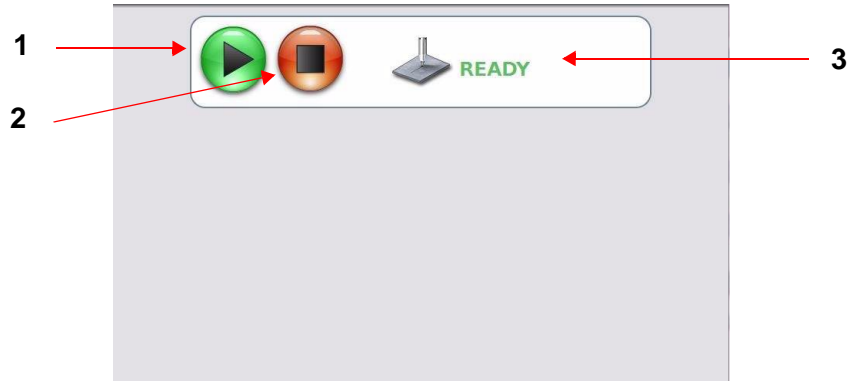
■ "Marking" sub-menu

Used to access certain functions of the "Marking" menu directly from the file.

• Marking a file

Used to mark the file in progress "one time".

The screen below appears:



1 : "Start marking" icon

2 : "Stop marking" icon

3 : Status of marking

This screen provides information concerning the file to be marked and the status of the marking. Move to the "Start marking" icon.

See: "Marking "N times"".

• Simulation

Used to simulate the marking file. Simulation consists in performing the marking without activating the stylus.

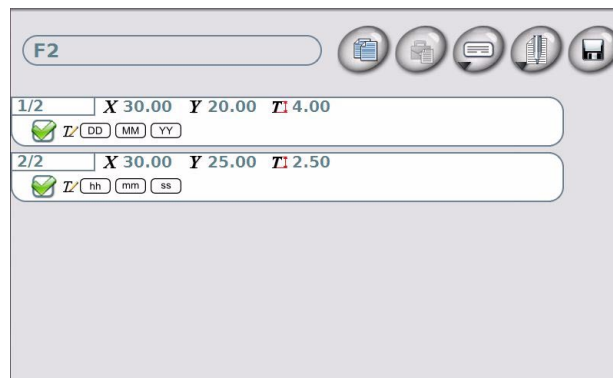
Simulation is carried out as a "one time" marking. See: "Marking a file".

• Preview

Used to:

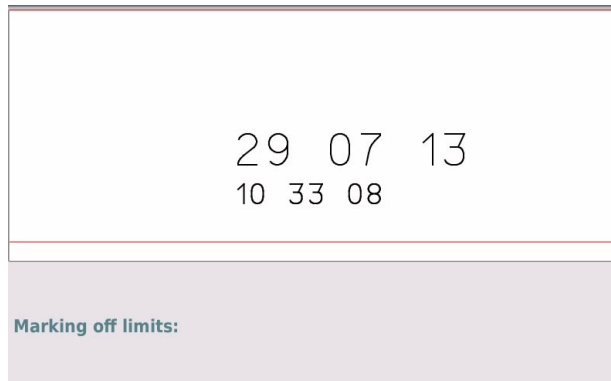
- screen preview of all data entered in the marking file.

Example of a file:



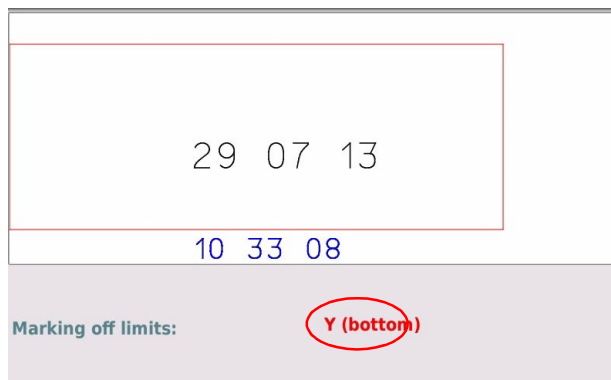
Screen preview of the marking file:

"Marking" sub-menu: select "Preview". The screen below appears:



Marking area: the marking field is represented by a red frame.

If the text to be marked is off-limits, a warning message is displayed at the preview, even when the off-limits control is deactivated.



Return to the marking file and modify the coordinates.

■ Save the file in progress / save as the file in progress

The name of the file is displayed in the top left corner of the screen. By default, the current file is named "New_File".

Enter the filename. Press the "Save" symbol.

If a file is not saved or has been modified, the program prompts the user to save before exiting:

Yes: Save selected file

No: Exit the file without saving

Cancel: Return to the marking file without validating modifications

■ Activation / deactivation of the blocks

Used to deactivate a block from a marking file. A deactivated block is not marked.

To deactivate a block, uncheck the block box. A deactivated block is not checked off, an activated block is checked off.



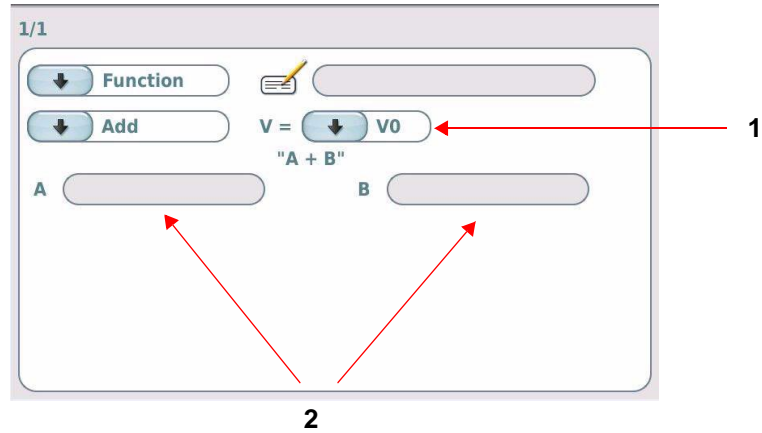
1 : Activated block
2 : Deactivated block

Used to access to certain automation functions, operations on the variables, etc.
Some functions are optional.

1. Add (optional)

Used to add numerical values together.

The screen below appears:



1 : Number of the variable
2 : Entering numeric values

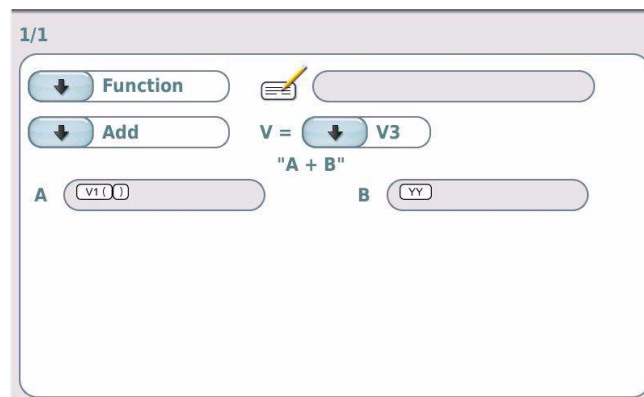
Number of the variable: number of the variable in which is memorized the character string (result of the operation)

Entering numeric values: enter the data to be added together.

This field may contain set text, key words (date, hour...), the content of a counter, etc. The values must be numerical. If they are not, an error is generated. Marking is stopped.

In order to subtract, enter the character "-" before the value.

Example



A = contents of variable V1: 123

B = year in 2 digits: 15

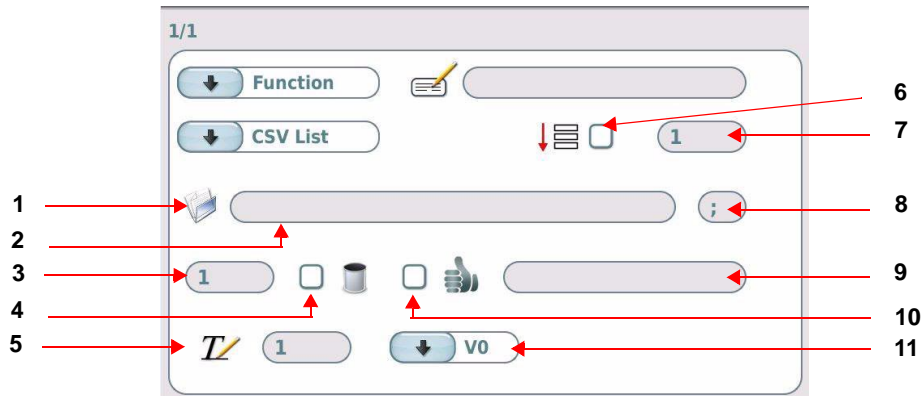
$A + B = 123 + 15 = 137$

Storage of 137 in the variable V3

2. CSV List (optional)

Used to extract data from Excel .csv files (processing the file line by line).

The screen below appears:



- 1 : Open a file
- 2 : File name
- 3 : Number of line to start
- 4 : Delete the line used
- 5 : Read column
- 6 : Activate the number of batches.
- 7 : Setting the number of batches
- 8 : Selecting the field separator
- 9 : Marker of the line used
- 10 : Add a marker
- 11 : Number of the variable

Import the file into the machine. See: USB key: data importation

Select the file using the icon "Open file" or enter its name in the "File name" field. This field may contain set text, key words (date, hour...), the content of a counter, etc.

Note: Add "csv" format at end of file name.

Number of line to start: select the start line where the search starts.

Delete the line used: box ticked - the line is deleted from the file after use.

Read column: select the column containing the data to use.

Setting the number of batches: activate the number of batches. Select the number of markings requested.

Selecting the field separator: select the field separator.

Add a marker: box ticked - a marker is added to the end of the line after use.

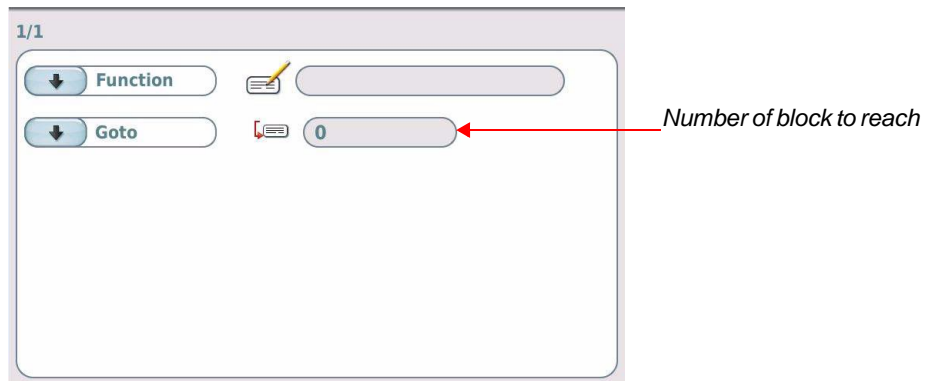
Marker of the line used: select the end-of-line marker to use.

Number of the variable: number of the variable in which is memorized the character string

3. Goto

Used to go directly to the required block in the same marking file.

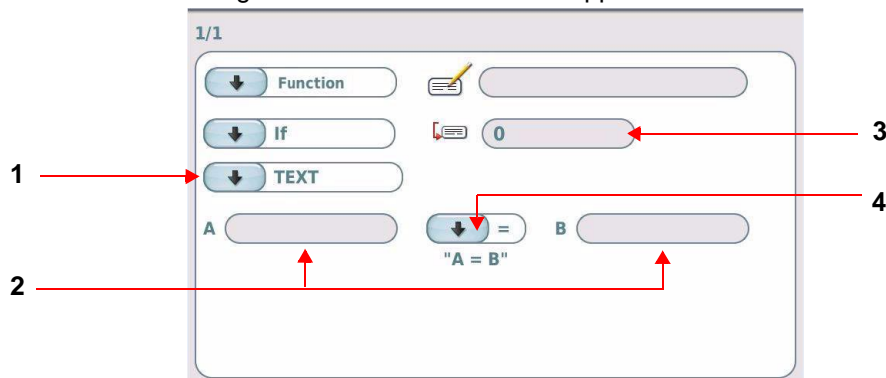
The screen below appears:



The program immediately starts marking the block indicated.
 You cannot indicate an earlier block number in the file (no going backwards).
 To reach the end of the file, enter the value 0.

4. IF (optional)

Used to add a condition for marking the file. The screen below appears:



- 1 : Type of condition
- 2 : Values to compare
- 3 : Number of block to reach (if the condition is not fulfilled)
- 4 : Type of comparator

Type of condition: select the condition type.

- TEXT: comparing 2 text fields - this field may contain set text, key words (date, hour...), the content of a counter, etc.
- LENGTH: comparison of 2 string lengths - this field may contain set text, key words (date, hour...), the content of a counter, etc.
- NUMERICAL: comparison of 2 numeric fields - the values must be numerical.

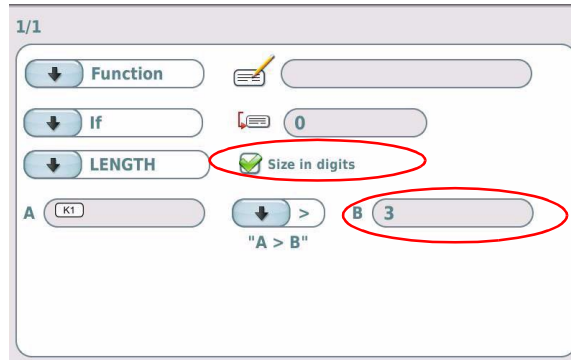
Note

LENGTH: the screen displays 1 new field(s): Size in digits.

Box ticked: the program compares the number of characters in the first value with the number indicated in the second value.

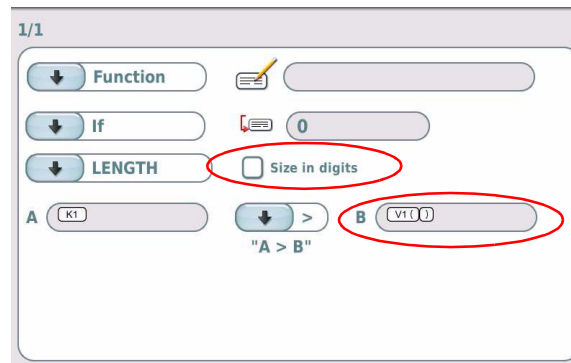
Box not ticked: the program compares the number of characters in the first value with the number of characters in the second value.

Example 1:



When the content of the counter K1 is greater than 3 characters: the file marking continues normally.

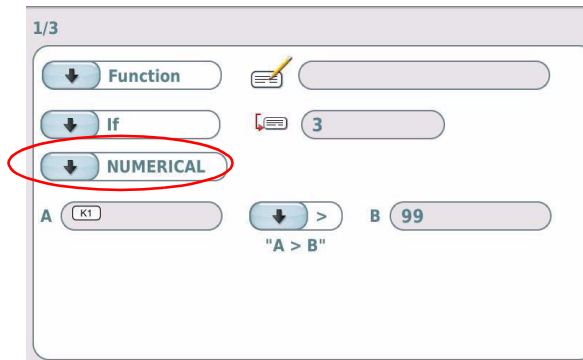
Example 2:



Contents of variable V1: 123

When the content of the counter K1 is greater than 3 characters (length of V1): the file marking continues normally.

Example 3:



When the content of counter K1 is not greater than 99: the program immediately starts marking the block indicated (block 3).

Values to compare: input the values to compare.

Type of comparator: select the type of comparator for the 2 values.

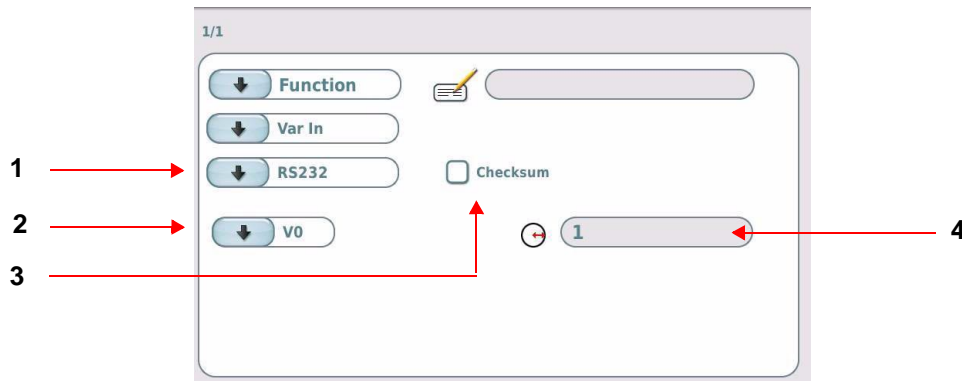
Number of block to reach (if the condition is not fulfilled):

- if the condition is not fulfilled: the program immediately starts marking the block indicated. You cannot indicate an earlier block number in the file (no going backwards).
- if the condition is fulfilled: the file marking continues normally.

5. Var in

Allows reception in a variable of a character string via RS232 link or USB keyboard.

The screen below appears:



1 : Input method

2 : Number of the variable in which is memorized the character string

3 : Checksum

4 : Batch: number of markings to be carried out with this variable before proposing to re-program the variable

Note: The "Raw data" box must be ticked in the "Communication" menu - "Serial management". See page(s) 62

Select the data input method (RS232, keyboard).

Select the number of the variable in which is memorized the character string received.

Choose the number of markings that have to be made before the reception of the following data:

- 1: data reception required at each marking.
- 0: data reception required once at the first marking (even if the file is to be marked several times).

During the marking of a "Var in" block, the machine emits an data acquisition request (U<CR>) on the RS232 communication and expects an answer from the connected peripheral.

The peripheral must answer by a series of bytes ending by <CR>.

The machine answers V<CR> if successful or T<CR> if failed.

If successful, the character string is stocked in the specified variable.

If failed, the machine waits for a new data transmission.

The data acquisition has succeeded when the checksum received is equal to the checksum calculated or when the checksum is not used.

The checksum is added at the end of the message. It is represented by 2 consecutive characters (0 to F, in hexadecimal mode).

The emitter calculates the checksum based on the useful data in the transmitted message.
The receiver also calculates the checksum based on the useful data transmitted, and compares this new checksum to the one received.

The checksum is calculated using an "exclusive Or" (XOR) between all the characters contained in the useful part of the message.

- emission checksum = "character 1 emitted" XOR "character 2 emitted" XOR ... "character n emitted"
- receiving checksum = "character 1 received" XOR "character 2 received" XOR ... "character n received"

Example

Given the message "ABCD":

Checksum calculation: 65 XOR 66 XOR 67 XOR 68

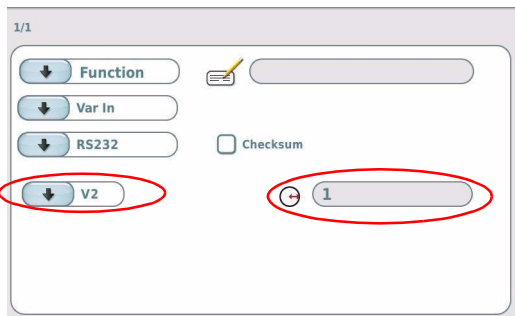
Calculation	Characters	Decimal	Binary	Result
	A	65	01000001	
XOR	B	66	01000010	
				00000011
XOR	C	67	01000011	
				01000000
XOR	D	68	01000100	
				00000100

The result of the message ABCD is: 00000100 in binary, or 04 in hexadecimal mode.
The emitter sends the message ABCD04.

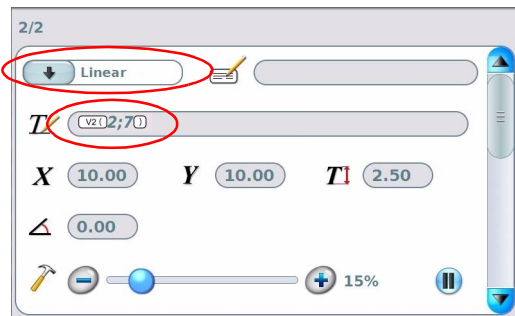
Var in: use in a marking file

Example:

Block 1:



Block 2:



The text is saved in variable V2.

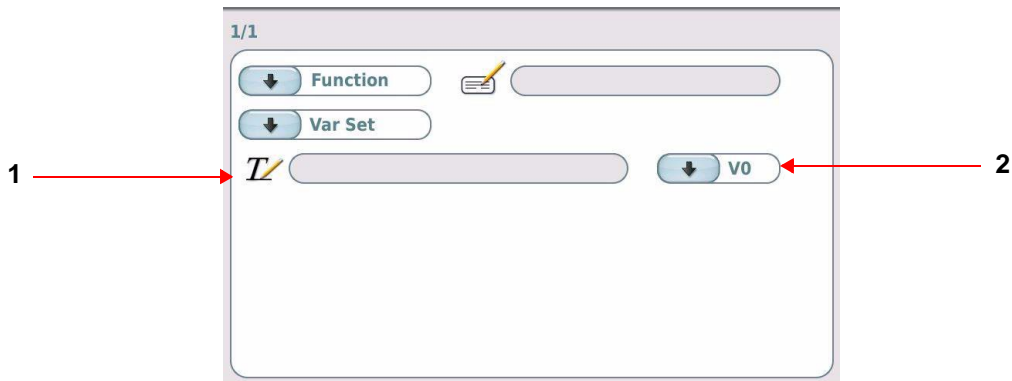
To mark the memorized content in the V2 variable, create a linear marking block containing the keyword V2. See: "Key words"

Only the character string included between characters 2 and 7 is marked. See: "Splitting a variable"

A request for data acquisition is necessary each time the file is marked because the batch is set at 1.

6. Var set

Used to memorize a character string in a variable.
The screen below appears:

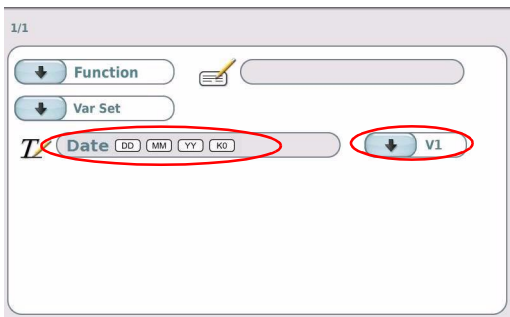


- 1 : Entering text in a selected variable
- 2 : V: number of the variable in which the "Text" field is saved, from V0 to V9

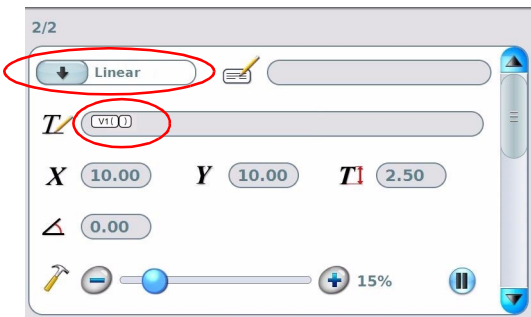
This field may contain set text, key words (date, hour...), the content of a counter, etc.

Example:

Block 1:



Block 2:



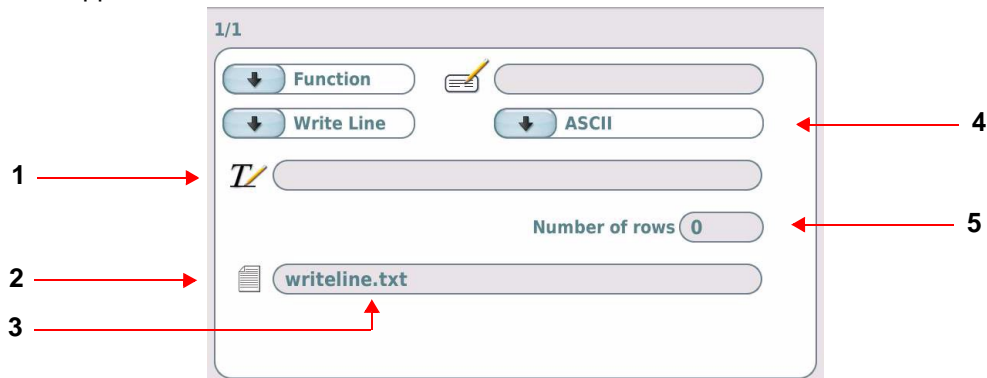
To mark the memorized content in the V1 variable, create a linear marking block containing the keyword V1. See: "Key words"

Marking obtained: Date 15 12 13 001

7. Write Line (optional)

Used to write a line of text to a log file.

The screen below appears:



- 1 : Text to write to the file
- 2 : Open a file
- 3 : File name
- 4 : File format
- 5 : Maximum number of lines in the file

Text: this field may contain set text, key words (date, hour...), the content of a counter, etc.

Select an existing file or name the file. This field may contain set text, key words (date, hour...), the content of a counter, etc.

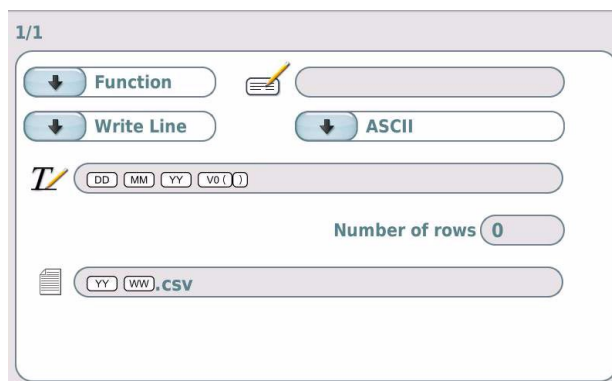
Select the file format:

- ASCII: characters between 32 and 127
- UTF-8
- HEADER + UTF-8: with UTF-8 header in 3 characters

Select the maximum number of lines in the file. When 0 is selected, the new line is added at the end without restriction.

When the indicated number of lines is reached, the oldest line is deleted.

Example



Content of the log file:

- date
- variable contents

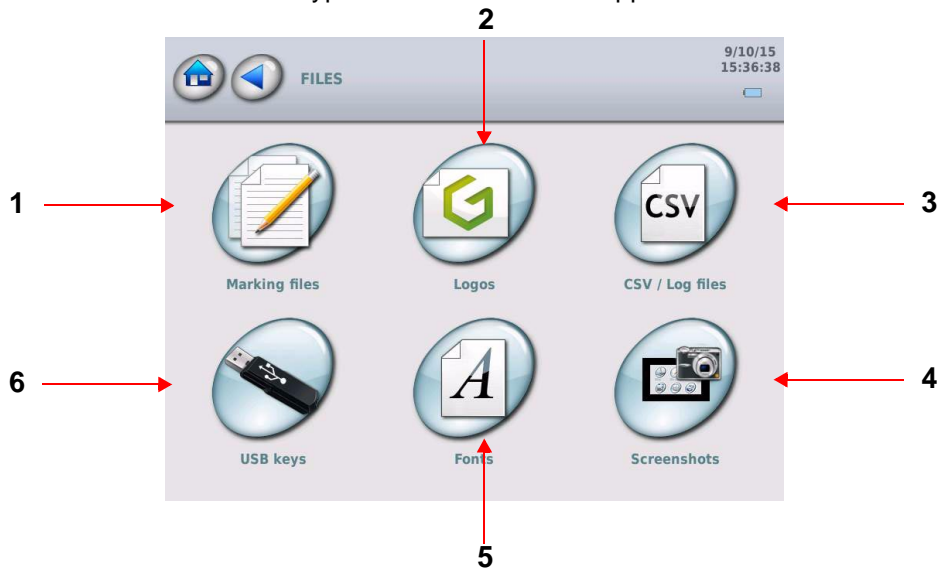
File name: in this example, a file is created each week (key words: YY WW).

"File management" menu

Select this menu from the main menu, represented by the icon:



Used to manage the machine's various file types. The screen below appears:

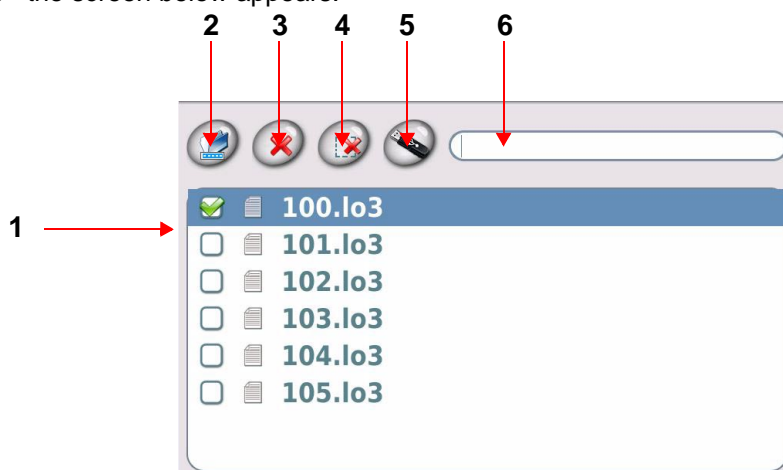


- 1 : Marking file management
- 2 : Logo management
- 3 : .csv file management / marking history management
- 4 : Screenshot management
- 5 : Font management
- 6 : USB key: data importation

1. File management

Select the desired file type.

Example: logos - the screen below appears:



- 1 : List of files presented in the machine
- 2 : Rename file(s)
- 3 : Delete file(s)
- 4 : Select all / unselect all
- 5 : Export file(s) (USB key)
- 6 : Quick search



The following explanations are valid for all file types.

To select a file or a folder, press its name.

Quick search: to find a file or a folder more quickly, enter its name or the first few letters in the "Search" field.

When a file is selected, it is checked.



Once the required file or folder has been selected, various options are available via the icons at the top of the screen.

■ Rename file(s)

Select a file or folder. Press the "Rename" symbol.
Rename the file as required (touch keypad).

■ Delete file(s)

Select a file or folder. Press the "Delete" symbol.

■ Select all / unselect all

Press the "Select all" or "Unselect all" symbol.

■ Exchange of files via USB key: export file(s)

It is possible to import and export certain files via USB key (tml - lo3 - po3 - csv - txt - png file system only):

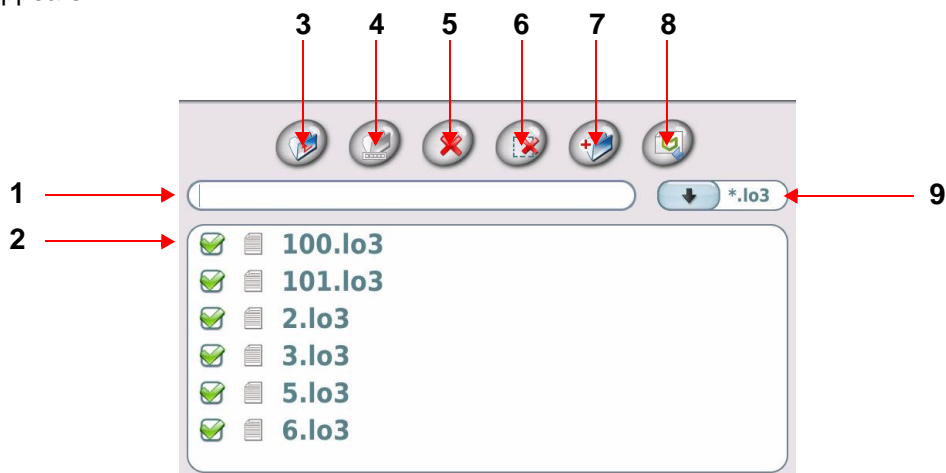
Insert a USB key into the USB port for download.

Select a file or folder. Press the "Export" symbol.

Import file(s): see below.

2. USB key: data importation

Used to import a file, from a PC or another marking machine for example, by downloading it from a USB key. The screen below appears:



- 1 : Quick search
- 2 : List of files on USB key
- 3 : Back to parent folder
- 4 : Rename file(s)
- 5 : Delete file(s)
- 6 : Select all / unselect all
- 7 : Add folder
- 8 : Import file(s)
- 9 : File type

To select a file or a folder, press its name.

When a file is selected, it is checked.



Quick search: to find a file or a folder more quickly, enter its name or the first few letters in the "Search" field.

To find a specific file format: select the file format:

- *.*: all formats
- *.tml: marking file
- *.lo3: logo
- *.po3: character font
- *.csv: .csv file
- *.txt: log file

To go back to parent folder if required: select the corresponding icon.

Once the required file or folder has been selected, various options are available via the icons at the top of the screen.

■ **Rename file(s)**

Select a file or folder. Press the "Rename" symbol.
Rename the file as required (touch keypad).

■ **Delete file(s)**

Select a file or folder. Press the "Delete" symbol.

■ **Select all / unselect all**

Press the "Select all" or "Unselect all" symbol.

■ **Add folder**

Select a directory. Press the "Add folder" symbol. An empty folder is created.

Rename the file as required (touch keypad).

■ **Import file(s)**

It is possible to import and export certain files via USB key (tml - lo3 - po3 - csv - txt - png file system only):

Select a file or folder. Press the "Import" symbol.

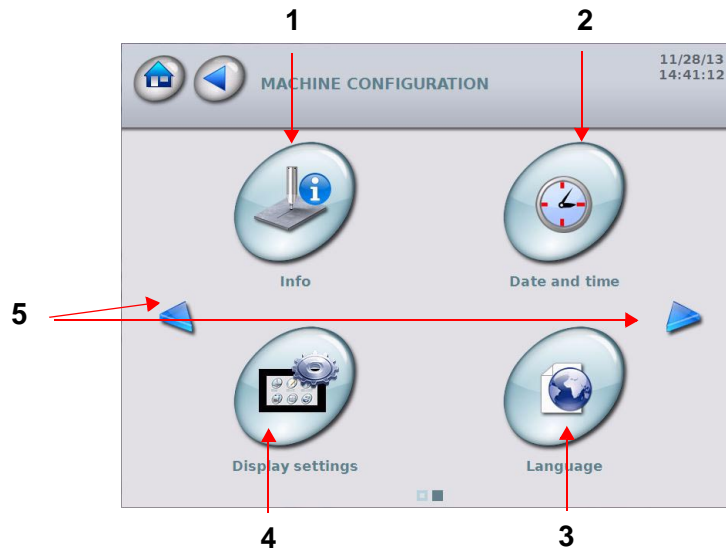
Export file(s): See: File management

"Machine configuration" menu

Select this menu from the main menu, represented by the icon:



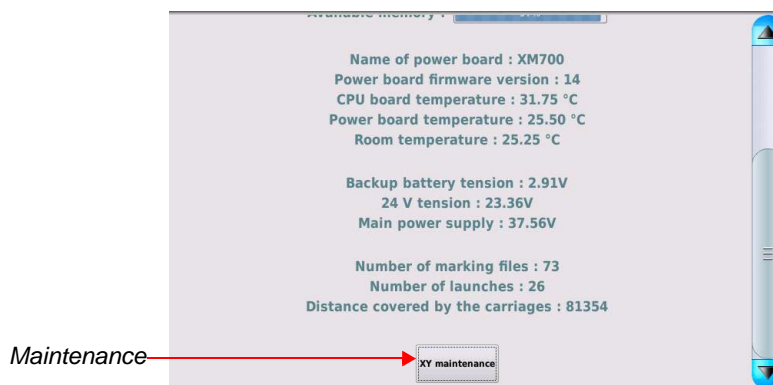
The screen below appears:



- 1 : "System info" menu
- 2 : Time and date settings
- 3 : Language
- 4 : Display settings
- 5 : Movement

1. "System info" menu

This menu contains technical information that can be communicated to the distributor or the technical support in case of problem.



The Maintenance icon allows to do some tests on the machine.

2. Time and date settings

Used to set the machine's internal clock. The screen below appears:



- 1 : Modifying the current month
- 2 : Number of the day in the month (from 01 to 31)
- 3 : Time modification field
- 4 : Viewing time in 12h format

To modify the current month, press the arrows.

Press on today's date.

Time modification field: use the + / - buttons.

Viewing time in 12h format: box ticked: The time displayed at the top of the screen is in 12-hour format (am-pm).



3. Language

Used to translate the program in different languages.

The language of the program and the language of the keyboard are chosen separately.

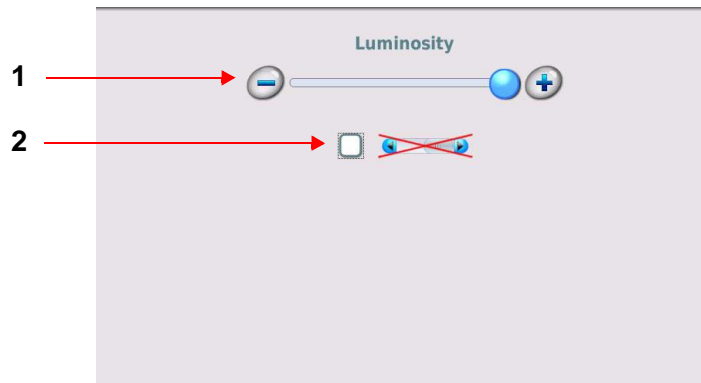


Select the option required.

The program adapts the keys of the keyboard to the keyboard language selected (touch keypad).

4. Display settings

The screen below appears:



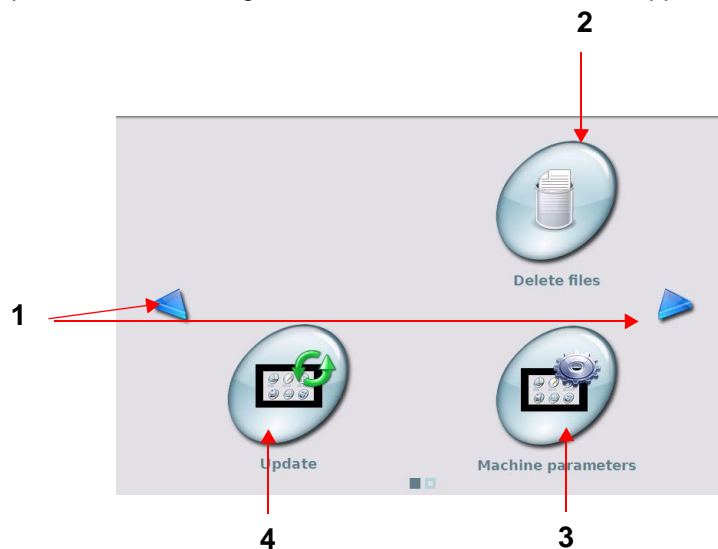
1 : Brightness

2 : Horizontal scroll bar

Brightness: use the cursor to select the required value.

Horizontal scroll bar: box ticked: it is not possible to scroll the text horizontally when it exceeds the dimension of the field.

To view other menu options, use the navigation arrows. The screen below appears:



1 : Movement

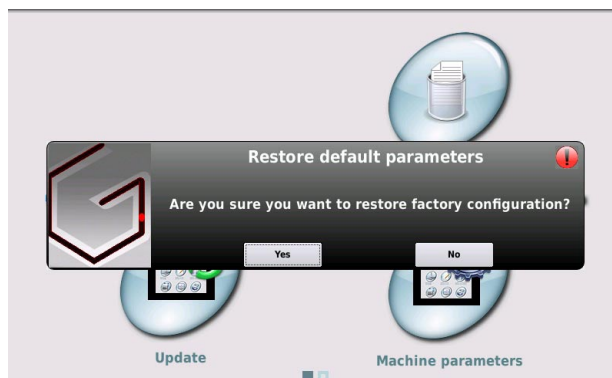
2 : Deleting all the files (reset)

3 : Machine parameters

4 : Update

5. Deleting all the files (reset)

Used to delete the saved files all at once: marking files, fonts, logos...
Select the corresponding icon. The screen below appears:



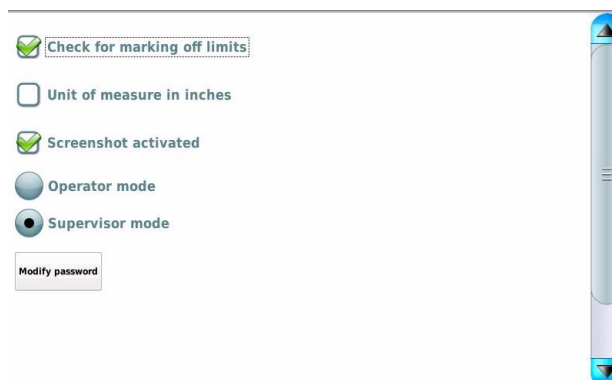
Yes: Deleting all the files (reset)

No: Return to previous screen

6. Machine parameters

Used to:

- select the "Off-limits control" option.
- convert the units into inches.
- take screenshots.
- select either "Supervisor" or "Operator" mode for the operating mode of the program.
- change the password.



■ Off-limits control

This option is activated by default.

If the marking is off-limits, the program sends an error message.

The calculation time is extended and the total cycle time is longer.

When the off-limits control is deactivated, the stylus may run into the mechanical stop if the text is too long or if the coordinates are incorrect. However, calculation of the marking coordinates is faster, therefore the total cycle time is shorter.



Use the off-limits control when preparing or updating a marking file, then deactivate this option.

■ Conversion of the units into inches

The marking program works in both millimeters and inches. All values pertaining to length are expressed in the chosen unit. To change from millimeters to inches, tick the corresponding box.

Changing from mm to inches automatically converts all values contained in the marking files.


■ Screenshot(s)

Box ticked: it is possible to take screenshots for export to USB key. See: File management

To take a screenshot, press on the date at right top of screen. A red background appears briefly.

■ Security mode

Select either "Supervisor" or "Operator" mode for the operating mode of the program.

	Switching from "Supervisor" mode to "Operator" mode is not protected by a password. Obtain the password before switching mode.
---	---

"Supervisor" mode

Used to:

- access to all functions in the program.
- change the password.

"Operator" mode

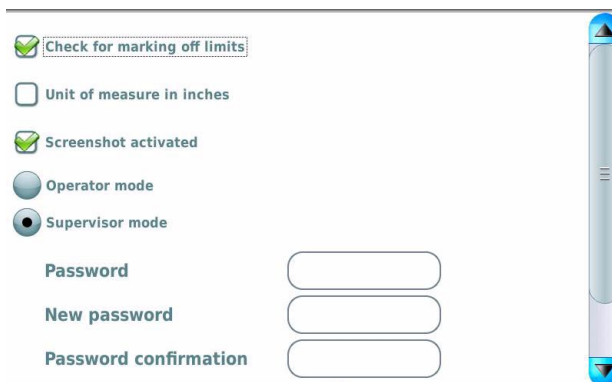
Functions accessible in "Operator" mode:

- reading and marking a file
- marking simulation
- graphic preview before marking
- export file(s)
- "System info" menu

■ Password

Switching from "Operator" mode to "Supervisor" mode is protected by a password. The password configured by default is 12345. This password can only be changed under the "Supervisor" operating mode. It may contain a maximum of 8 alphanumeric characters.

Change the password: in the menu, click on the corresponding function.
The screen below appears:

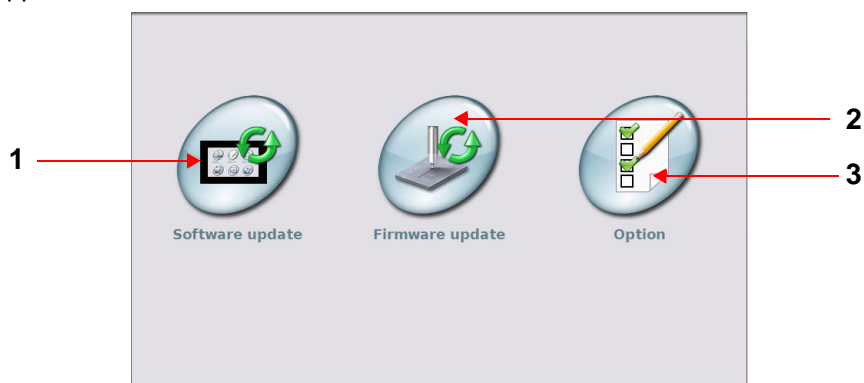


Enter the current password.

Enter the new password. For confirmation, enter the new password again.

7. Update

The screen below appears:



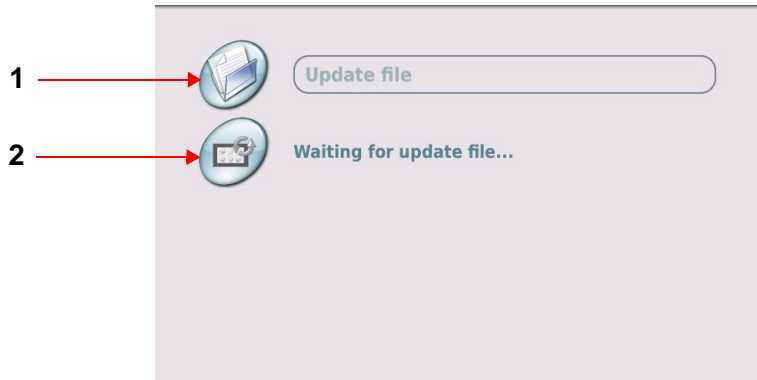
- 1 : Software update
- 2 : Power firmware update
- 3 : Activate an option

■ Software update

Used to update the program of the machine.

	Before updating, make a backup copy of the files memorized in the machine (files, logos, fonts...).
---	--

Select the corresponding icon. The screen below appears:

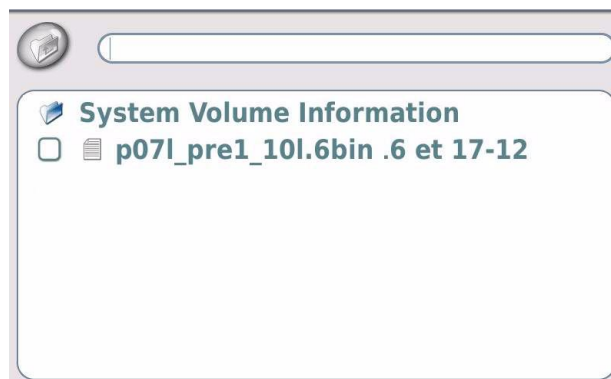


1 : Selecting the update file

2 : Launching the update

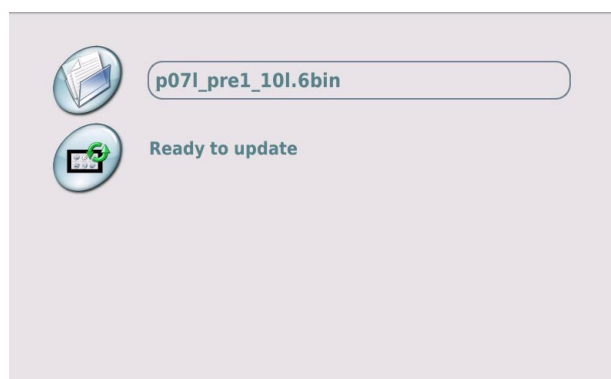
Insert a USB key into the USB port for download.

Press the update file selection icon. The screen below appears:



Select the file (.6bin format).

The screen below appears:



Press the update launch icon.

At the end of the update, the screen below appears:

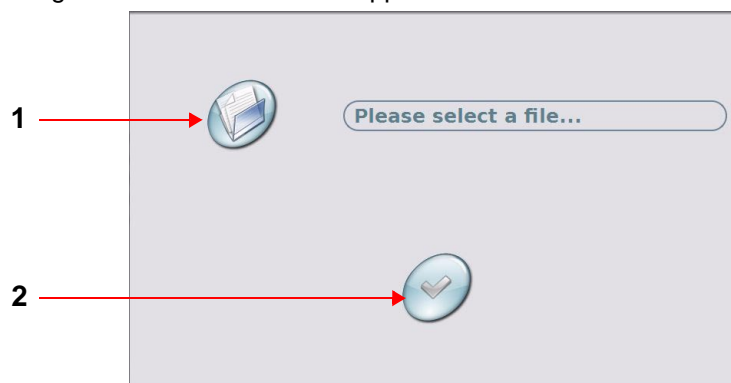


Turning off the machine. Remove the key. Switch on the machine.

■ Power firmware update

Used to update the power card of the machine and its accessories.

Select the corresponding icon. The screen below appears:

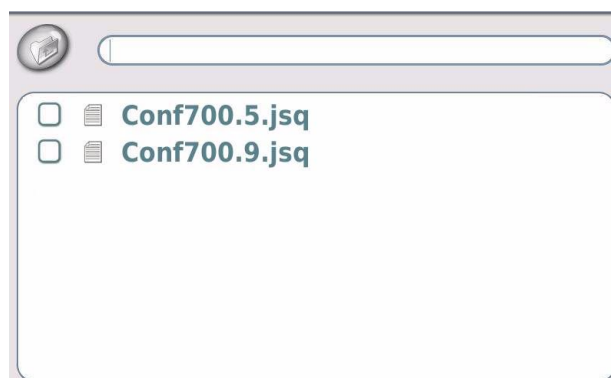


1 : Selecting the update file

2 : Launching the update

Insert a USB key into the USB port for download.

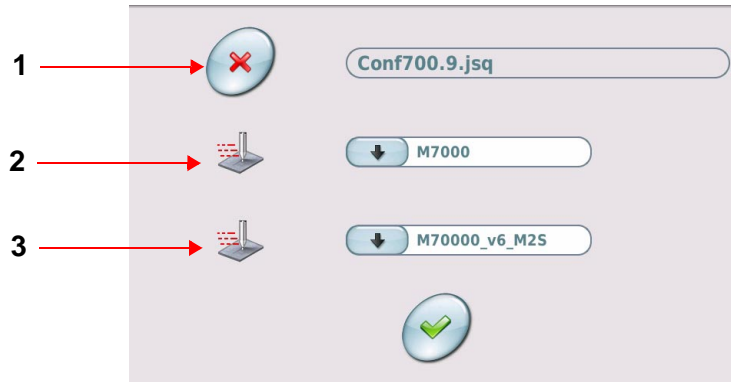
Press the update file selection icon. The screen below appears:



Select the file (.jsq format).

"Machine configuration" menu

The screen below appears:



- 1 : Delete file(s)
- 2 : Name of the machine
- 3 : Version

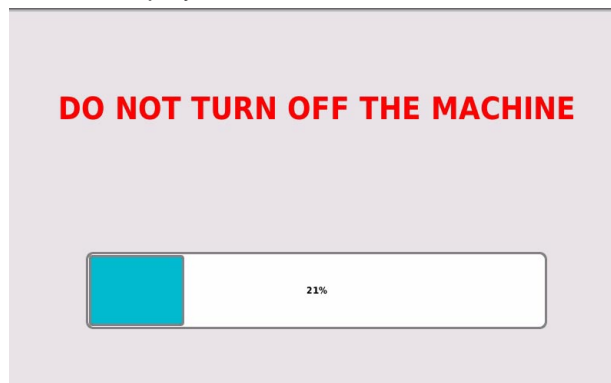
To choose another file, press the "Delete file(s)" icon. The program goes back to the file explorer. Select the file. Select the machine. Select the version.

Press the update launch icon.

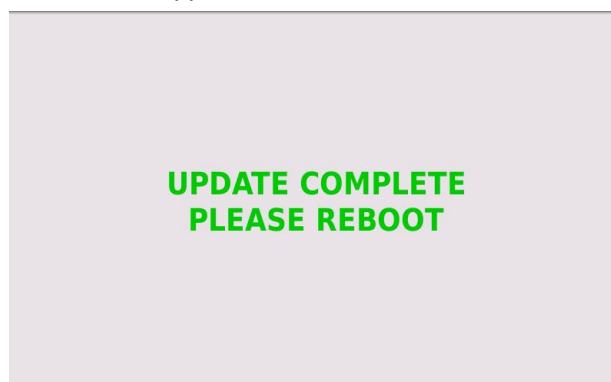
Leave the key inserted during the update.

	<p>Do not cut the power or turn off the machine when updating. In case of a power outage during updating, complete reconfiguration is necessary in our facilities.</p>
--	--

During the update, the screen below is displayed:



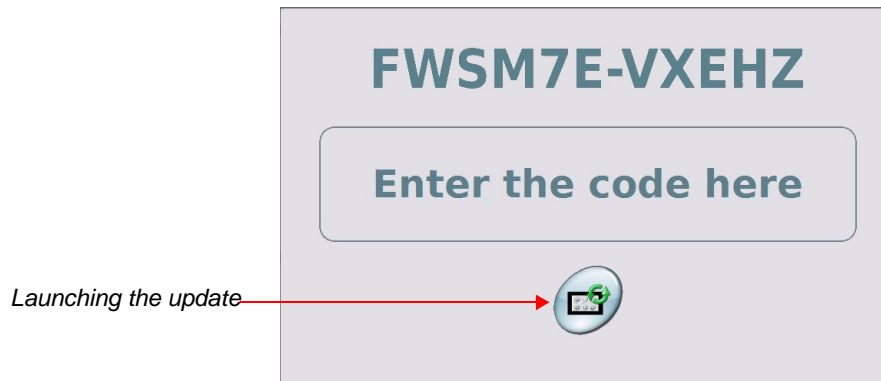
At the end of the update, the screen below appears:



Turning off the machine. Remove the key. Switch on the machine.

■ Activate an option

Used to activate paid options. The screen below appears:



Supply Gravotech with the code appearing on the screen in order to identify the machine. In return, Gravotech sends the code(s) corresponding to the different options chosen. There are as many codes as options ordered.

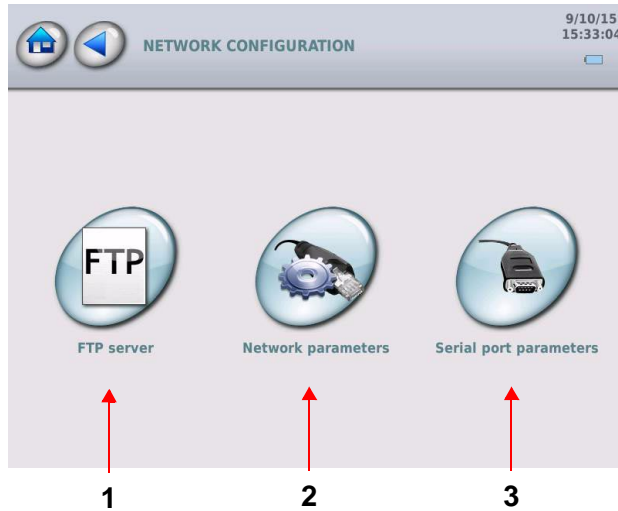
Enter the code Press the update launch icon.

"Communication" menu

Select this menu from the main menu, represented by the icon:



The screen below appears:



- 1 : Activation / deactivation of FTP server (optional)
- 2 : FTP communication management (optional)
- 3 : Serial management

1. Activation / deactivation of FTP server (optional)

Files can be exported to an FTP server. It is possible to import files from an FTP server. The screen below appears:



Set the FTP server parameters. See: FTP communication management (optional)

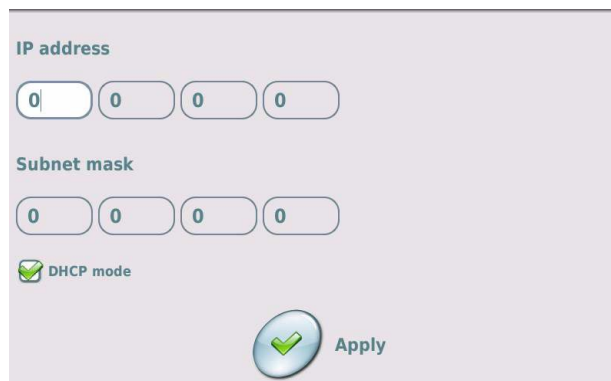
To communicate with FTP server, start the server. The screen below appears:



To stop communication with the server: select the corresponding icon.

2. FTP communication management (optional)

Used to configure an FTP server with which to communicate when importing/exporting files. The screen below appears:



Set the FTP server parameters.

When DHCP mode is selected, an IP address and a subnet mask are automatically assigned.

To confirm, click on "Apply". See: Activation / deactivation of FTP server (optional)

3. Serial management

The screen below appears:

Type of data	Deactivate
Speed	↓ 1200
Data bits	↓ 5
Parity	↓ None
Stop bits	↓ 1
Flow control	↓ None

This tab is used for port configuration.

Select the required configuration. Start over for each area if necessary.

■ Deactivate

Used for port deactivation.

■ Raw data

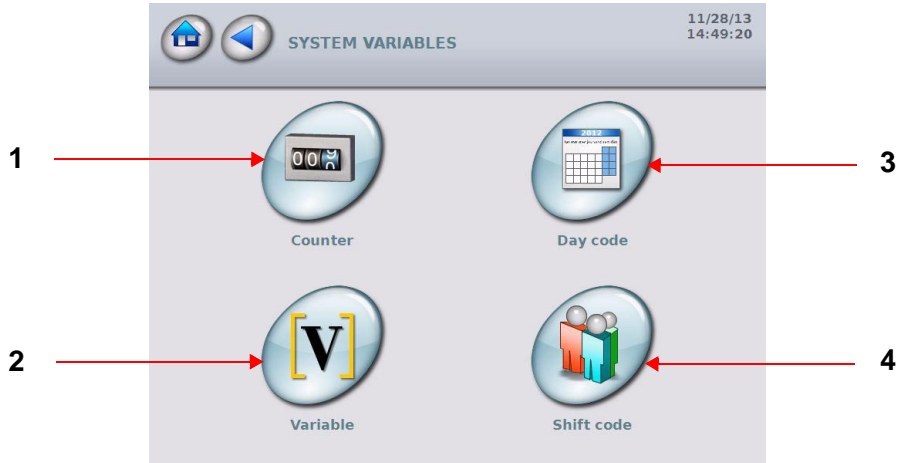
Used to send/receive unprocessed text without the protocol in order to communicate with basic equipment (i.e: bar code reader).

"Variables" menu

Select this menu from the main menu, represented by the icon:



The screen below appears:



- 1 : Configuring counters
- 2 : Configuring variables
- 3 : Configuring Day/Month/Year format
- 4 : Configuring shifts

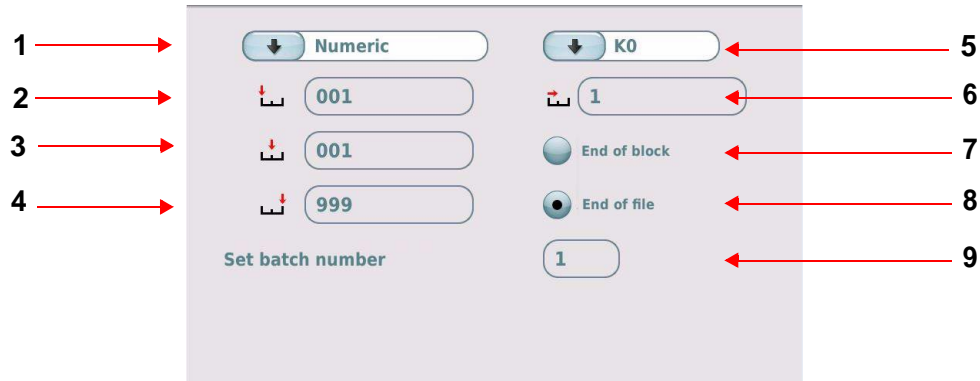
System variables are common to all marking files.

1. Configuring counters

Used to define increments/decrements for a serial number. The data is in numeric, alphabetic, alphanumeric or hexadecimal mode. 10 independent counters are available. Each counter has an 8 digit code.

Identification key words go from K0 to K9.

The screen below appears:



- 1 : Counter type
- 2 : Indicates start value of counter.
- 3 : Indicates the counter value during marking.
- 4 : Indicates end value of counter.
- 5 : Counter number
- 6 : Indicates the incrementation value.
- 7 : Incrementation of the counter's value at the end of the block
- 8 : Incrementation of the counter's value at the end of the file
- 9 : Indicates the batch number.

Select the desired counter (K0-K9).

Select the type of counter required.

Select the start, current and end values, and the increment (touch keypad).

The number of characters used for the start value also determines the minimum number of characters that will be marked.

Example:

- start value: 1 => increment / decrement: 1, 2, 3, ...999
- start value: 001 => increment / decrement: 001, 002, 003, ...999

Note

Decrement function: The decrement function is activated when an end value lower than the start value is entered. In this case, the increment value is negative.

Incrementation of the counter's value at the end of the block / incrementation of the counter's value at the end of the file: select one box or the other.

Setting the batch number: used to determine the number of parts marked with the same number. Select the number of parts to be marked with the same number.

Example:

The screenshot shows a configuration window for a counter. On the left, there are three input fields for counter values: '002', '356', and '400'. Above them is a dropdown menu set to 'Numeric'. On the right, there is a dropdown menu set to 'K0' and an input field for the increment/decrement value, set to '2'. Below these are two radio buttons: 'End of block' (selected) and 'End of file'. At the bottom, there is a 'Set batch number' label and an input field set to '1'. A vertical scrollbar is on the right side of the window.

In this situation:

- counter type: numeric
- start value: 002
- next number to be marked: 356
- end value: 400
- increment / decrement: 2
- incrementation of the counter's value at the end of the file
- number of parts to be marked with the same counter value: 1

To enter other information, use the scroll bar. The screen below appears:

Setting of the counter's reset

The screenshot shows the 'Reset counter' section of the configuration window. It has a checked checkbox labeled 'Reset counter'. Below it are four radio button options: 'Date', 'Shift', and 'Week'. The 'Date' option is selected. To the right of the 'Date' option is a dropdown menu set to 'January'. Below the 'Date' option are three input fields: '1' month, '0' hour, and '0' minute. To the right of these input fields is a vertical scrollbar. Red arrows point from numbers 1 through 5 to specific elements: 1 points to the 'Reset counter' checkbox, 2 points to the 'Date' radio button, 3 points to the 'Shift' radio button, 4 points to the 'Week' radio button, and 5 points to the vertical scrollbar.

- 1 : Box not ticked: no reset
- 2 : Reset on a certain date
- 3 : Reset with each change of shift
- 4 : Reset each time the week changes
- 5 : Choice of reset date

Select the reset type.

Reset on a certain date

Used to define a time or a date at which the counters must return to their initial value. Resetting a counter to zero will impact all marking files.

Select the desired boxes. Go to the corresponding areas to choose the reset date. Only the ticked boxes are taken into account.

Example 1: Reset every hour at 20 (00h20, 01h20, 2h20, etc...)

The screenshot shows the 'Reset counter' settings. The 'Date' radio button is selected. The '20 minute' option is checked and circled in red. The other options are unchecked.

Option	Checked	Value	Unit
Date	<input type="checkbox"/>	January	
Shift	<input type="checkbox"/>	1	month
Week	<input type="checkbox"/>	0	hour
Minute	<input checked="" type="checkbox"/>	20	minute

Example 2: Reset every day at 00:00

The screenshot shows the 'Reset counter' settings. The 'Date' radio button is selected. The '0 hour' option is checked and circled in red. The other options are unchecked.

Option	Checked	Value	Unit
Date	<input type="checkbox"/>	January	
Shift	<input type="checkbox"/>	1	month
Week	<input checked="" type="checkbox"/>	0	hour
Minute	<input type="checkbox"/>	0	minute

Example 3: Reset on the 1st of each month

The screenshot shows the 'Reset counter' settings. The 'Date' radio button is selected. The '1 month' option is checked and circled in red. The other options are unchecked.

Option	Checked	Value	Unit
Date	<input type="checkbox"/>	January	
Shift	<input checked="" type="checkbox"/>	1	month
Week	<input type="checkbox"/>	0	hour
Minute	<input type="checkbox"/>	0	minute

Example 4: Reset at 00:00 on January 1st (once a year)



Reset counter

Date January

Shift 1 month

Week 0 hour

0 minute

Note

If the hours and minutes fields are not filled in, the default value is 0. The value of the seconds is always 0.

To obtain a reset once a year at a predefined date and time, fill in all the fields.

Example: Reset every year on March 29th at 21h40:



Reset counter

Date March

Shift 29 month

Week 21 hour

40 minute

Reset with each change of shift

If this type of reset is selected, the counter returns to its initial value with each change of shift.

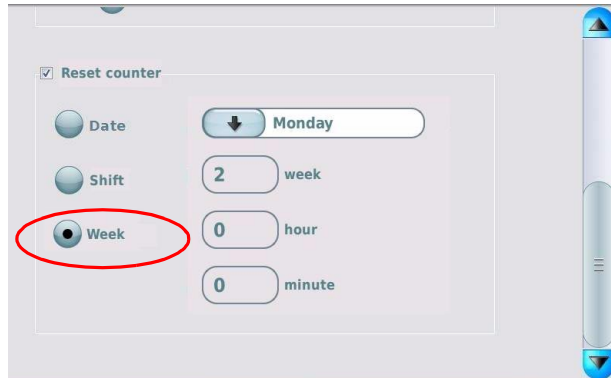
See: "Configuring shifts"

Reset each time the week changes

You can reset all the counters to zero every x weeks, on a specified day and at a specified time. Resetting a counter to zero will impact all marking files.

Select a day of the week. Go to the corresponding areas to choose the reset date.

Example: Reset every 2 weeks, on Monday at 00:00

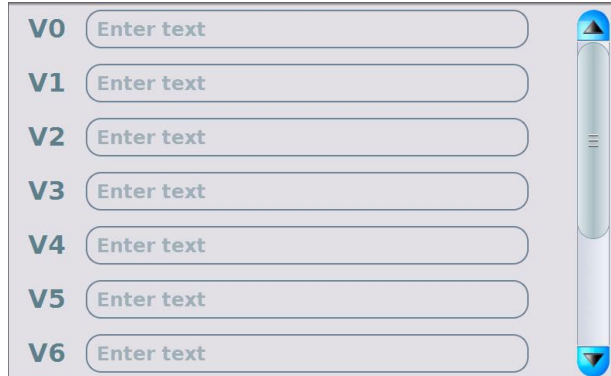


2. Configuring variables

Used to mark repetitive texts common to several marking files by indicating the variable number in which the text is contained.

Variables are memory blocks (10 in all) of text containing up to 255 characters. They are common to all marking files and are saved in the CCU memory. They are identified by the key words V0 to V9.

The screen below appears:



The first 6 fields are displayed. Select the desired variable. To enter other information, use the scroll bar.

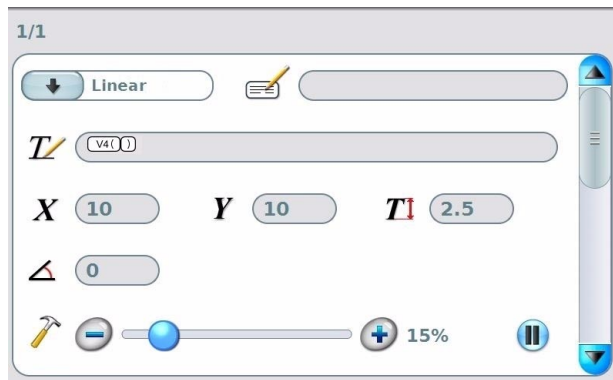
Example:



Code entry fields (maximum: 255 characters)

■ Programming within a marking file

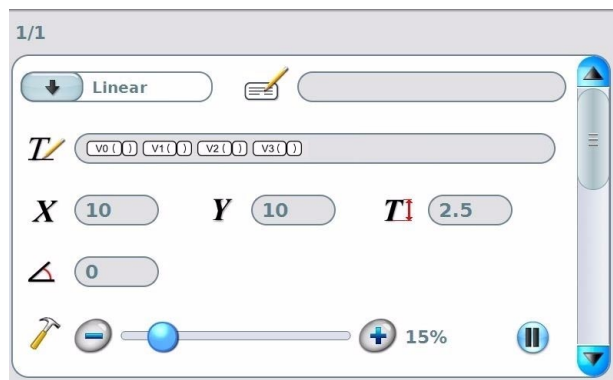
To insert a key word and its number: See: "Text to be marked".



The marking obtained at coordinates X = 10 mm and Y = 10 mm is the contents of variable V4: ABCDE0123.

■ Compiling a series of variables

Several variables can be programmed in a single text field.



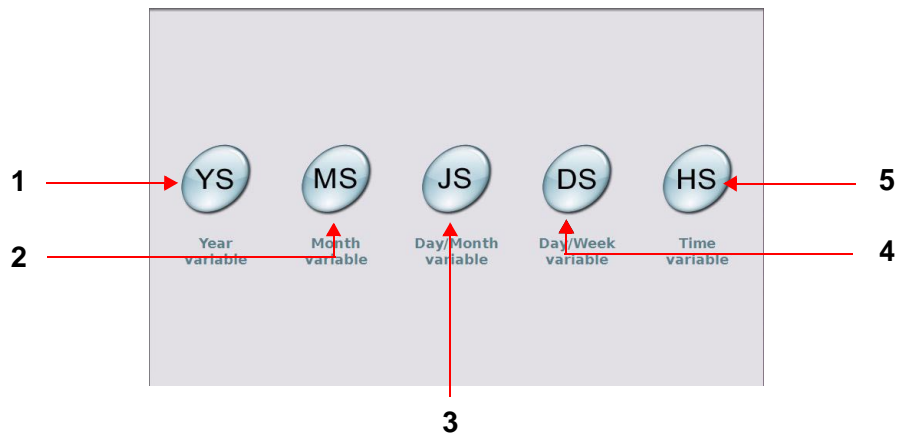
- contents of V0: Marking
- contents of V1: of
- contents of V2: four
- contents of V3: variables

The marking obtained at coordinates X = 10 mm and Y = 10 mm is "Marking of four variables".

3. Configuring Day/Month/Year format

Used to define customized formats for marking months, years, days of the week and days of the month.

The screen below appears:



- 1 : Year variable (YS)
- 2 : Month variable (MS)
- 3 : Day in the month variable (JS)
- 4 : Day of the week variable (DS)
- 5 : Hour variable (HS)

■ Year variable (YS)

The screen below appears:

2012	<input type="text"/>
2013	<input type="text"/>
2014	<input type="text"/>
2015	<input type="text"/>
2016	<input type="text"/>

The first year that is shown is the current year. 5 years can be programmed. The program then automatically updates the numbering.

Select the required field. Enter the data (touch keypad).

Example:

2012	<input type="text" value="12"/>
2013	<input type="text" value="2013"/>
2014	<input type="text"/>
2015	<input type="text"/>
2016	<input type="text"/>

Code entry fields (maximum: 255 characters)

■ Month variable (MS)

The screen below appears:



A screenshot of a mobile application interface for the "Month variable (MS)". It features a vertical list of seven input fields, each preceded by a month name: January, February, March, April, May, June, and July. The input fields are currently empty. To the right of the list is a vertical scroll bar with blue arrowheads at the top and bottom, and a central track with three horizontal lines.

The first 7 fields are displayed. Select the required field. Enter the data (touch keypad). To enter other information, use the scroll bar.

Example:



A screenshot of the same "Month variable (MS)" interface, but with example data entered into the input fields. The data is as follows: January: A; February: FEB; March: 03; April: April; May: 05 May; June: JUNE; July: (empty). The scroll bar is visible on the right side.

Code entry fields (maximum: 255 characters)

■ Day in the month variable (JS)

The screen below appears:



A screenshot of a mobile application interface for the "Day in the month variable (JS)". It features a vertical list of seven empty input fields, each preceded by a number from 1 to 7. To the right of the list is a vertical scroll bar with blue arrowheads at the top and bottom, and a central track with three horizontal lines.

The first 7 fields are displayed. Select the required field. Enter the data (touch keypad). To enter other information, use the scroll bar.

Example:

1	1ST
2	2nd
3	3rd
4	4
5	05
6	06
7	

Code entry fields (maximum: 255 characters)

■ Day of the week variable (DS)

The screen below appears:

Sunday	
Monday	
Tuesday	
Wednesday	
Thursday	
Friday	
Saturday	

Select the required field. Enter the data (touch keypad).

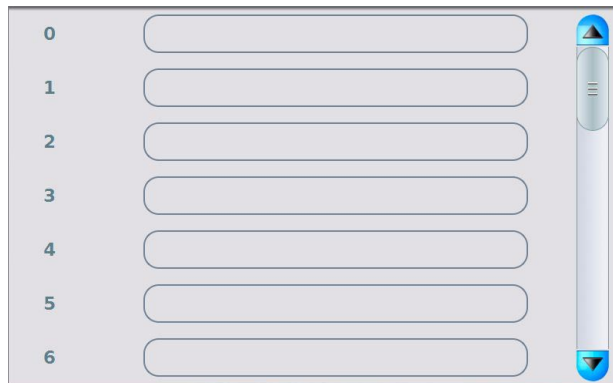
Example:

Sunday	SUN
Monday	Monday
Tuesday	02
Wednesday	Wed.
Thursday	
Friday	
Saturday	

Code entry fields (maximum: 255 characters)

■ Hour variable (HS)

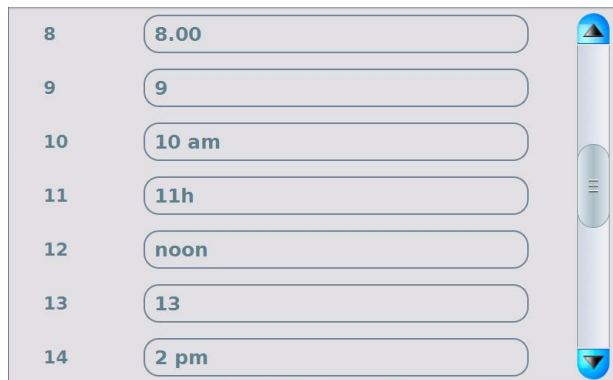
The screen below appears:



A screenshot of a mobile application interface for the 'Hour variable (HS)' menu. It displays seven empty, rounded rectangular input fields, each preceded by a number from 0 to 6. To the right of the fields is a vertical scroll bar with blue arrowheads at the top and bottom, and a central slider.

The first 7 fields are displayed. Select the required field. Enter the data (touch keypad). To enter other information, use the scroll bar.

Example:



A screenshot of the same mobile application interface, but now showing example data entered into the input fields. The fields are numbered 8 to 14. The data entered is: 8, 9, 10 am, 11h, noon, 13, and 2 pm. The scroll bar is visible on the right side.

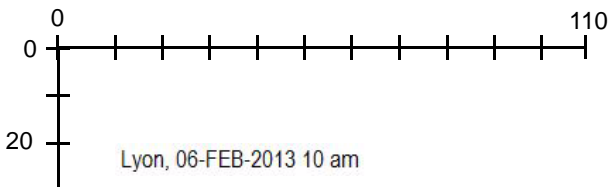
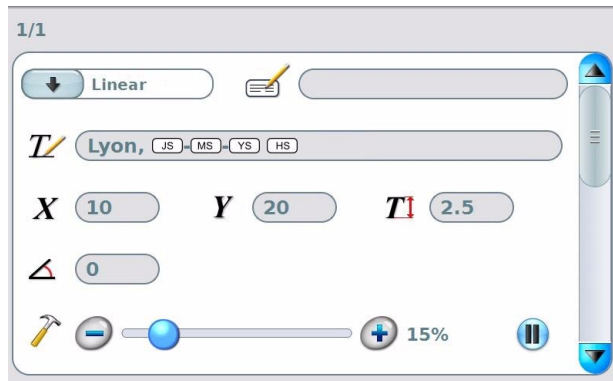
Code entry fields (maximum: 255 characters)

Key words:

- YS for years
- MS for months
- JS for days of the month
- DS for days of the week
- HS for hours

Example based on the previous codes:

Marking file: for a marking executed a Wednesday in February 2013



4. Configuring shifts

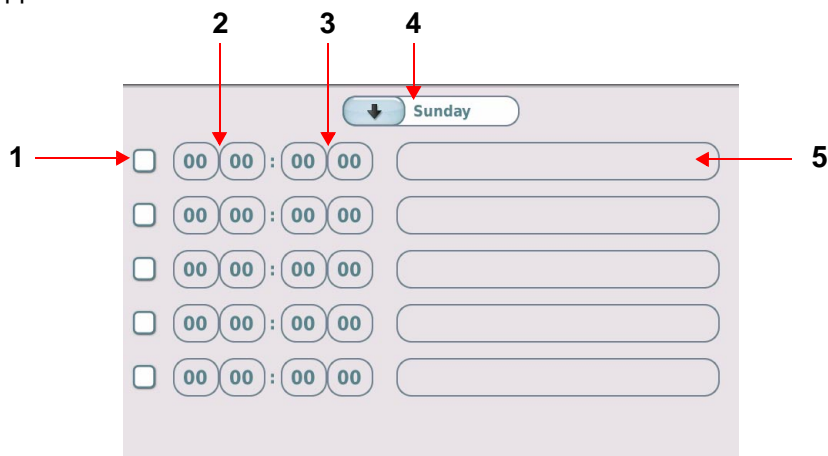
Used to define texts to be marked depending on the day of the week and the time.

Shift configuration is possible for each day of the week with 5 available time slots per day.

The identification keyword is Q.

The days and time used correspond to those in the CCU.

The screen below appears:



1 : Activation / deactivation of the shift

2 : Starting time of the shift

3 : End time of the shift

4 : Day of the week

5 : Text to be marked during the shift: code entry fields (maximum: 20 characters)

"Variables" menu

Select a day of the week.

Activation / deactivation of the shift: box ticked /box not ticked
Only the ticked boxes are taken into account.

Select the time period start and end times (touch keypad).

Enter the text to be marked (touch keypad).

Repeat the operation for each shift and for each day if necessary.

Example:

Day	Start Time	End Time	Label
Monday	06 00	13 59	Morning
Monday	14 00	20 00	Shift 2
Monday	20 01	23 59	Monday evening shift
Monday	00 00	00 00	
Monday	00 00	00 00	

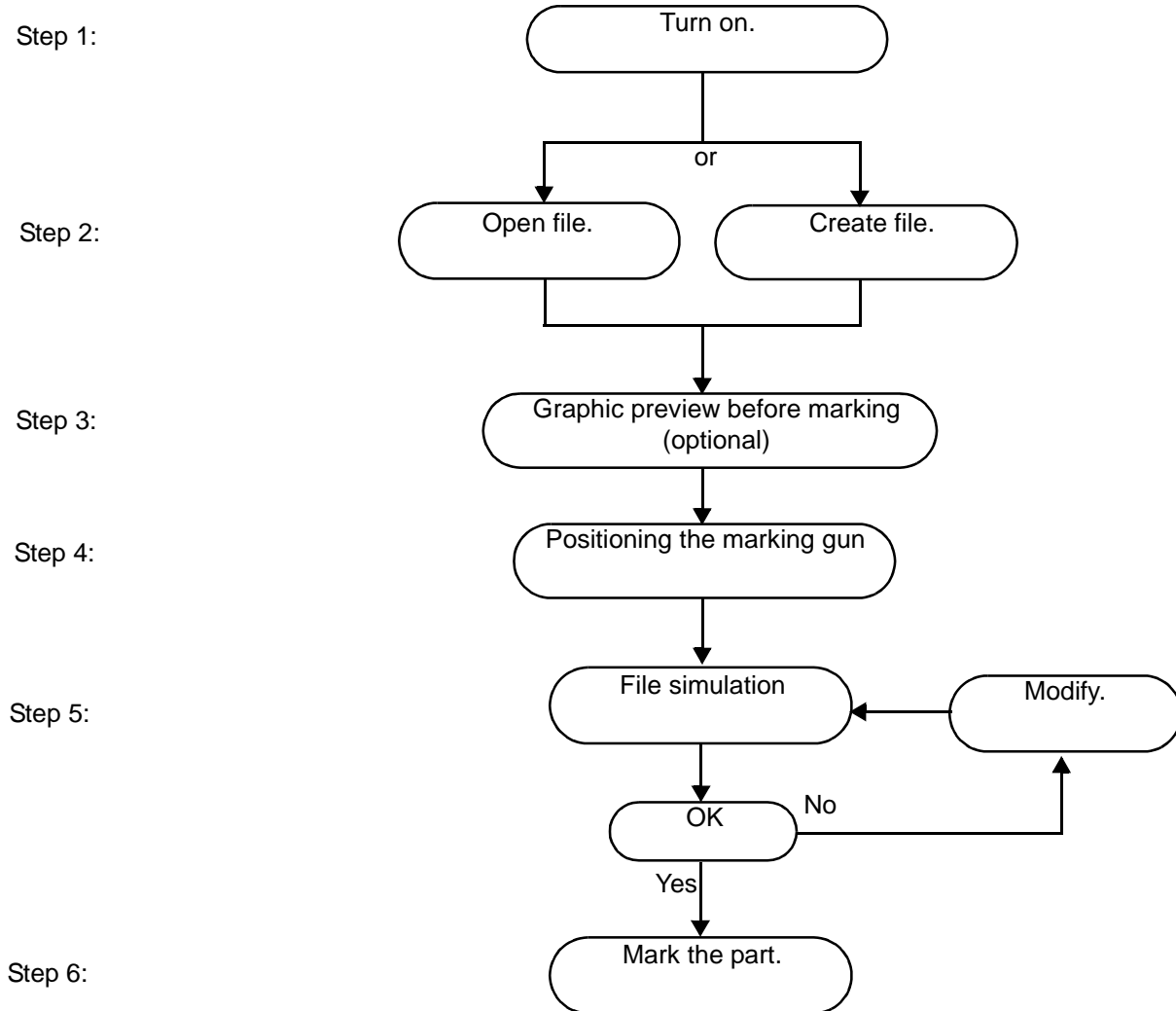
Marking carried out on Monday:

- from 06h00 mn 00 s to 13h59 mn 59 s: "Morning"
- from 14h00 mn 00 s to 20h00 mn 59 s: "Shift 2"
- from 20h01 mn 00 s to 23h59 mn 59 s: "Monday evening shift"



When defining time slots for shifts, be careful that the shifts do not overlap. The end of one shift must not be the same as or later than the beginning of the next shift.

1. Marking process flowchart



When marking or doing test marking, the stylus must always hit a part.

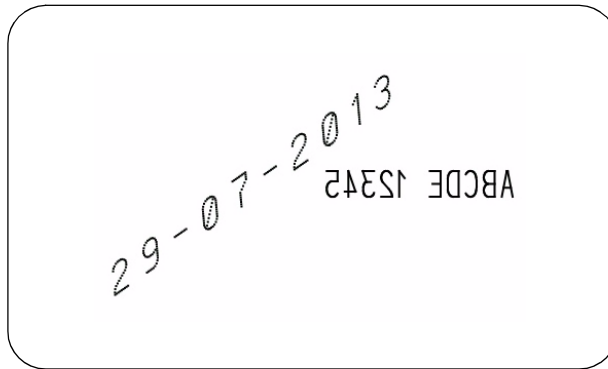
If it strikes only air, these are the risks:

- **mechanical deterioration of moving parts**
- **void of the manufacturer's guarantee**

2. Initiation to marking

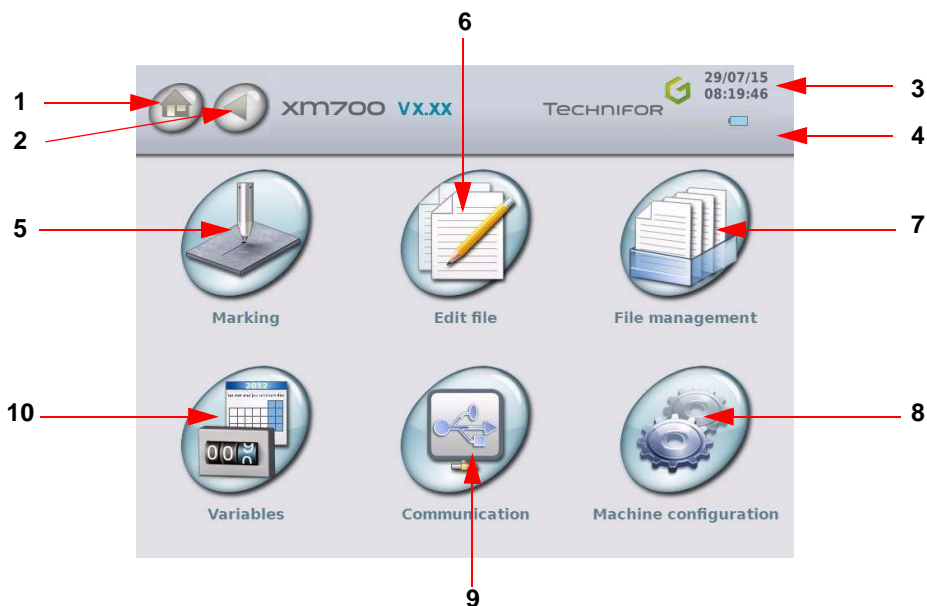
This chapter gives an introduction to the machine and the marking program. Follow the instructions to complete a sample marking before creating other marking files.

For this example, create a file composed of 2 marking blocks. The resulting marking is shown below. A test plate is provided with the machine for carrying out this test marking.



■ Step 1: Switching on the machine

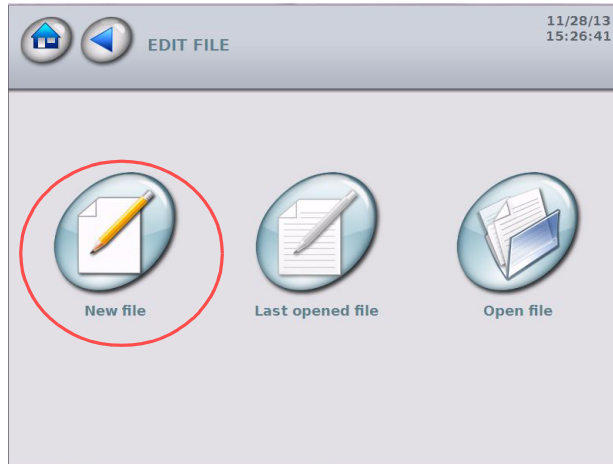
Turn on the machine by flipping the switch to the "ON" position. After a few seconds, the main menu appears on the screen.



- 1 : Icon used to return to the main menu, followed by the name of the menu. This icon appears several times in the program.
- 2 : Return to previous screen
- 3 : Date/Time
- 4 : Status of the battery
- 5 : "Marking" menu
- 6 : "Edit file" menu
- 7 : "File management" menu
- 8 : "Machine configuration" menu
- 9 : "Communication" menu
- 10 : "Variables" menu

■ Step 2: Creating a marking file

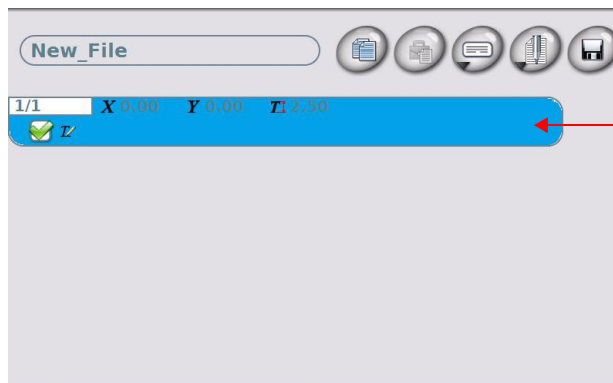
To create a new marking file, select the "Edit file" menu.
The screen below appears:



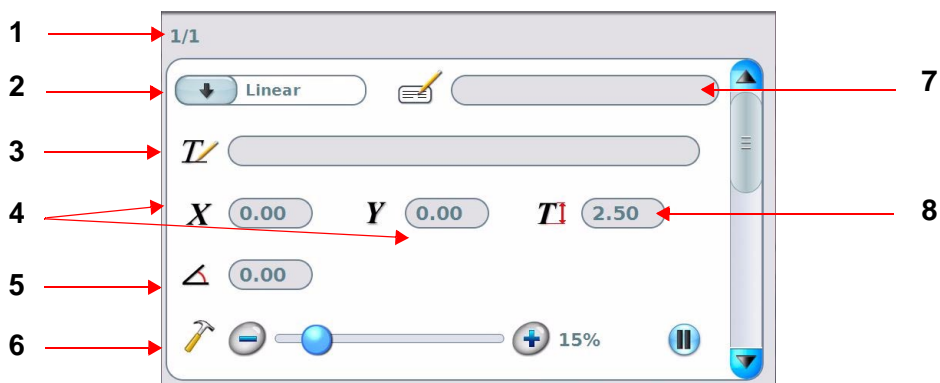
Select the "Create a new file" icon.

Creating marking block # 1

When a file is created, an empty block appears on the screen.



Double-click on a block to enter data.



- 1 : Block number
- 2 : Type of marking
- 3 : Text to be marked
- 4 : X coordinate / Y coordinate
- 5 : Text angle
- 6 : Marking force
- 7 : Block name (label)
- 8 : Character size

Use

Linear marking is selected by default. Keep this marking mode: no change.

Insertion of a key word in the "Text" field: Hover over the "Text" field.

To enter text, a touch keypad appears on-screen. The keywords are listed on page 2 of the keypad (See: Using the touch screen). Select the option required: DD. The selected keyword appears in the "Text" field. Hover over the "Text" field. Insert a dash after the key word. Start again with the keyword MM. Insert a dash after the key word. Start again with the keyword YYYY. To validate the entry, press the key at the bottom right (touch keypad).

X coordinate: for this example, enter the value 25.

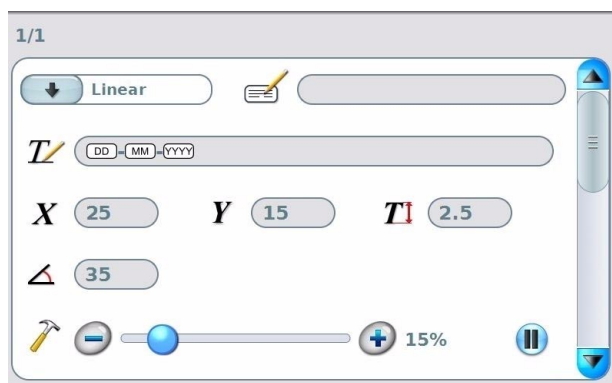
Y coordinate: for this example, enter the value 15.

The size of the text 2.5 is selected by default. Keep this value: no action required.

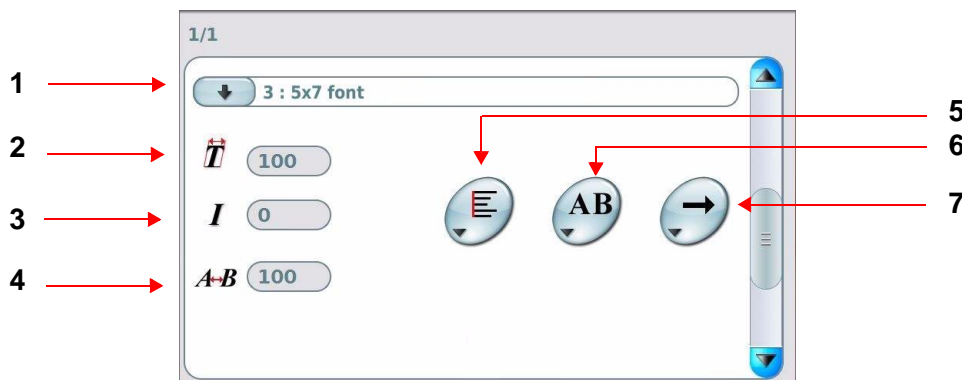
Text angle: for this example, enter the value 35.

The default value of the "Force" area varies according to the machine's configuration. Keep this value: no action required.

After the entry is complete, the following screen should be displayed:



To enter other information, use the scroll bar.



- 1 : Character font
- 2 : Compression
- 3 : Inclination
- 4 : Spacing
- 5 : Alignment
- 6 : Marking effects
- 7 : Marking direction

Use

The font 3 is selected by default. Keep this parameter: no action required.

The compression rate 100 is selected by default. Keep this value: no action required.

Inclination: enter the value 30.

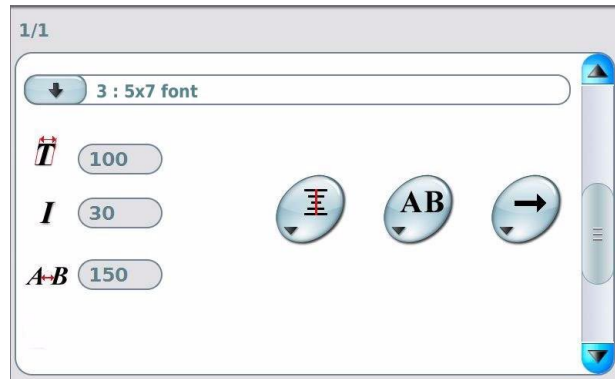
Spacing: enter the value 150.

Alignment: select "Centered".

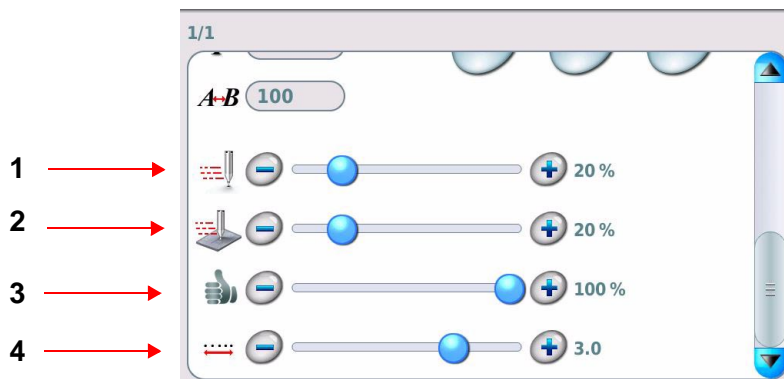
The marking effect "Normal" is selected by default. Keep this parameter: no action required.

The default marking direction is from left to right. Keep this parameter: no action required.

After the entry is complete, the following screen should be displayed:



To enter other information, use the scroll bar. The screen below appears:



- 1 : Movement speed
- 2 : Marking speed
- 3 : Marking quality
- 4 : Dot density per millimeter

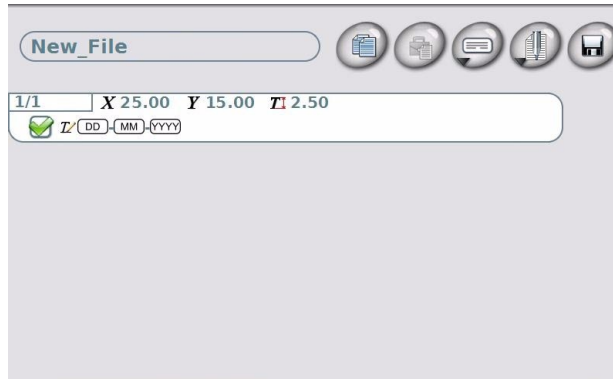
Movement speed - Marking speed - Marking quality - Dot density per millimeter: Keep this value: no action required.

Creation of block # 1 is finished.

Creating marking block # 2

When block preparation is complete, press the arrow at the top of the screen to validate the block and go back to the previous screen.

The program goes back to the marking file. The screen below appears:



"Edit" sub-menu: select "Add".

A second block appears. Position the cursor on this block. Double-click on a block to enter data.

Linear marking is selected by default. Keep this marking mode: no change.

Text to be marked: enter "ABCDE 12345".

X coordinate: for this example, enter the value 50.

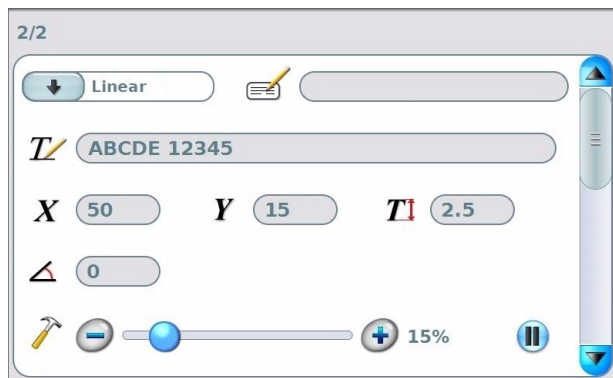
Y coordinate: for this example, enter the value 15.

The size of the text 2.5 is selected by default. Keep this value: no action required.

The angle 0 is selected by default. Keep this value: no action required.

The default value of the "Force" area varies according to the machine's configuration. Keep this value: no action required.

After the entry is complete, the following screen should be displayed:



Use

To enter other information, use the scroll bar.

The font 3 is selected by default. Keep this parameter: no action required.

Compression: enter the value 70.

The 0 inclination is selected by default. Keep this value: no action required.

The spacing 100 is selected by default. Keep this value: no action required.

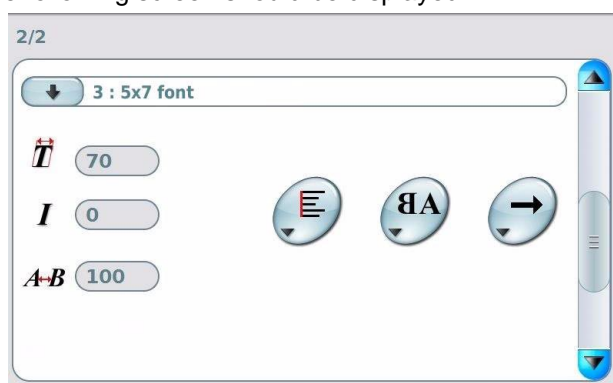
By default, the text is aligned to the left. Keep this parameter: no action required.

Marking effects: select the "Mirror" effect.

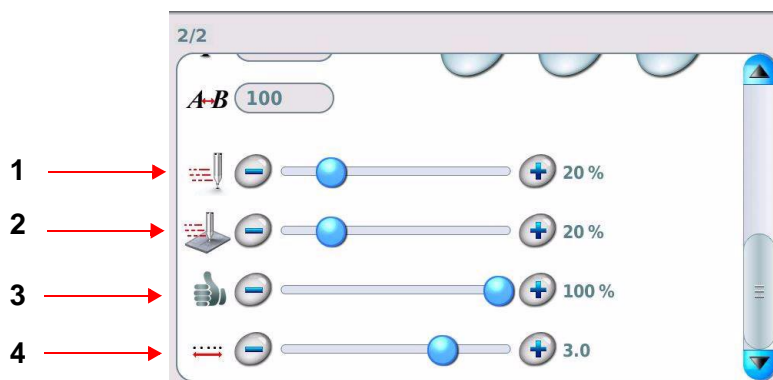
BA

The default marking direction is from left to right. Keep this parameter: no action required.

After the entry is complete, the following screen should be displayed:



To enter other information, use the scroll bar. The screen below appears:



- 1 : Movement speed
- 2 : Marking speed
- 3 : Marking quality
- 4 : Dot density per millimeter

Movement speed - Marking speed - Marking quality - Dot density per millimeter: keep this value: no action required.

Creation of block # 2 is finished.

When block preparation is complete, press the arrow at the top of the screen to validate the block and go back to the previous screen.

Use

The program goes back to the marking file. The name of the file is displayed in the top left corner of the screen. By default, the current file is named "New_File".

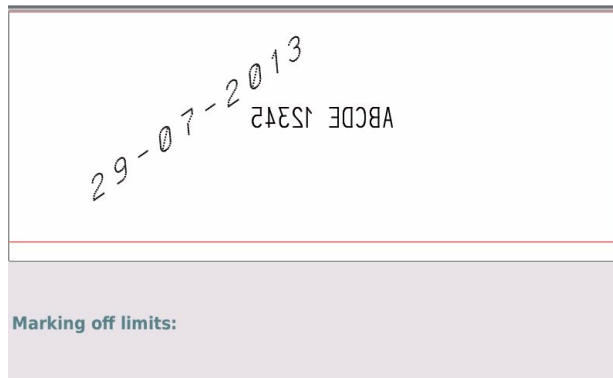
Save the marking file created under the name "Test". Press the "Save" symbol.

The screen below appears:



■ Step 3: Preview

"Marking" sub-menu: Select "Preview". The screen below appears:



■ Step 4: Position the part

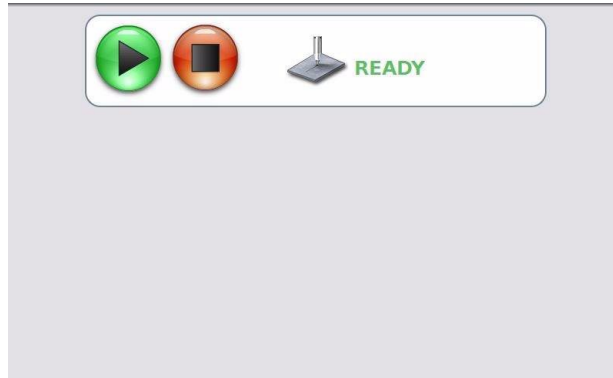
Position the machine over the part to be marked.

■ Step 5: Marking simulation

"Marking" sub-menu: select "Simulation".

Simulation consists in performing the marking without activating the stylus.

The screen below appears:



Move to the "Start marking" icon.

It is not possible to pause or to stop a marking simulation.

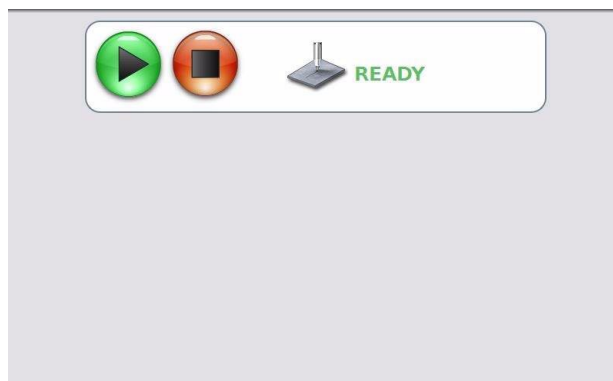
■ Step 6: Marking the part

End of simulation: press the back arrow at the top of the screen.

Proceed to marking the texts on a plate.

"Marking" sub-menu: select "Marking".

The screen below appears:



Move to the "Start marking" icon.

After marking, the stylus returns to the X-Y origins.

Press the back arrow at the top of the screen.

Appendix

J

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