

# RFID OsiSense<sup>®</sup> XG

## XGST2020 Handheld Terminal

### Software Guide

06/2015



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[www.tesensors.com](http://www.tesensors.com)

 **Telemecanique**  
Sensors

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All pertinent state, regional, and local safety regulations must be observed when installing and using this product. For reasons of safety and to help ensure compliance with documented system data, only the manufacturer should perform repairs to components.

When devices are used for applications with technical safety requirements, the relevant instructions must be followed.

Failure to use Schneider Electric software or approved software with our hardware products may result in injury, harm, or improper operating results.

Failure to observe this information can result in injury or equipment damage.

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# Safety Information

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## Important Information

### NOTICE

Read these instructions carefully, and look at the equipment to become familiar with the device before trying to install, operate, or maintain it. The following special messages may appear throughout this documentation or on the equipment to warn of potential hazards or to call attention to information that clarifies or simplifies a procedure.



The addition of this symbol to a “Danger” or “Warning” safety label indicates that an electrical hazard exists which will result in personal injury if the instructions are not followed.



This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.

## **DANGER**

**DANGER** indicates a hazardous situation which, if not avoided, **will result in** death or serious injury.

## **WARNING**

**WARNING** indicates a hazardous situation which, if not avoided, **could result in** death or serious injury.

## **CAUTION**

**CAUTION** indicates a hazardous situation which, if not avoided, **could result in** minor or moderate injury.

## **NOTICE**

**NOTICE** is used to address practices not related to physical injury.

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## PLEASE NOTE

Electrical equipment should be installed, operated, serviced, and maintained only by qualified personnel. No responsibility is assumed by Schneider Electric for any consequences arising out of the use of this material.

A qualified person is one who has skills and knowledge related to the construction and operation of electrical equipment and its installation, and has received safety training to recognize and avoid the hazards involved.

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# About the Book

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## At a Glance

### Document Scope

This manual describes how to use the embedded software functions of the XGST2020 handheld terminal.

### Validity Note

The technical characteristics of the devices described in this manual also appear online. To access this information online:

Step	Action
1	Go to the Telemecanique Sensors home page <a href="http://www.tesensors.com">www.tesensors.com</a> .
2	In the <b>Search</b> box type the model number of a product or the name of a product range. <ul style="list-style-type: none"><li>● Do not include blank spaces in the model number/product range.</li><li>● To get information on grouping similar modules, use asterisks (*).</li></ul>
3	If you entered a model number, go to the <b>Product datasheets</b> search results and click on the model number that interests you. If you entered the name of a product range, go to the <b>Product Ranges</b> search results and click on the product range that interests you
4	If more than one model number appears in the <b>Products</b> search results, click on the model number that interests you.
5	Depending on the size of your screen, you may need to scroll down to see the data sheet.
6	To save or print a data sheet as a .pdf file, click <b>Download XXX product datasheet</b> .

The characteristics that are presented in this manual should be the same as those characteristics that appear online. In line with our policy of constant improvement, we may revise content over time to improve clarity and accuracy. If you see a difference between the manual and online information, use the online information as your reference.

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## Product Related Information

### CAUTION

#### UNINTENDED EQUIPMENT OPERATION

The application of this product requires expertise in the design and programming of control systems. Only persons with such expertise must be allowed to program, install, alter, and apply this product.

Follow all local and national safety codes and standards.

**Failure to follow these instructions can result in injury or equipment damage.**

## Related Documents

Title of documentation	Reference number
XGST2020 Terminal XG - Quick Start Guide	HRB34094

You can download these technical publications and other technical information from our website at [www.tesensors.com](http://www.tesensors.com).

## QR Code

A QR code including the Telemecanique Sensors web address is present on the XGST2020 handheld terminal label. Technical documents are available in various languages in this website.



## User Comments

We welcome your comments about this document. You can reach us by e-mail at [customer-support@tesensors.com](mailto:customer-support@tesensors.com).



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# Chapter 1

## General Information

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### Overview

This chapter presents the embedded software functions of the XGST2020 handheld terminal.

### What Is in This Chapter?

This chapter contains the following topics:

Topic	Page
General Description	10
Function Description	11

## General Description

### Introduction

This manual describes the embedded software functions of the XGST2020 handheld terminal.

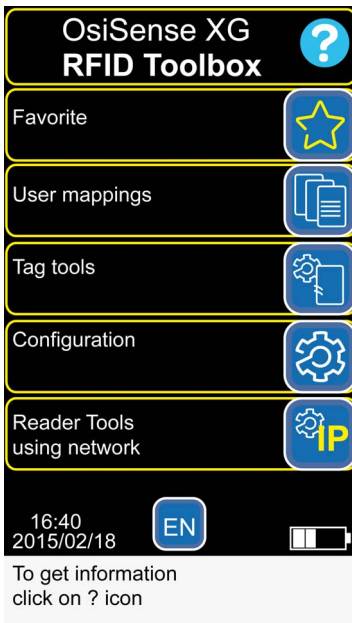
The XGST2020 handheld terminal helps you during commissioning, operation, and maintenance of RFID system of the OsiSense XG product range.

### Function Categories

The embedded software functions of the XGST2020 handheld terminal are organized in three categories:

- Direct operation on RFID tags: identification, copy, formatting,...
- Mapping: a mapping is a list of variables, stored permanently in the terminal memory for quick and simple access by the operators.
- Configuration: configuration of the terminal parameters and mapping configuration.

This illustration presents the home screen of the terminal, allowing access to the software functions:



## Function Description

### Description

This table describes the functions of each category:

Category	Function	Description
Direct processing of RFID tags (Tag tools)	Read/write words ( <a href="#">see page 25</a> )	Groups containing up to 254 words can be read/written from a given start address. Data can be displayed in different formats (decimal, signed decimal, binary, decimal IP, hexadecimal, or ASCII).
	Tag copy ( <a href="#">see page 30</a> )	Tag copy from 1 tag to another. The whole tag memory or part of it can be copied.
	Tag initialization ( <a href="#">see page 33</a> )	The whole tag memory or a defined part of it can be written with a value chosen by the operator.
	Tag presence ( <a href="#">see page 35</a> )	Cyclic test for presence of the tag in front of the Smart Antenna connected to the terminal. An indicator light and a bargraph provide information regarding the test results.
	Tag identification ( <a href="#">see page 36</a> )	The terminal displays the RFID protocol, unique ID, and the memory size of a tag.
Mapping	Mapping ( <a href="#">see page 54</a> )	<p>A mapping is a list of variables, stored permanently in the terminal memory for quick and simple access by the operators. Each mapping variable is associated with a name and displayed in a format selected from numerous possibilities, in read only or read/write mode.</p> <p>Creation, modification and backup tools are embedded in the handheld terminal software.</p> <p>Up to 256 mappings can be stored in the memory (each being identifiable by a number and a name).</p> <p>Each mapping can contain up to 256 variables. Each variable is defined by its position within the tag memory, its size, and its type (word or byte) and its display format on screen.</p> <p>The data displayed on a mapping can be stored in the terminal memory or written to an RFID tag.</p> <p>A backup of each mapping or all mappings can be stored on a USB memory key inserted in the USB socket of the handheld terminal.</p>

Category	Function	Description
Configuration	Update the terminal ( <a href="#">see page 39</a> )	This function is password-protected and allows to: <ul style="list-style-type: none"> <li>● Update the terminal firmware.</li> <li>● Update the Smart Antenna linked to the handheld terminal.</li> <li>● Restore the handheld terminal to factory settings.</li> <li>● Changing the password.</li> </ul>
	Manufacturer information ( <a href="#">see page 44</a> )	This function displays the following information: <ul style="list-style-type: none"> <li>● Terminal hardware version</li> <li>● Terminal firmware version</li> <li>● Smart Antenna firmware version</li> <li>● Terminal temperature</li> <li>● Battery voltage</li> </ul>
	Terminal parameters ( <a href="#">see page 46</a> )	This function is used to configure: <ul style="list-style-type: none"> <li>● Screen localization</li> <li>● Shutdown delay</li> <li>● Favorite mapping number</li> <li>● Ethernet port gateway and IP address</li> <li>● Backlight level</li> <li>● Data mode</li> <li>● RS485 link</li> <li>● TAG presence</li> <li>● Auto read mapping</li> <li>● Boot screen picture (upload from the USB memory key)</li> </ul>
	Mapping management ( <a href="#">see page 54</a> )	This function is used to access to the following elements: <ul style="list-style-type: none"> <li>● Backup and restoration of all user mappings from and to the USB memory key.</li> <li>● Export and import a user mapping from and to the USB memory key.</li> <li>● Creation, modification, copying, and deletion of mappings. Each mapping is password-protected.</li> </ul>
	Set date and time ( <a href="#">see page 49</a> )	Configuration of the terminal date and time.
	Reader Tools using network ( <a href="#">see page 52</a> )	Configuration of the Ethernet parameters of the XGCS850C201 Smart Antennas (IP address, gateway address, and subnet mask).

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# Chapter 2

## Navigation

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### Overview

This chapter presents the navigation principle of the XGST2020 handheld terminal.

### What Is in This Chapter?

This chapter contains the following topics:

Topic	Page
Home Screen	14
Navigation Buttons	16
Function Access	17
Data Edition	19

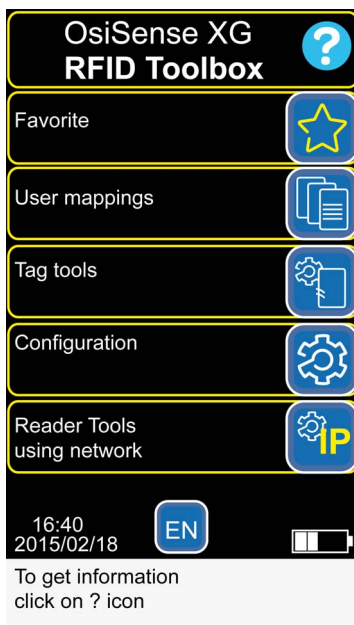
## Home Screen


### Introduction







The home screen allows you to access to all the terminal functions.

### Description

This illustration describes the home screen of the terminal:












Button or icon	Description
<b>Favorite</b>	Access to the favorite mapping ( <a href="#">see page 71</a> ).
<b>User mappings</b>	Access to the User mappings ( <a href="#">see page 67</a> ).
<b>Tag tools</b>	Access to the functions of the Tag tools category ( <a href="#">see page 24</a> ).
<b>Configuration</b>	Access to the functions of the Configuration category ( <a href="#">see page 38</a> ).
<b>Reader Tools using network</b>	Access to the configuration screen of the Ethernet parameters of the XGCS850C201 Smart Antennas ( <a href="#">see page 52</a> ).
	Access to the contextual help of the home screen.

Button or icon	Description
	Temporarily change the language setting ( <a href="#">see page 51</a> ).
	<p>Battery level indicator:</p> <ul style="list-style-type: none"><li>● Battery fully charged </li><li>● Battery capacity at 75% </li><li>● Battery capacity at 50% </li><li>● Low battery, connect the charger </li></ul>

## Navigation Buttons

### Description

This table describes the navigation buttons of the terminal:













Button	Description
	Return to the previous screen.
	Validation of the choice or of the entered value.
	Selection of the previous value in a list.
	Selection of the next value in a list.
	Selection of the previous page in a list.
	Selection of the next page in a list.
	Cancel the current function.
	Return to the home screen.
	Access to the contextual help of the current screen.














## Function Access

### Description

This table describes how to access each function from the home screen:

Category	Function	Button sequence
Direct processing of RFID tags	Read/write words ( <a href="#">see page 25</a> )	 
	Tag copy ( <a href="#">see page 30</a> )	 
	Tag initialization ( <a href="#">see page 33</a> )	 
	Tag presence ( <a href="#">see page 35</a> )	 
	Tag identification ( <a href="#">see page 36</a> )	 
User mapping	Mapping ( <a href="#">see page 67</a> )	
	Favorite mapping ( <a href="#">see page 71</a> )	

Category	Function	Button sequence
Configuration	Update the terminal <i>(see page 39)</i>	 
	Manufacturer information <i>(see page 44)</i>	 
	Terminal parameters <i>(see page 46)</i>	 
	Mapping management <i>(see page 58)</i>	 
	Set date and time <i>(see page 49)</i>	 
	Reader tools using network <i>(see page 52)</i>	

## Data Edition

### Introduction

Keypads are used to edit field values (parameter, address, value, name...).

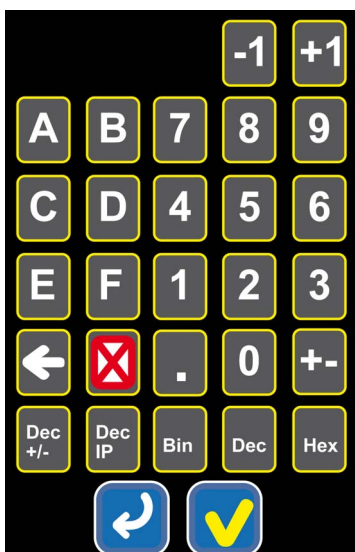
There are two types of keypads:

- Keypad for editing numeric fields
- Keypad for editing alphanumeric fields



The keypad is automatically displayed when a field is selected.











### Numeric Keypad

This illustration presents the data editor for numeric data:



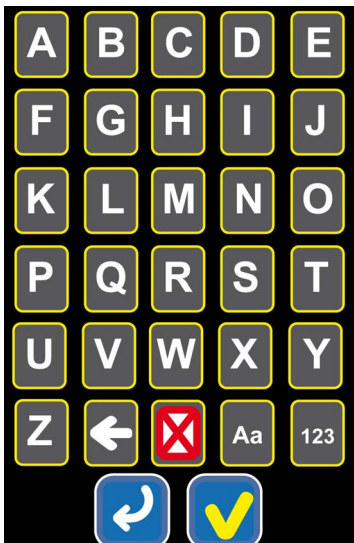
This table describes the data editor buttons:

Button	Description
	This button decreases the current value by 1.
	This button increases the current value by 1.






Button	Description
	If the display format is signed decimal ( <b>Dec +/-</b> ), this button inverts the sign of the current value.
	The value is displayed in signed decimal representation.
	The value is displayed in IP decimal representation, for example the value FFFF hex is represented 255.255 in this format.
	The value is displayed in binary representation.
	The value is displayed in decimal representation.
	The value is displayed in hexadecimal representation.
	The last digit of the value is erased.
	All the digits of the value are erased.
	This button applies the value to the current field and exits the data editor.
	This button restores the previous value of the field and returns to the previous screen.


## Alphanumeric Keypad

This illustration presents the data editor for alphanumeric data:



This table describes the data editor buttons:

Button	Description
	The keypad switches between uppercase to lowercase and conversely.
	The keypad is in numeric format.
	The last character of the field is erased.
	All the characters of the field are erased.
	This button applies the value to the current field and exits the data editor.

Button	Description
	This button restores the previous value of the field and returns to the previous screen.

### Data Edition

Proceed as follows to edit a field value:

Step	Action
1	Select the required field.
2	Select the field format.
3	Erase all the field or the last characters.
4	Enter the value with the keypad. <b>NOTE:</b> A long press on a character button repeats the character entry until the button is released.
5	Press the validation button.

---

# Chapter 3

## Function Description

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### Overview

This chapter describes the functions of the XGST2020 handheld terminal.

### What Is in This Chapter?

This chapter contains the following sections:

Section	Topic	Page
3.1	Tag Tools Category	<a href="#">24</a>
3.2	Configuration Category	<a href="#">38</a>
3.3	Mapping Management Category	<a href="#">54</a>

## Section 3.1

### Tag Tools Category

---

#### Introduction

This section describes the functions of the **Tag Tools** category.

#### What Is in This Section?

This section contains the following topics:



Topic	Page
Tag Reading/Writing Using Address	<a href="#">25</a>
Copy Tag	<a href="#">30</a>
Tag Initialization	<a href="#">33</a>
Verify Tag Presence	<a href="#">35</a>
Tag Identification	<a href="#">36</a>



## Tag Reading/Writing Using Address

### Function Access




From the home screen, press the following buttons:


Step	Menu or function	Button
1	Tag tools	
2	TAG reading/writing using address	

### TAG Reading

Proceed as follows to read a tag:

Step	Description
1	Enter the starting address of the area to read (in decimal or hexadecimal).
2	Select the <b>Size (Nb data)</b> field.
3	Enter the number of words to read (in decimal).



Step	Description
4	<p>Validate:</p>  <p><b>Result:</b> The following screen is displayed.</p> 
5	<p>Press the reading button:</p> 



Step	Description
6	<p>The read data of the tag are displayed on the screen with the selected displaying format:</p> 

### TAG Writing

Proceed as follows to write in a tag memory:

Step	Description
1	Enter the starting address of the area to write (in decimal or hexadecimal).
2	Select the <b>Size (Nb data)</b> field.
3	Enter the number of words to write (in decimal).



Step	Description																		
4	<p>Validate:</p>  <p><b>Result:</b> The following screen is displayed.</p>  <p>The screenshot shows a calculator interface with a table of values. The table has two columns: '@(DEC)' and '(HEX)'. The first column contains the decimal values 69, 73, 77, and 81. The second column contains the hexadecimal values 0000, 0000, 0000, and 0000. The calculator interface includes a top bar with navigation icons, a keypad with buttons for 'Dec +/-', 'Dec IP', 'abc', 'Dec', and 'Hex', and a bottom bar with navigation icons.</p> <table border="1" data-bbox="326 500 679 852"> <thead> <tr> <th>@(DEC)</th> <th>(HEX)</th> </tr> </thead> <tbody> <tr> <td>69</td> <td>0000 0000 0000 0000</td> </tr> <tr> <td>73</td> <td>0000 0000 0000 0000</td> </tr> <tr> <td>77</td> <td>0000 0000 0000 0000</td> </tr> <tr> <td>81</td> <td>0000 0000</td> </tr> <tr> <td></td> <td></td> </tr> <tr> <td></td> <td></td> </tr> <tr> <td></td> <td></td> </tr> <tr> <td></td> <td></td> </tr> </tbody> </table>	@(DEC)	(HEX)	69	0000 0000 0000 0000	73	0000 0000 0000 0000	77	0000 0000 0000 0000	81	0000 0000								
@(DEC)	(HEX)																		
69	0000 0000 0000 0000																		
73	0000 0000 0000 0000																		
77	0000 0000 0000 0000																		
81	0000 0000																		

Step	Description
5	<p>Enter the values to write in the table (press the table field to edit the value):</p> 
6	<p>Press the writing button:</p>  <p><b>Result:</b> The data are written in the tag memory.</p>

## Copy Tag

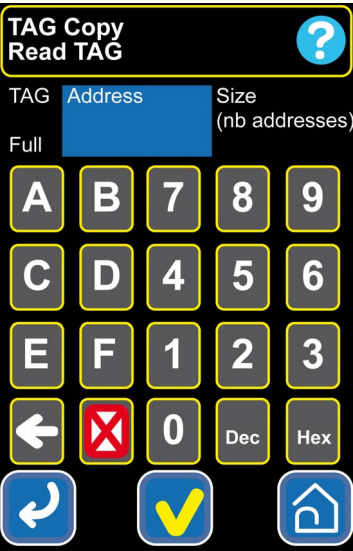
### Function Access





From the home screen, press the following buttons:

Step	Menu or function	Button
1	Tag tools	
2	Copy tag	

### Partial Tag Copy



Proceed as follows to copy an area of a tag memory:




Step	Description
1	<p>Press <b>TAG Full</b> if the terminal is not in <b>TAG Part.</b> mode.</p>  <p>Select partial or all Place TAG near to reader Press valid</p>

Step	Description
2	Enter the starting address of the area to read (in decimal or hexadecimal).
3	Select the <b>Size (nb addresses)</b> field.
4	Enter the number of words to read (in decimal or hexadecimal).
5	Validate: 
6	Validate to continue the sequence:  <b>Result:</b> The data are read and stored in the terminal memory.
7	Replace the source tag by the destination tag.
8	Press the <b>Write in TAG memory</b> button: 
9	Validate to continue the sequence:  <b>Result:</b> The data are written from the terminal memory to the tag memory.

### Full Tag Copy

Proceed as follows to copy all the tag memory:

Step	Description
1	Press <b>TAG Part.</b> if the terminal is not in <b>TAG Full</b> mode. 
2	Validate: 



Step	Description
3	Validate to continue the sequence:  <b>Result:</b> The data are read and stored in the terminal memory.
4	Replace the source tag by the destination tag.
5	Press the <b>Write in TAG memory</b> button: 
6	Validate to continue the sequence:  <b>Result:</b> The data are written from the terminal memory to the tag memory.



## Tag Initialization

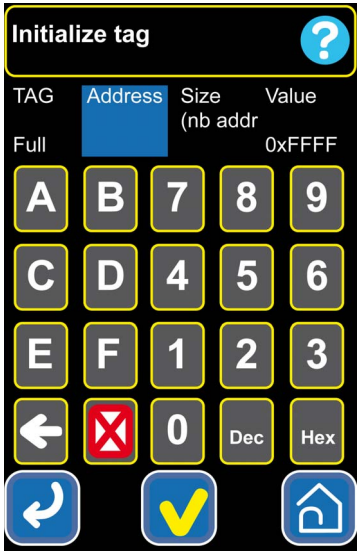
### Function Access



From the home screen, press the following buttons:

Step	Menu or function	Button
1	Tag tools	
2	Tag initialization	

### Partial Tag Initialization

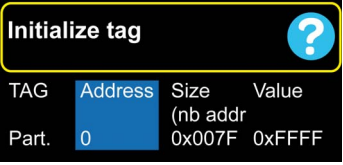


Proceed as follows to initialize an area of a tag memory:

Step	Description
1	<p>Press <b>TAG Full</b> if the terminal is not in <b>TAG Part.</b> mode.</p>  <p>Select partial or all Enter value Press valid</p>
2	Select the <b>Address</b> field.

Step	Description
3	Enter the starting address of the area to initialize (in decimal or hexadecimal).
4	Select the <b>Size (nb addr)</b> field.
5	Enter the number of words to initialize (in decimal or hexadecimal).
6	Select the <b>Value</b> field.
7	Enter the initialization value (in decimal or hexadecimal).
8	Validate: 
9	Validate to continue the sequence:  <b>Result:</b> The initialization value is written in the defined tag memory area.

### Full Tag Initialization



Proceed as follows to initialize all the tag memory:

Step	Description
1	Press <b>TAG Part.</b> if the terminal is not in <b>TAG Full</b> mode. 
2	Select the <b>Value</b> field.
3	Enter the initialization value (in decimal or hexadecimal).
4	Validate: 
5	Validate to continue the sequence:  <b>Result:</b> The initialization value is written in all the tag memory.

## Verify Tag Presence

### Function Access



From the home screen, press the following buttons:

Step	Menu or function	Button
1	Tag tools	
2	Verify TAG presence	

### Description

Press **Verify TAG presence** to start a continuous tag detection. Press any area on the screen to stop the tag detection.



The following table describes the function representation according to the tag presence:

Representation	Tag presence in front of the reader
	No
	Yes

## Tag Identification

### Function Access

From the home screen, press the following buttons:

Step	Menu or function	Button
1	Tag tools	
2	Tag identification	

### Description

The **Tag identification** function displays the following information:



---

Item	Description
Tag protocol	The protocol used by the tag: <ul style="list-style-type: none"><li>● ISO 15693</li><li>● ISO 14443A</li><li>● ISO 14443B</li></ul>
UID	The identification number of the tag.
Last available address	The last available address of the tag (in hexadecimal).
Memory size	The memory size of the tag (in bytes).

## Section 3.2

### Configuration Category

---

#### Introduction

This section describes the functions of the **Configuration** category.

#### What Is in This Section?



This section contains the following topics:

Topic	Page
Update Terminal	<a href="#">39</a>
Manufacturer Information	<a href="#">44</a>
Terminal Parameters	<a href="#">46</a>
Mapping Management	<a href="#">48</a>
Set Date / Time	<a href="#">49</a>
Language Setting	<a href="#">51</a>
Reader Tools Using Network	<a href="#">52</a>

## Update Terminal

### Function Access

From the home screen, press the following buttons:

Step	Menu or function	Button
1	Configuration	
2	Update Terminal	

**NOTE:** This page is protected by a password. The default password is **0000**.

### CAUTION

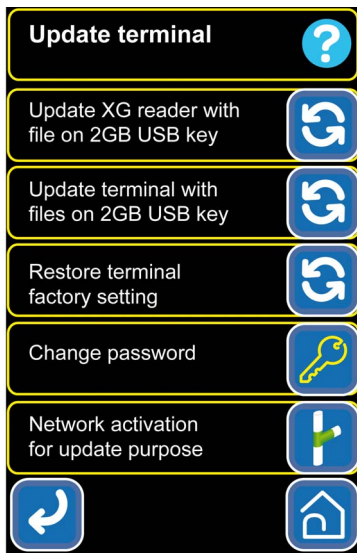
#### **EQUIPMENT DAMAGE**

The terminal battery must be fully charged or connected to the charger before starting a firmware update.

**Failure to follow these instructions can result in injury or equipment damage.**

## Description

This illustration presents the **Update terminal** screen:






Function	Description
<b>Update XG reader with file on 2GB USB key</b>	This function updates the Smart Antenna connected to the terminal with firmware provided on an external USB memory key.
<b>Update terminal with files on 2GB USB key</b>	This function updates the terminal firmware with firmware provided on an external USB memory key.
<b>Restore terminal factory settings</b>	This function restores the terminal with initial factory settings. <b>NOTE:</b> Your mapping files stored in the terminal are also deleted.
<b>Change password</b>	This function allows you to change the password to access this page.
<b>Network activation for update purpose</b>	Not used




## Reader Firmware Update



Proceed as follows to update the reader firmware:

Step	Description
1	Copy the firmware file (*.hex) on the USB memory key. <b>NOTE:</b> The USB memory key must be formatted in FAT16.
2	Press the <b>Update XG reader with file on 2GB USB key</b> button 
3	Connect the USB memory key to the terminal.
4	Validate: 
5	Select the firmware file in the list.
6	Validate to continue the sequence:  <b>Result:</b> The firmware update starts (approximately 1 min). <b>NOTE:</b> When the firmware update is finished, the terminal displays the home screen.

## Terminal Firmware Update



Proceed as follows to update the terminal firmware:

Step	Description
1	Copy the firmware file (*.hex) on the USB memory key. <b>NOTE:</b> The USB memory key must be formatted in FAT16.
2	Press the <b>Update terminal with files on 2GB USB key</b> button 
3	Connect the USB memory key to the terminal.

Step	Description
4	Validate: 
5	Select the firmware file in the list.
6	Validate to continue the sequence:   <b>Result:</b> The firmware update starts. <b>NOTE:</b> When the firmware update is finished, the terminal displays the home screen.




### Restore Terminal Factory Settings

Proceed as follows to restore the terminal factory settings:

Step	Description
1	If you want to keep your mapping files, back up the mapping files to the USB memory key (refer to Backup of all mappings ( <a href="#">see page 73</a> )).
2	Press the <b>Restore terminal factory settings</b> button: 
3	Validate:   <b>Result:</b> The factory settings are applied.

## Change Password



Proceed as follows to change the password:

Step	Description
1	Press <b>Change password</b> : 
2	Enter the new password (ASCII string of four characters).
3	Validate: 
4	Validate to confirm the new password:  <b>Result:</b> The new password is applied.

## Manufacturer Information

### Function Access

From the home screen, press the following buttons:

Step	Menu or function	Button
1	<b>Configuration</b>	
2	<b>Manufacturer information</b>	

### Description

The **Manufacturer information** function displays the following information:



Item	Description
<b>XG Pocket HW</b>	Hardware version of the terminal
<b>XG Pocket Firmware</b>	Firmware version of the terminal



---

Item	Description
<b>XG Reader Firmware</b>	Firmware version of the Smart Antenna (reader)
<b>Terminal temperature</b>	Terminal temperature (in °C)
<b>Battery voltage</b>	Battery voltage (in mV)

## Terminal Parameters

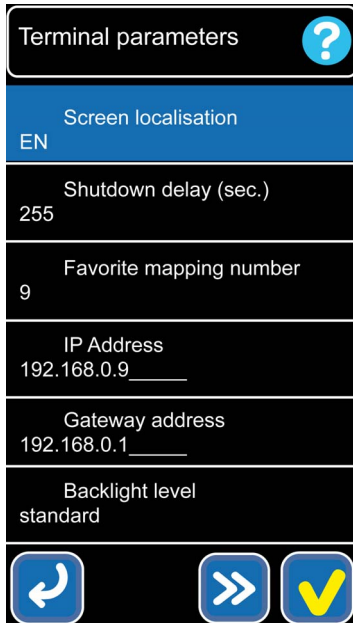
### Function Access

From the home screen, press the following buttons:

Step	Menu or function	Button
1	<b>Configuration</b>	
2	<b>Terminal parameters</b>	

### Description

The **Terminal parameters** screen displays the following information:



Parameter	Value	Description
<b>Screen localization</b>	EN FR	Defines the terminal localization.



Parameter	Value	Description
<b>Shutdown delay (sec.)</b>	20...254	Defines the shutdown delay in seconds in case of inactivity. <b>NOTE:</b> After a restart the terminal displays the screen displayed before the extinction.
	255	The shutdown delay is disabled.
<b>Favorite mapping number</b>	-	Defines the favorite mapping number accessible from the home screen.
<b>IP Address</b>	-	Defines the IP address of the terminal.
<b>Gateway address</b>	-	Defines the gateway address of the terminal.
<b>Backlight level</b>	standard eco	Defines the screen backlight level.
<b>Selected data mode</b>	standard byte mode reverse mode	Defines the data mode.
<b>Modbus slave address</b>	0...254	Defines the Modbus address.
<b>RS485 speed</b>	9600 19200 38400 57600 115200	Defines the RS485 link speed in bauds.
<b>RS485 nb bits</b>	5 bits 6 bits 7 bits 8 bits	Defines the number of data bits of the RS485 link.
<b>RS485 nb stops</b>	1 bit 2 bits	Defines the number of stop bits of the RS485 link.
<b>RS485 parity</b>	none odd even	Defines the parity of the RS485 link.
<b>Check TAG presence</b>	ON OFF	Enables/disables the automatic check of the tag presence before launching a read/write request. <b>NOTE:</b> For example set the parameter to OFF if you want to access to the Smart Antenna system area without the presence of a tag.
<b>Mapping : auto read</b>	ON OFF	If enabled, when a user mapping is selected the terminal automatically reads the tag.
<b>Change boot screen</b>	-	Allows you to change the boot screen from the USB memory key (* .bmp). <b>NOTE:</b> The size of the BMP file must be 272 (width) x 480 (height) pixels.

**NOTE:** The new parameter values are applied after a terminal restart.

## Mapping Management

### Function Access

From the home screen, press the following buttons:

Step	Menu or function	Button
1	<b>Configuration</b>	
2	<b>Mapping management</b>	



For more information about mapping management, refer to Mapping Management Category ([see page 54](#)).



## Set Date / Time



### Function Access

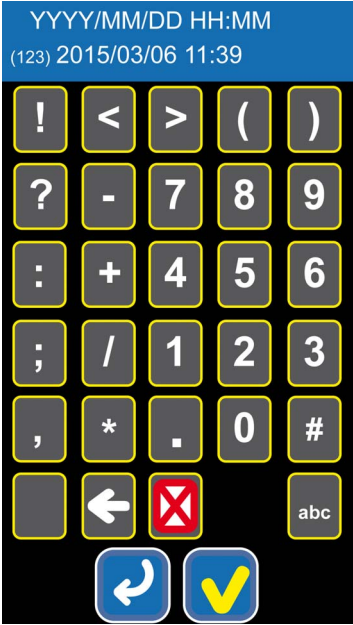


From the home screen, press the following buttons:

Step	Menu or function	Button
1	Configuration	
2	Set date / time	

### Description

Proceed as follows to set the date and time:

Step	Action
1	Erase the field or the last characters:  or 

Step	Action
2	<p>Enter the date and time with the following format: <b>YYYY/MM/DD HH:MM</b>:</p> 
3	<p>Validate:</p> 
4	<p>Validate to apply:</p> 

## Language Setting



### Description

The language setting of the terminal can be change:

- temporarily from the home screen (after a restart the previous language is used)
- permanently from the terminal parameters ([see page 48](#))

### Temporarily Language Setting


Proceed as follows to change temporarily the language setting:

Step	Action
1	Go to the home screen: 
2	Press the language button:  <b>NOTE:</b> The text localizations are loaded.

## Reader Tools Using Network

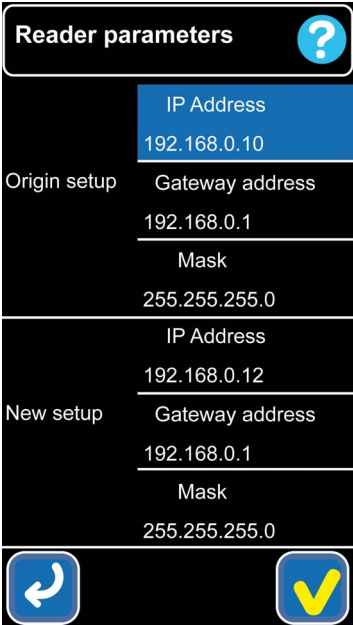
### Function Access



From the home screen, press the following buttons:

Step	Menu or function	Button
1	Reader Tools using network	

### Description

Proceed as follows to change the Ethernet parameters of a XGCS850C201 Smart Antenna:

Step	Action
1	<p>Select the <b>IP Address</b> field of the <b>Origin setup</b> area:</p> 
2	Enter the current IP address of the Smart Antenna.
3	Select the <b>Gateway Address</b> field of the <b>Origin setup</b> area.
4	Enter the current gateway address of the Smart Antenna.
5	Select the <b>Mask</b> field of the <b>Origin setup</b> area.

Step	Action
6	Enter the current mask of the Smart Antenna.
7	Select the <b>IP Address</b> field of the <b>New setup</b> area.
8	Enter the new IP address of the Smart Antenna.
9	Select the <b>Gateway Address</b> field of the <b>New setup</b> area.
10	Enter the new gateway address of the Smart Antenna.
11	Select the <b>Mask</b> field of the <b>New setup</b> area.
12	Enter the new mask of the Smart Antenna.
13	Validate: 
14	Verify that the terminal and the Smart Antenna are connected to the Ethernet network.
15	Validate to continue the sequence:  <b>NOTE:</b> The terminal restarts and applies the new parameters to the Smart Antenna.

## Section 3.3

### Mapping Management Category

---

#### Introduction

This section describes the functions of the **Mapping Management** category.

#### What Is in This Section?

This section contains the following topics:

Topic	Page
Mapping Description	<a href="#">55</a>
Mapping Management	<a href="#">58</a>
How to Use Mappings	<a href="#">67</a>
Favorite Mapping Definition	<a href="#">71</a>
Export/Import of Mapping Files	<a href="#">73</a>

## Mapping Description

### Introduction

A mapping is a list of variables, stored permanently in the terminal memory for quick and simple access by the operators.

Each mapping variable is associated with a name and displayed in a format selected from numerous possibilities, in read only or read/write mode.

Creation, modification and backup tools are embedded in the terminal software.

Up to 256 mappings can be stored in the memory (each being identifiable by a number and a name).





Each mapping can contain up to 256 variables. Each variable is defined by its position within the tag memory, its size, and its type (word or byte) and its display format on screen.

The data displayed on a mapping can be stored in the terminal memory (model) or written to a tag.

A backup of each mapping or all mappings can be stored on a USB memory stick inserted in the USB socket of the handheld terminal.

### Mapping Editor Description

This table describes the buttons of the **Mapping Management**, **Field list**, and **Values list** screens:

Button	Description
	Creation of a new mapping or a new field in a mapping, or a new value in a list.
	Modification of an existing mapping or an existing field in a mapping, or a value in a list.
	Duplication of an existing mapping or an existing field in a mapping, or a value in a list.
	Suppression of a mapping or a field in a mapping, or a value in a list.

## Mapping Field Parameters

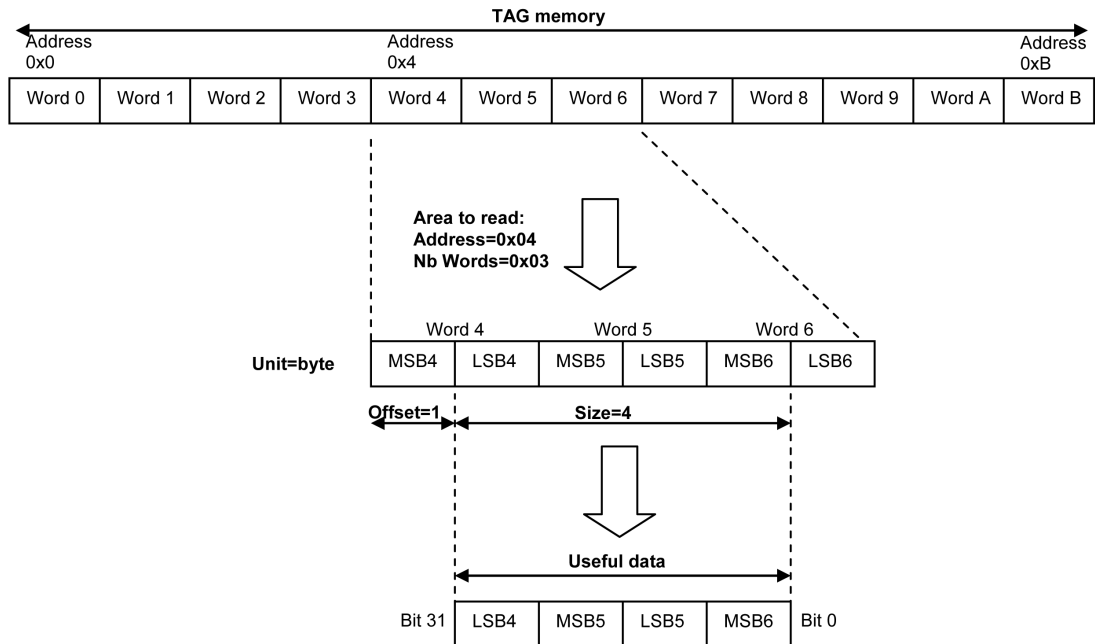
The table describes the parameters of the mapping fields:

Parameters	Value	Description
<b>Name</b>	-	Mapping name, ASCII string of 24 characters maximum.
<b>Address</b>	0...65535	Address of the first word to read in the tag.
<b>Nb word to read</b>	1...255	Number of words to read.
<b>Unit</b>	BYTE WORD	The unit of the field parameters <b>Offset</b> and <b>Size</b> .
<b>Offset (Nb Unit)</b>	1...255	The offset (in number of units from the <b>Address</b> ) indicates where the useful data begins in the area.
<b>Size (Nb Unit)</b>	1...255	The size (in number of units) of the useful data.
<b>Display</b>	Display format ( <a href="#">see page 57</a> )	Defines the format used to display the data. The value must be consistent with the parameters <b>Unit</b> and <b>Size</b> .
<b>Properties</b>	Read/Write Read/Only	Indicates the field access, read only or read/write.
<b>Bit #</b>	0...15	This parameter indicates the bit number if the <b>Display</b> parameter is defined as <b>BOOL</b> .

For example, if the parameters are defined with the following values:

- **Address**= 0x04
- **Nb word to read**= 3
- **Unit**= BYTE
- **Offset**= 1
- **Size**= 4





## Display Format




The terminal supports the following display formats:

Name	Description	Value
<b>DEC</b>	Decimal (1 word)	0...65535
	Decimal (1 byte)	0...255
<b>DEC+-</b>	Signed decimal (1 byte)	-128...127
<b>DEC IP</b>	Decimal IP (2 words)	0.0.0.0...255.255.255.255
<b>HEXA</b>	Hexadecimal (4 bytes)	0000...FFFF
<b>BOOL</b>	Boolean bit (1 bit)	Check box
<b>BIN</b>	Binary (1 byte)	00000000...11111111
<b>LIST</b>	List (1 byte) ( <a href="#">see page 64</a> )	0...15. A string associated with each byte value is displayed on screen in place of the byte value.
<b>ASCII STRING</b>	ASCII string	1...21 characters
<b>HEX STRING</b>	Hexadecimal string	2...30 hexadecimal characters (1...15 bytes)
<b>DATE</b>	Date (8 bytes)	YYYY/MM/DD
<b>TIME</b>	Time (2 bytes)	HH:MM

## Mapping Management



### Function Access

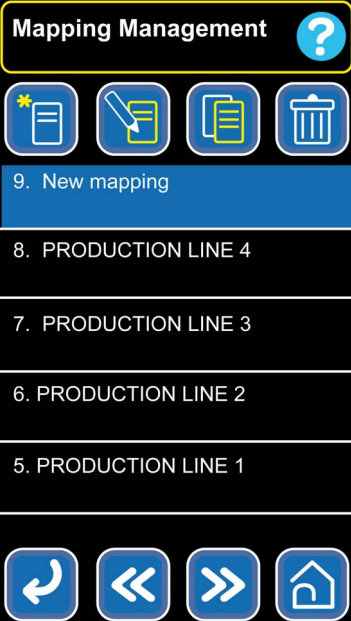



From the home screen, press the following buttons:


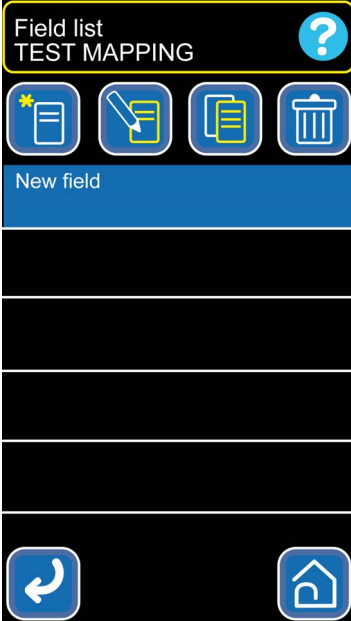


Step	Menu or function	Button
1	<b>Configuration</b>	
2	<b>Mapping management</b>	
3	<b>Mapping management</b>	






### Mapping Creation

Proceed as follows to create a mapping:

Step	Action
1	Press the new mapping button: 
2	Validate:   <b>Result:</b> A mapping named <b>New mapping</b> is added in the mapping list.

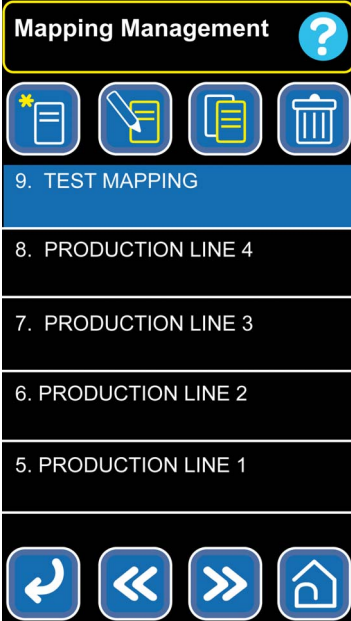

Step	Action
3	<p>Select the <b>New mapping</b> in the list:</p> 
4	<p>Press the edition button:</p> 
5	<p>Enter the password (by default <b>0000</b>).</p>
6	<p>Select the <b>Name</b> field to rename the mapping.</p>
7	<p>Validate:</p> 
8	<p>Select the <b>Password</b> field to modify the mapping password.</p>
9	<p>Validate:</p> 


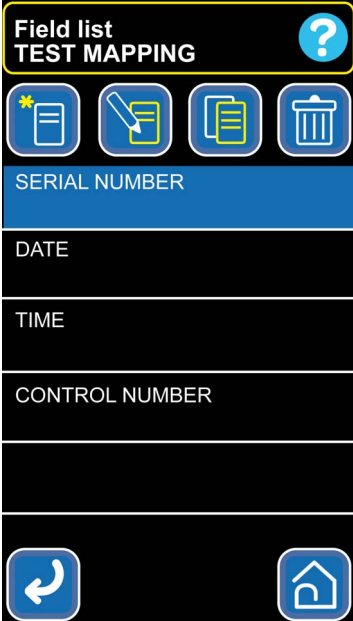


Step	Action
10	<p>Validate:</p>  <p><b>Result:</b> The <b>Field list</b> screen opens:</p> 
11	<p>Press the edition button to modify the <b>New field</b>:</p> 
12	<p>Press the parameters to configure their values. Refer to Mapping Field Parameters (<a href="#">see page 56</a>).</p>
13	<p>Validate:</p> 

Step	Action
14	<p>Press the button to add a new field:</p>  <p><b>NOTE:</b> You can duplicate an existing field with the button:</p> 
15	<p>Validate:</p> 
16	<p>Press the edition button to modify the <b>New field</b>:</p> 
17	<p>Press the parameters to configure their values. Refer to Mapping Field Parameters (<a href="#">see page 56</a>).</p>
18	<p>Validate:</p> 
19	<p>Repeat the steps 14 to 18 for each required field.</p>

### Mapping Modification

Proceed as follows to modify a mapping:

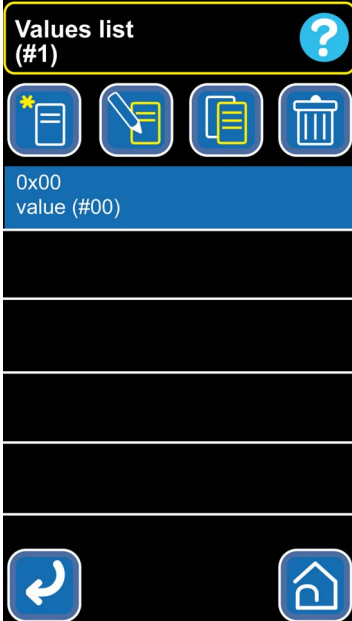


Step	Action
1	<p>Select the mapping to modify in the list:</p> 
2	<p>Press the edition button:</p> 
3	<p>Enter the mapping password.</p>

Step	Action
4	Validate:   <b>Result:</b> The <b>Field list</b> screen opens: 
5	Select the field to modify in the list.
6	Press the edition button to modify the field: 
7	Press the parameters to configure their values. Refer to Mapping Field Parameters ( <a href="#">see page 56</a> ).
8	Validate: 
9	Repeat the steps 5 to 8 for each field to modify.





### List Creation

If the **LIST** format is used for the displaying format of a field, the **Values list** screen opens automatically after the parameter configuration.

Proceed as follows to configure the list values:

Step	Action
1	By default the first value of the list is created: 
2	Press the edition button: 
3	Enter the string associated to the value 0.
4	Validate: 




Step	Action
5	<p data-bbox="332 201 861 224">Press the following button to add a new value in the list:</p>  <p data-bbox="332 358 401 378"><b>NOTE:</b></p> <p data-bbox="332 384 820 407">You can duplicate an existing value with the button:</p>  <p data-bbox="332 544 971 566">The value is automatically incremented when a new value is added.</p>
6	<p data-bbox="332 583 783 605">Press the edition button to modify the list value:</p> 
7	<p data-bbox="332 742 755 764">Enter the string associated to the new value.</p>
8	<p data-bbox="332 777 417 800">Validate:</p> 

Step	Action
9	<p>Repeat the steps 5 to 7 for each required value.  <b>Result:</b> The list is defined with the string associated with each value:</p> 
10	<p>Press the following button to return to the <b>Field list</b> screen:</p> 

## How to Use Mappings

### Function Access

From the home screen, press the following buttons:

Step	Menu or function	Button
1	User mappings	

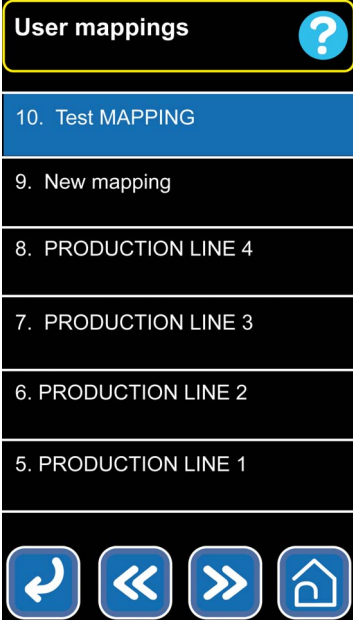
**NOTE:**

You can also access to your favorite mapping from the home screen:

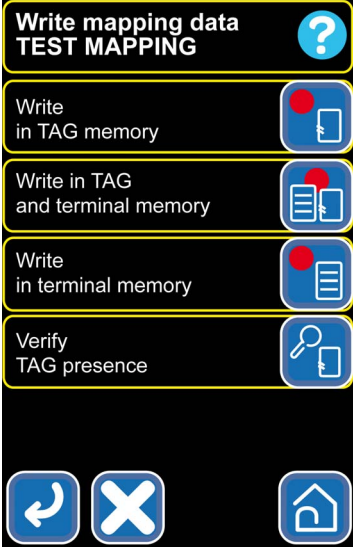


**Description**

Proceed as follows to use a mapping:

Step	Action
1	<p>Select the mapping in the list:</p>  <p><b>Result:</b> The <b>Read mapping data</b> screen opens.</p>



Step	Action
2	<p>Press the <b>Read data from TAG</b> button:</p>  <p><b>Result:</b> The terminal displays the mapping fields and their associated values.</p>
3	Modify the field values if needed (press the field to open the data editor).
4	<p>Validate:</p>  <p><b>Result:</b> The <b>Write mapping data</b> screen opens.</p>

Step	Action
5	<p>You can write the previously defined data:</p> <ul style="list-style-type: none"> <li>• in the tag memory</li> <li>• in the tag memory and the terminal memory</li> <li>• in the terminal memory</li> </ul>  <p><b>NOTE:</b> When the data are stored in the terminal memory, a model is created. Only one model per mapping can be stored in the terminal.</p>

## Favorite Mapping Definition

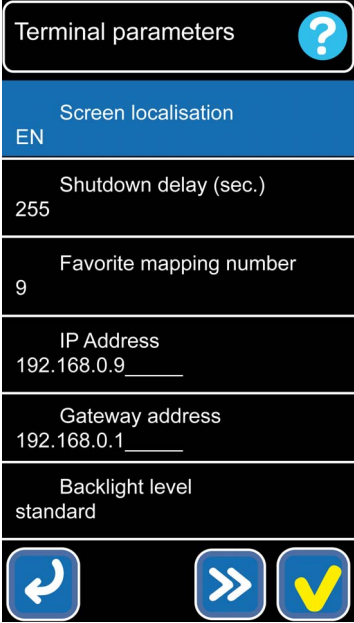
### Function Access




From the home screen, press the following buttons:

Step	Menu or function	Button
1	<b>Configuration</b>	
2	<b>Terminal parameters</b>	

### Favorite Mapping Definition

Proceed as follows to define your favorite mapping:

Step	Action
1	<p>Select the <b>Favorite mapping number</b> parameter in the list:</p> 



Step	Action
2	Enter your favorite mapping number.
3	Validate: 
4	Validate the new parameters: 
5	Validate:  <b>Result:</b> The new favorite mapping will be taken into account after a terminal restart.



## Export/Import of Mapping Files

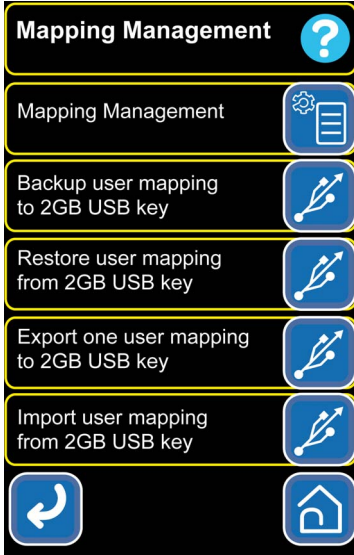
### Function Access


From the home screen, press the following buttons:

Step	Menu or function	Button
1	<b>Mapping Management</b>	
2	<b>Backup user mapping to 2GB USB key or Restore user mapping from 2GB USB key or Export one user mapping to 2GB USB key or Import user mapping from 2GB USB key</b>	

### Backup of All Mappings



Proceed as follows to export all mappings in one file:


Step	Action
1	<p>Press the <b>Backup user mapping to 2GB USB key</b> button:</p> 
2	Connect the USB memory key to the terminal.

Step	Action
3	Validate:  <b>Result:</b> The mapping file ( <code>MAPPING.CSV</code> ) is exported to the root folder of the USB memory key.

### One Mapping Export



Proceed as follows to export one mapping:

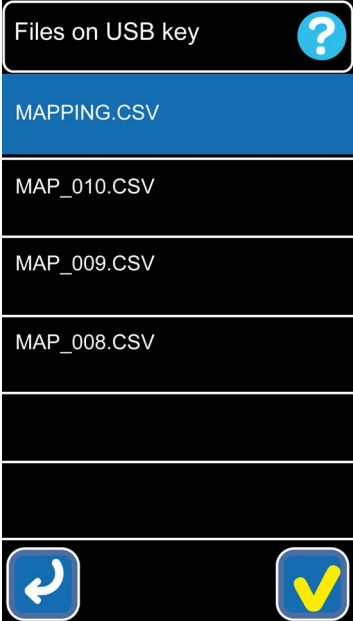

Step	Action
1	Press the <b>Export one user mapping to 2GB USB key</b> : 
2	Select the mapping to export in the list.
3	Validate: 
4	Connect the USB memory key to the terminal.

Step	Action
5	Validate:  <b>Result:</b> The mapping file (MAP_<mapping number>.CSV ) is exported in the root folder of the USB memory key.

## Restoration of All Mappings

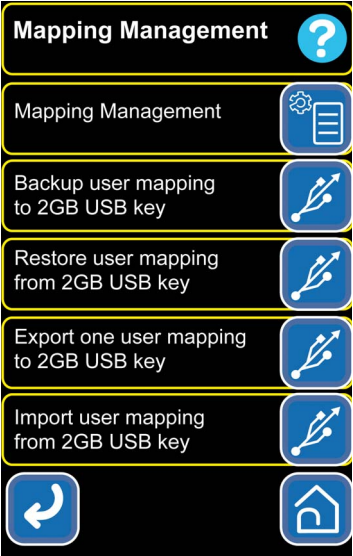

Proceed as follows to restore all mappings:

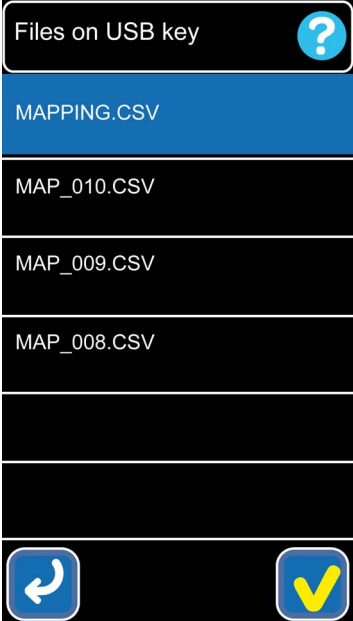

Step	Action
1	Verify that the backup file (MAPPING.CSV) is into the root folder of the USB memory key.
2	Press the <b>Restore user mapping from 2GB USB key</b> button: 
3	Connect the USB memory key to the terminal.
4	Validate: 

Step	Action
5	<p>Select the backup file (MAPPING.CSV) in the list:</p> 
6	<p>Validate:</p>  <p><b>Result:</b> The mappings are restored in the terminal memory from the backup file.</p>

## One Mapping Import

Proceed as follows to restore all mappings:

Step	Action
1	Verify that the mapping file (MAP_<mapping number>.CSV ) is into the root folder of the USB memory key.
2	Press the <b>Import user mapping from 2GB USB key</b> button:  <p>The screenshot shows a 'Mapping Management' menu with a question mark icon. The menu items are: 'Mapping Management' (with a gear icon), 'Backup user mapping to 2GB USB key' (with a USB icon), 'Restore user mapping from 2GB USB key' (with a USB icon), 'Export one user mapping to 2GB USB key' (with a USB icon), and 'Import user mapping from 2GB USB key' (with a USB icon). At the bottom, there are two icons: a circular arrow and a house icon.</p>
3	Connect the USB memory key to the terminal.
4	Validate:  <p>The screenshot shows a blue square button with a yellow checkmark, indicating a successful validation.</p>

Step	Action
5	<p>Select the mapping file (MAP_XXX.CSV) in the list:</p> 
6	<p>Validate:</p>  <p><b>Result:</b> The mapping is imported into the terminal memory from the mapping file.</p>



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