ETLOG APPLICATION OPERATING MANUAL

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ABOUT THE PROGRAM

EtLog is software for printing out logistic labels compliant with the global GS1 standard and, thanks to dedicated templates, with the specific requirements of commercial chains.

It offers the possibility of printing out labels using both laser printers and professional thermal transfer printers for warehouse applications.

The basis for working in EtLog is the use of label patterns designed by the manufacturer – called templates. These are the element of the software where information about the appearance of the label and the data included in it is saved.

The software makes it possible:

- to meet the requirements of commercial chains with regard to placing logistic labels on delivered logistic units;
- to place data on the label that ensures traceability of the origin of the goods, owing to the implementation of unique GS1 standards;
- to use logistic labels to improve internal warehouse processes;
- to avoid many errors at the stage of designing the content of the label as well as at the stage of code printing.

1. HARDWARE REQUIREMENTS AND NECESSARY SYSTEM SOFTWARE

Supported operating systems:

Windows 7; Windows 7 Service Pack 1; Windows Server 2003 Service Pack 2; Windows Server 2008; Windows Server 2008 R2; Windows Server 2008 R2 SP1; Windows Vista Service Pack 1; Windows XP Service Pack 3

Windows XP with SP3, Windows Server 2003 with SP2, Windows Vista with SP1 or newer, Windows Server 2008 (not supported in the case of the Server Core role), Windows 7, Windows Server 2008 R2 (not supported in the case of the Server Core role), Windows 7 with SP1, Windows Server 2008 R2 with SP1

Supported architectures:

x86, x64, ia64

Hardware requirements:

- Minimum recommendations: Pentium 1 GHz processor or faster and at least 512 MB of RAM
- Minimum disk space: 40 MB
- The graphics card and the monitor should provide a resolution of 1024x768 pixels.

The test version of the software is installed using the setup file available at http://etlog.ilim.eu/.

In order to make the software operable in its full version, it is necessary to purchase the user licence and the template that contains all necessary information to enable printing of a label with the selected data collection from ILiM. The licence is provided in the form of a file via electronic mail. The licence key and the template are provided in the same way. All of the elements can also be transferred to the target computer by means of storage media (e.g. memory sticks, CD-ROM).

***NOTE**: An Internet connection is not required to operate the software.*

Prerequisites:

- Windows 3.1 installer or newer
- EtLog requires FRAMEWORK .NET 4.0 for its proper operation

2. SOFTWARE INSTALLATION

***NOTE**: Before beginning the installation, make sure that the user has sufficient operating system permissions to install the new software on the selected PC.*

To install the EtLog software:

STEP 1. Download the demo setup file from www.etlog.ilim.eu.

***NOTE**: In case of installation of the software on a different PC than the one used for downloading the file, save the setup file and other files used in the operation of the application in the selected location or on a portable storage medium.*

***NOTE**: Some anti-virus systems may block the use of the file with the .msi extension. In case of installation of our software, it is required to ignore the security warning by selecting the [**Save**] option.*

STEP 2. After clicking the downloaded file, the Windows system message window will pop up on the screen (Fig. 1). Select the **[Run]** button and then follow the instructions on the screen.

STEP 3. After reading the terms of the licence, accept them by ticking the box [I accept the terms of the Licence Agreement], then click **[Next]**.

STEP 4. Selection of the software target location. The path may be defined manually, or you can use the location indicated by the system. Then click the keys **[Next]** and **[Install].**

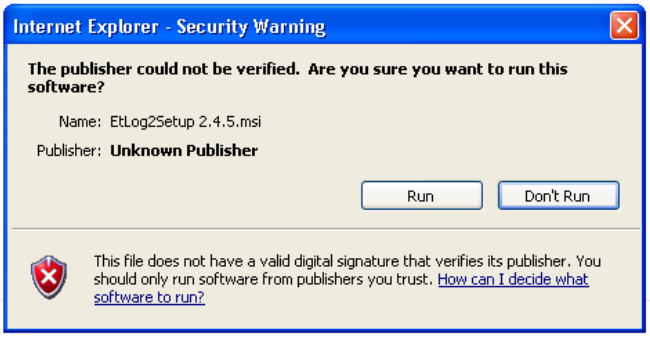

Fig. 1 Windows pop-up window with security warning and then choose the default installation location.

STEP 5. Following successful installation of the software a shortcut icon will appear on the computer desktop (Fig. 2).

Fig. 2 Software icon on the desktop.

After the activation of the software, a window with the following message will appear:

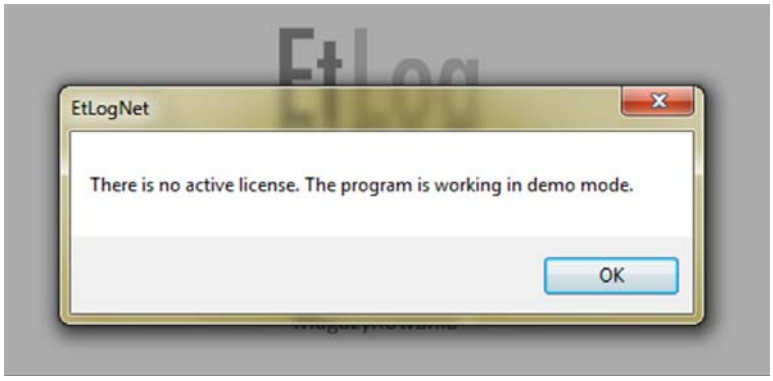

Fig. 3 Message about the installation of the test version.

The demo version has three example templates installed, and is limited to the generation of 16 SSCC numbers which are subsequently repeated. In order to use the full version, it is necessary to purchase a licence. The word “DEMO” is visible on the generated label.

2.1. VERSION UPGRADE

In the case of computers with a permanent connection to the Internet, the application is upgraded automatically. After activating EtLog, the window which lets you download a newer version of the software pops up (Fig. 4). After saving the setup file on the disk, run it and then follow the instructions on the screen.

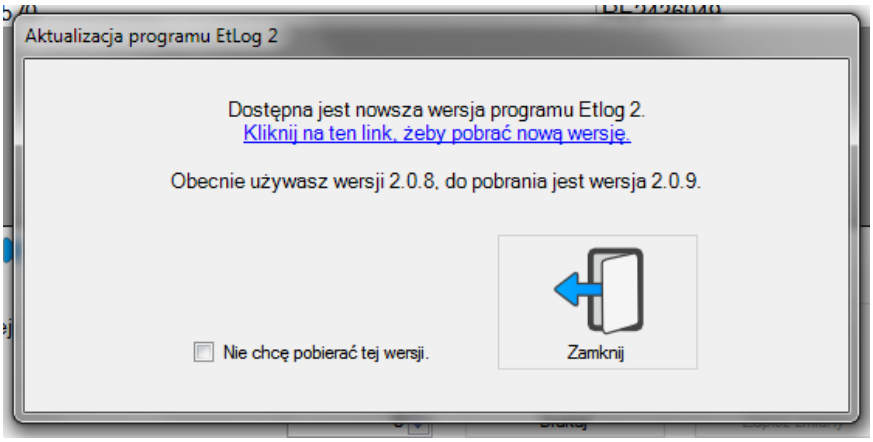

Fig. 4 The window informing the user about the availability of a new software version.

In the case of workstations with no access to the Internet, the EtLog update is performed manually. It is necessary to download the latest version of the software from etlog.ilim.eu, save it on a data medium, copy it from the medium to the disk on which Etlog is installed, and activate the installer by double-clicking it with the mouse. If the software is installed in the default catalogue set by the installing program, then the standard installation will take place, which is in fact a version upgrade. If the software was installed in a different folder than the default one, then that folder must be indicated in the relevant window of the installer.

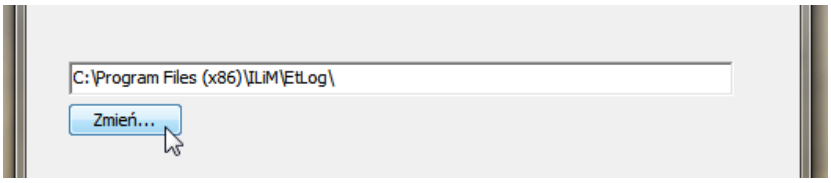

Fig. 5 The window for changing the installation folder.

The software update does not delete the registered templates or the data on products or contractors saved by the user. Also, the history of assigned SSCC numbers and printed labels is maintained.

3. PREPARATION OF THE SOFTWARE FOR OPERATION

After starting the software, it is recommended to configure the basic application parameters.

3.1. LICENCE ACTIVATION

The licence file, including the encryption key, is sent to the user electronically. It must be saved in the selected location from which its subsequent activation will be possible.

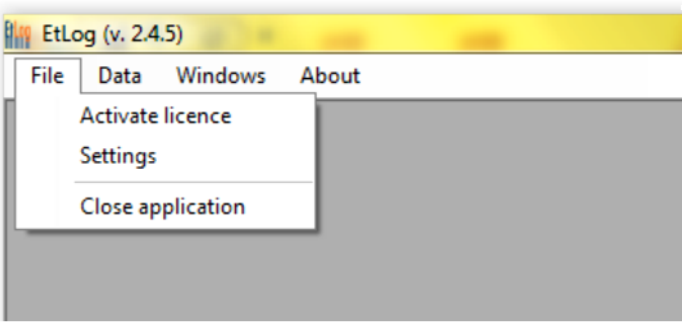

Fig. 6 Selection of the licence activation function.

STEP 1. In order to start the full version of the EtLog software, select the option **[File\Activate licence]** on the main menu, and then, in the dialogue window (Fig. 7), in the [Key] field, enter or paste (Ctrl+C, Ctrl+V) the key that was sent to you.

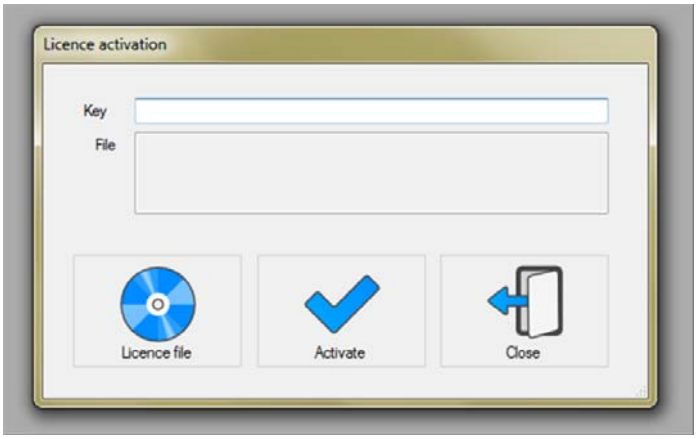

Fig. 7 Licence activation window.

STEP 2. Press the screen button **[Licence file],** opening the standard Windows window that enables file selection. Indicate the previously saved licence file and use the **[Activate]** button. After activation of the key and licence, the application must be closed and restarted.

***NOTE**: If a company has more than one Company Prefix (CP) used to create SSCC numbers, separate licence files and encoding keys dedicated to specific CP numbers will be sent to the user.*

***NOTE:** The licence rules and the regulations for using the application are specified in a separate licence document, also available at etlog.ilim.eu*

3.2. PRINTER SELECTION

The EtLog software supports the printing of standard logistic labels using any laser printers and specialised thermal transfer printers.

The application detects the printers installed on the PC automatically. In order to indicate the default device, select the appropriate printer after the activation of the application, on the software's bottom menu bar.

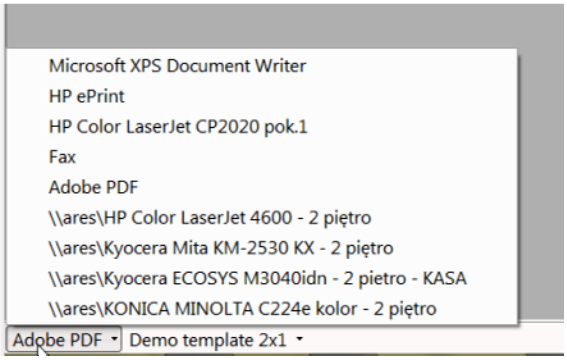

Fig. 8 Selection of the printer from the bottom menu bar.

As the default format for printing GS1 logistic labels, the EtLog software assumes the option of printing two, identical labels in A5 format (with the same SSCC number and content), on one side of A4 paper, with a horizontal orientation.

In the case of labels for standard collective packaging, the format and the number of labels on a page is determined by the template.

NOTE: *The software does not provide for the possibility of user intervention with regard to the format or size of the label.*

NOTE: *The software manufacturer recommends the use of dedicated consumables of adequate quality for printing the logistic labels (with enhanced resistance to weather conditions).*

***NOTE:** It is not recommended to use ink printers for printing the logistic labels, in view of the possibility of watering down of the edges and code bars due to moisture. This often makes reading of the information saved in the code impossible.*

3.3. LOGISTIC LABEL TEMPLATES

The system in the demo version contains several templates with predefined content. The demo version allows 16 example labels to be printed out.

On purchasing the software licence, the user receives a dedicated label template from the application supplier, compliant with the requirements stated when placing the order for the EtLog application. At the stage of definition of the template content by the software manufacturer, the user may determine which fields and what types of data are to be presented on the label. It is also possible to define which of the fields and their functions are required.

Depending on the user's requirements, the EtLog software enables the application of one or many templates for logistic labels. The template selection is made by means of the bottom toolbar. The selection is confirmed by clicking on the name of the required template.

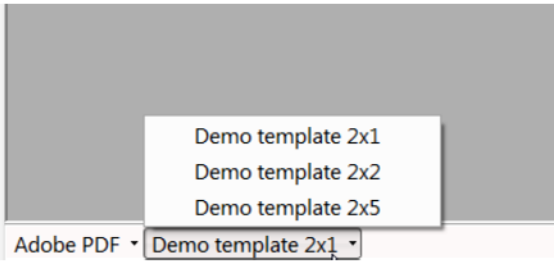

Fig. 9 Selection of the template from the bottom menu bar.

The ordered template is sent to the application user via e-mail (in .tpl file format). When the template sent by the software supplier is saved to disk, it is possible to change its file name (but without changing the extension!), so as to help operators of the application to choose the desired template. Saving of the template in a defined location and change of file/template name are performed in standard dialogue windows of the Windows system.

Templates are imported from the application by means of the [**Data/Import templates**] option in the upper menu bar.

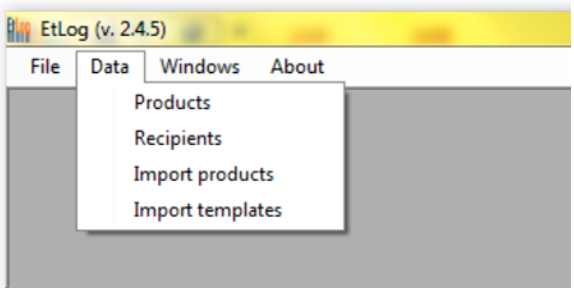

Fig. 10 Selection of the template import function.

3.4. SETTINGS OF THE SSCC NUMBER POOL

The **[File\Settings]** menu enables selection of the proper settings for generating the SSCC numbers.

The SSCC numbers are generated on the basis of the Company Prefix CP saved in the licence file. In the case of companies which have several GPCs, individual setting of the parameters used for generation of the SSCC number is required.

In order to select the CP, use the drop-down window in the [**Settings\CP**] tab.

Fig. 11 Software setting window.

STEP 1. Definition of the **CP** field based on which the SSCC numbers will be generated. The software manufacturer recommends the selection of one CP, with as few digits as possible. The number selected in this manner will allow the creation of a greater quantity of unique SSCC numbers.

STEP 2. The user defines the fields in the [Counters for SSCC prefix digits] window. The prefix field allows the selection of the indicator digit for the SSCC number, that is, the first digit in the SSCC number. The software supplier recommends, in accordance with the GS1 standard, the selection of "0" as the indicator digit. It is selected by marking the right field in the **[Active]** column.

The activation of subsequent prefixes (indicator digits) in case of depletion of the pool of numbers takes place automatically.

STEP 3. Definition of the **[Counter]** field. Manual entry of a digit other than "0" allows the SSCC number generation process to be activated at the segment level of the SSCC serial number, from the number indicated by the user.

STEP 4. Settings for the selected fields are selected by clicking on the **[Save changes]** button.

3.5. PRODUCT DATABASE

3.5.1. PRODUCT DATA IMPORT

The product import option (menu bar – [Data/Import products]) allows the entry of all the necessary information about the products from external sources into the EtLog application database.

The EtLog software allows file import (Fig. 12), including product descriptions prepared in CSV or TXT formats.

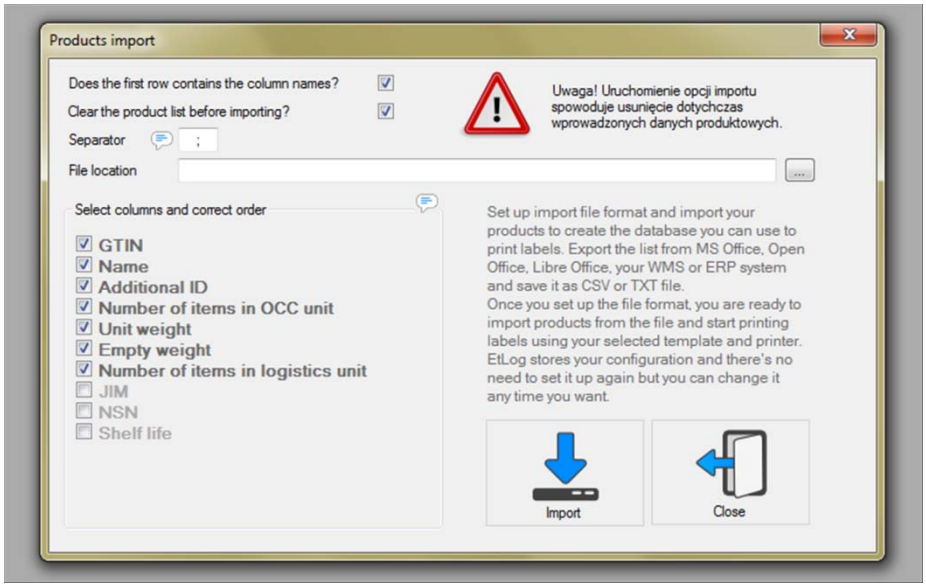

Fig. 12 Product import window.

At the stage of configuration of the file for import, the following actions must be performed:

STEP 1. The user should define whether there is a heading line in the imported data file. Selection of this option will allow the appropriate attribution of the data in the imported file to the required attributes describing the product.

NOTE: *If the data in the file have headings and the user does not indicate this, data import will not be possible.*

STEP 2. Determination of the data separator. When importing data from .CSV or .TXT files, it is necessary to separate the strings of data in one line of the saved text, so that the software can unambiguously distinguish the beginning and the end of the content located in the data window. It is important not to use as separators any characters that are used at the product description stage. This may cause improper division of the content. We recommend the use of a colon as the separator (this is the default setting in the import window).

NOTE: *If MS Excel is used to prepare the data export file, export the file in CSV format, separated with commas. In the local version of this spreadsheet, colons will be inserted as separating characters.*

NOTE: *If any of the fields is empty in the export file, that record will be imported and an EtLog import error message window will appear.*

STEP 3. Determine the sequence of columns in the file. The software allows the determination of the sequence of data transferred from the columns in the given file. Particular attention must be paid to the proper setting of this parameter, as this has an impact on the correctness of the data in the application's product database.

In order to mark the data columns which are to be imported to the system, mark the appropriate field next to the label marking the selected file type (see Fig. 12).
The sequence is established by dragging the active data fields to the required place, using the mouse cursor.

STEP 4. File location. In order to select the file location, the standard dialogue window of the Windows system should be used, and the selection confirmed with a button.

STEP 5. File import. The data import process will be started after selecting the **[Import]** button.

NOTE: *The import of data to the EtLog application, depending on the selected option, causes the deletion of the data entered so far or the addition of the imported data to the existing data set. We recommend caution at the data entry stage.*

NOTE*: The software creator will not be liable for loss of data resulting from improper performance of data import. Additionally, a message is displayed concerning the consequences of overwriting the data using the import option.*

3.5.2. MANUAL ENTRY OF DATA TO THE PRODUCT DATABASE

The **[Data/Products]** menu on the upper bar enables activation of the **[Products]** window, which is the basic dialogue window in the EtLog application. Using this window, it is possible to add data about new products, edit them, delete them and save changes manually. An important activity performed in this window is the selection of the product for which you want to print out a label according to the selected template.

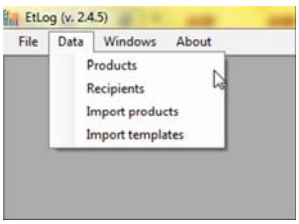

Fig. 13 Product window selection.

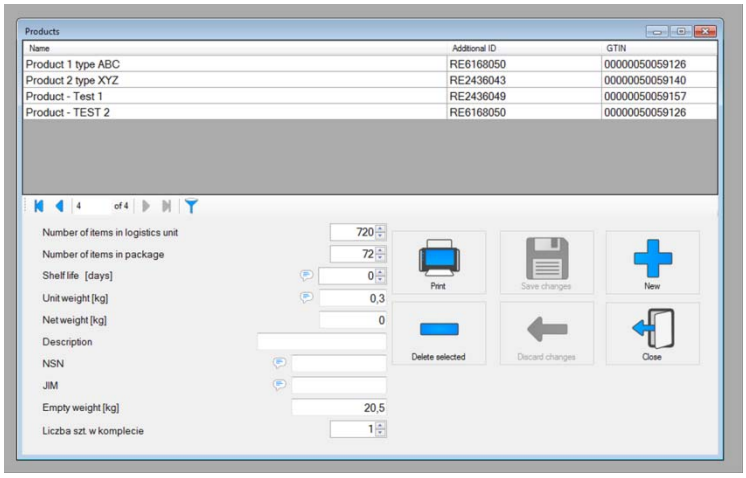

Fig. 14 Function window: "Produkty" [Products].

ADDITION OF A NEW PRODUCT

STEP 1. To start the addition of the new product data, click the button 

STEP 2. Next, enter the data regarding the described product into the relevant fields. Note that the upper part of the form contains the main data, and the bottom part contains supplementary data. We suggest using the Tab key to move to the next field after entering the data in one field. You will then go through all the fields one after another, and the cursor will always move to the first free column.

STEP 3. After completing all the fields, save the changes by clicking the button . 

DESCRIPTION OF THE PRODUCT DATABASE FIELDS

NAME: An alphanumerical field containing the product name, which identifies the product unambiguously.

SYMBOL: An alphanumerical field which may be used to enter the internal product number or any other additional information about the product, e.g. SAP number, catalogue number. The data from this field may also be used to print the logistic label. The obligation to complete this field is defined at the stage of preparation of the template order and definition of its content. If the template does not provide for the use of the data saved in this field on the logistic label, the user may use this space freely.

GTIN: This numerical field allows the entry of the product number. In accordance with the GS1 standard, the product data should be entered as 14 digits. In the case of GTINs with a length of 8, 12 or 13 digits, the software will automatically complete the missing spaces before the code with unmarked zeros. See the principles of GTIN creation described in this manual on page 20. The field allows the entry of a GTIN of any length. The field features control digit validation (the software calculates the control digit, allowing you to check whether you have entered the whole number correctly). The system allows the entry of several identical GTINs.

NUMBER OF ITEMS ON A LOGISTIC UNIT: This is a numerical field. The standard number of items of the entered product must be entered in this field, this being the number which a given logistic unit, e.g. a pallet, usually contains. The data from this field will be used to determine the number of items of the described product on the logistic unit. It should be noted that this number can be changed in the print window (e.g. when printing out a logistic label for an incomplete pallet). The number may also be used to determine the total net weight of the products placed on the whole logistic unit.

NUMBER OF ITEMS IN A PACKAGE: This is a numerical field which contains the number of items of basic products in a collective package (completed only when describing a product which is a package containing a number of basic product packs).

SHELF LIFE: This is the product shelf life specified in days, weeks or months. Click on the time unit (e.g. [days]) to change it.

WEIGHT: This is a numerical field. The user should enter the gross weight of the standard collective package in this field. The data from this field will be used to define the gross weight of the whole logistic unit. The weight must be given in kilograms.

NET WEIGHT: This is a numerical field. The net weight of the product must be entered in this field in kilograms.

NOTE: *Use a comma as the separator in the weight field to separate whole numbers from decimals.*

ADDITIONAL DESCRIPTION: This is an alphanumerical field. The field may contain any additional product description. The data from this field may also be used on the logistic label print-out. The obligation to complete this field is defined at the stage of preparation of the template and definition of its content. If the template does not provide for the use of the data saved in this field on the logistic label, the user may use this space in any manner.

NSN: This is an alphanumerical field (NATO Stock Number or National Stock Number). It is a 13-digit stock number (code) applicable in NATO, which identifies the respective material products for the armed forces (e.g. armaments, military equipment, uniforms, equipment, etc.). This field is to be used by companies which are suppliers to the armed forces.

UMI: This is an alphanumerical field in which the symbol of the Uniform Material Index used for identification of products supplied to the armed forces is to be entered.

CARRIER WEIGHT – i.e. the weight of a pallet or any other carrier (box) on which the commercial units are transferred.

NOTE: *Use a comma as the separator in the weight field to separate whole numbers from decimals.*

3.5.3. FUNCTION AND NAVIGATION BUTTONS

Screen keys that enable the activation of various functions necessary for the performance of the intended functions of the software are present in the Produkty [Products] window.

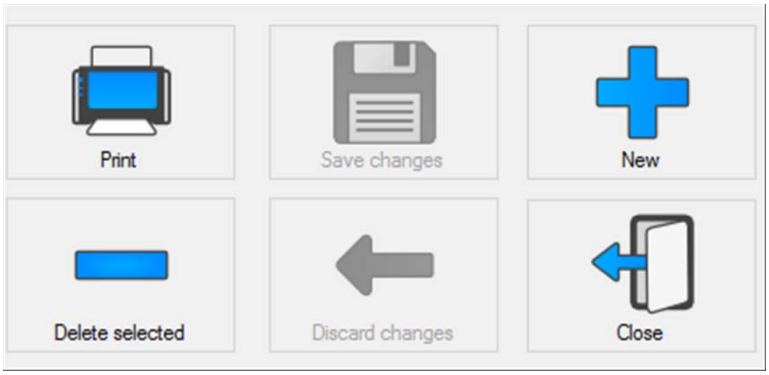

Fig. 15 Function buttons of the [Products] window.

Print	Activates the function window which allows the logistic labels to be printed out.
Save changes	Saves the changes made to the product sheet.
+	To add a product to the assortment list.
-	To delete a product from the assortment list.
Undo changes	Cancels the changes made to the product sheet before they are saved.
Close	Closes the [Products] window.

The working window [Products] is provided with function buttons which let you navigate the respective product sheets or move to the first or last line of the list.

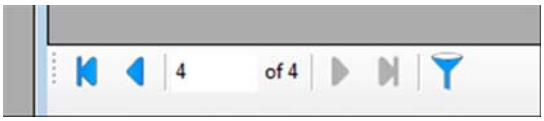

Fig. 16 Navigation buttons for the [Products] window.

Go to first line.

Go to previous line.

Go to next line.

Go to last line.

Activate filter.

A single click of the mouse key on the bar with the headings of columns of the product table causes the whole table to be sorted in descending or ascending order according to the selected column. Additionally, the product browsing system is supported by the filter option (an icon with a funnel), which enables the browsing of products after entering the relevant content.

In the field above the selected column, enter any string of characters occurring in the data in the selected column (Fig. 17). The filter will reject the lines which do not contain the entered string.

Fig. 17 Filters enabling the browsing of products in the database.

3.6. RECIPIENT DATABASE

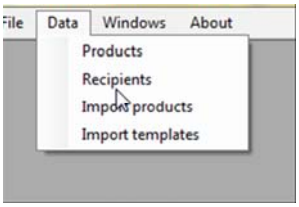

Fig. 18 Selecting the recipients window.

This window is for entering and selecting the companies whose data may be included in the label, in the heading or in the form of a GLN. This is determined by the template on each occasion.

The list of recipients is added manually, as in the **[Products]** window, and requires the entry of data on the parties for which the given logistic unit (e.g. a pallet) is picked and shipped. Just as in the case of the **[Products]** window, the main data are contained in the upper part, and upplementary data appear in the lower part.

When entering data on recipients, the user can include the following information about contractors in the database:

FULL NAME: name of the recipient, according to legal documents or arrangements between the parties;

ADDRESS DATA: street, town, postal code (also in alphanumerical version), country, and region;

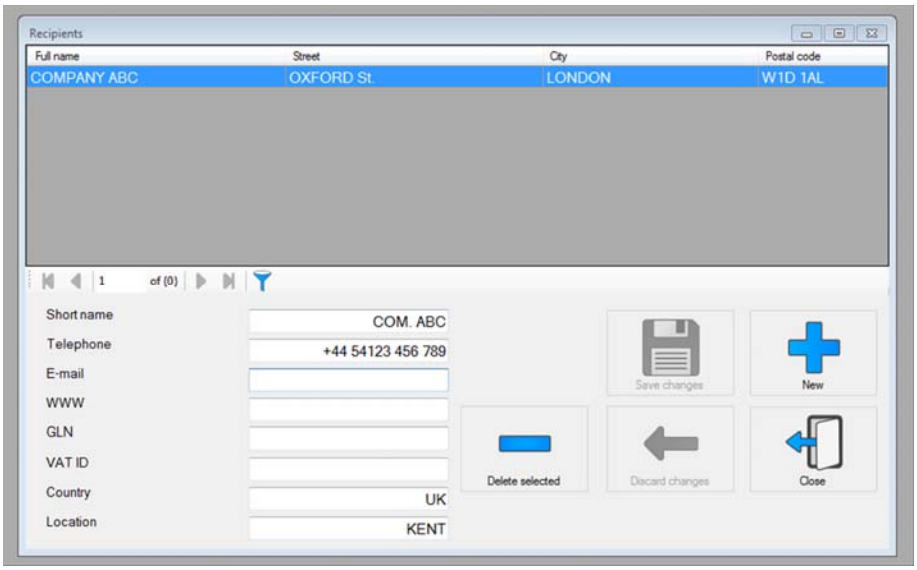

Fig. 19 Function window for a recipient.

ABBREVIATED NAME: the abbreviated company name which can be used on the label (e.g. if the full name is very long and may take up too much space on the label);

CONTACT DATA: phone number, e-mail, and website;

GLN – a Global Location Number compliant with the GS1 standard. Depending on the label template and the requirements of the recipient, this 13-digit number can be used to identify the recipient or the delivery location;

VAT – Tax Identification Number – the application does not recommend this method of data entry.

4. LABEL PRINTING

4.1. PRODUCT SELECTION

To print a label, begin by selecting the product that appears on the logistic unit, using the **[Products]** window.

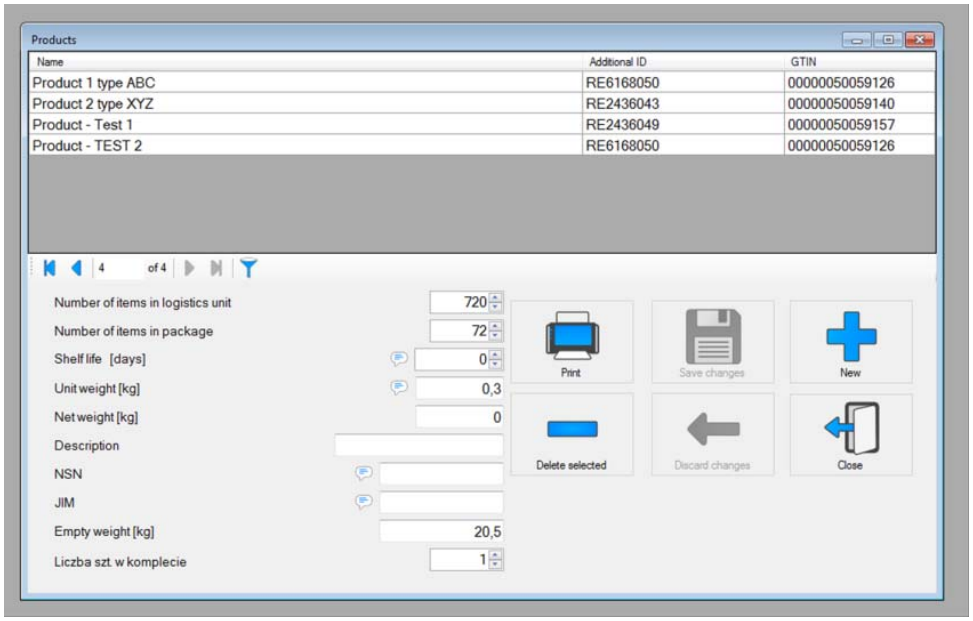

Fig. 20 Selecting the product for which the label is to be printed.

Then press the screen key **[Print]** , and a print window will pop up where further data can be entered.

4.2. CONTENT SETTINGS AND LABEL PRINT-OUT

The content of the print window may vary depending on the label template used. Fig. 23 shows an example window. Red labels indicate required fields.

After filling in all required fields, press the screen key . A view of the label print-out will then appear in the right part of the window. After checking that everything has been interpreted correctly and there are no errors, press the screen key . The label will be printed using the previously selected printer.

Number of labels with identical SSCC – the default number of identical labels printed and glued to the given logistic unit, indicated in the template.

Number of SSCCs – how many pallets with a given product/goods are to be described.

Page – selection of the page to be displayed in the preview on the right-hand side of the window.

Date – this field is completed automatically. By default, the current date is entered from the operating system. This field is editable and can be used (depending on the template) to set (for example) the date of manufacture or packing date.

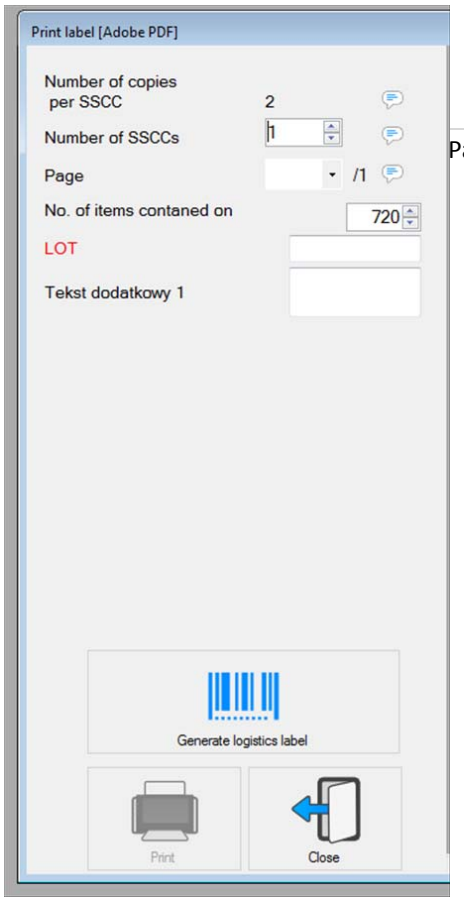

Fig. 21 Part of the label printing window

Date of minimum durability – a calculated field. The number of days specified in the **[Durability]** field in the product database for the goods in question is added to the current system date.

Number of items on the logistic unit – a default field completed with the corresponding number from the product database. The number may be edited when creating a label for a logistic unit with incomplete content (end of production series).

Series – the production batch code, entered manually on each occasion.

Additional text – textual fields, completed manually. Their occurrence and names are specified in the label template.

Sometimes a data item with variable length, such as the production batch code or order number, is very long. This may cause a significant increase in the barcode width, which in extreme cases may exceeds the print field width. The software will indicate this as shown in Fig. 24.

Fig. 22 Error: excessive barcode length.

NOTE: *If the template requires the entry of data from the Recipient database (e.g. GLN), a label without barcodes (for example) may appear on the print preview. Then you should open the Recipient window (Fig. 19) and select the company, leaving the window open.*

5. GS1 GUIDELINES FOR USING LOGISTIC LABELS

The logistic label is one of the basic tools used to mark and monitor the flow of transport units.

The information included in the label is presented in the form of legible text or in encrypted form using the GS1-128 code.

The GS1 logistic label consists of three parts.

The upper part of the label contains any textual information.

The middle part contains textual information and the interpretation of the barcode symbols in a visually legible format.

The bottom part contains barcode symbols. The logistic label is used to mark and identify logistic units, especially by manufacturers and suppliers.

Many companies also use logistic labels for the identification of goods shipped abroad, and hence great importance is attached to uniform and standard identification that meets the criteria applied by many European companies.

5.1. INFORMATION CONTENT ON THE LABEL

5.1.1. GS1 APPLICATION IDENTIFIERS

Application Identifiers (AIs) are prefixes established at international level which identify uniquely the meaning and format of the field for the data that follow. The data which follow after a specific Application Identifier may be alphabetical and/or numerical characters. The data fields are of fixed or variable length, depending on the Application Identifier. There are a number of identifiers intended for the presentation of additional data, e.g. batch number, “best before” date, and number of items. Full information about the Application Identifiers, as well as GS1-128 symbols, is contained in the “GS1 General Specifications” and documents of national GS1 organisations available at www.gs1.pl.

Fig. 23 Appearance of an example logistic label.

Various information agreed between business partners may be included in the logistic label. Each piece of information must be preceded by an appropriate Application Identifier; however, it should be remembered that space on the label is limited, and so it is good to apply the principle of including only a minimum amount of information, so as to allow the unambiguous identification of the logistic unit and the goods on it, and to

provide necessary data such as shelf life or production batch code. We will briefly discuss the two main numbers that identify the goods and the logistic unit.

NOTE: *Responsibility for the data contained in the label and its correct print-out rests with the company that creates the logistic label.*

5.1.2. BASIC IDENTIFICATION NUMBERS OF THE GS1 STANDARD

SSCC

Together with representatives of manufacturers, retailers, carriers and domestic organisations, the GS1 organisation developed a standard for identifying any logistic units with the use of barcodes – the GS1 logistic label.

Logistic units are created for transport and distribution purposes; for example, a logistic unit may be a pallet, a box, a basket, a hanger, etc. Use of the GS1 logistic label provides the possibility of unique identification and tracking of logistic units within the entire supply chain. For this purpose, each logistic unit must have a unique number assigned – the **S**erial **S**hipping **C**ontainer **C**ode (SSCC). Scanning of the SSCC number placed on the logistic unit and given in the barcode enables the tracking of the physical flow of units so as to associate it with the flow of corresponding business information recorded in the IT system.

The use of the SSCC to identify logistic units enables the introduction of a broad range of logistic applications, such as *cross docking*, shipping route tracking, automatic delivery acceptance, etc. Also, additional data may be presented on the logistic label, e.g. production batch number, number of ancillary packaging, product shelf life (“best before” date), and ancillary (commercial) unit identifier included in the logistic unit identified with the SSCC number.

The SSCC number is, according to the international standards, an obligatory element of the logistic unit, and is generated by the company that creates the logistic unit. The company that creates the logistic unit and generates the label with the SSCC number must be registered with the GS1 organisation and apply its own company prefix. The SSCC structure is presented in Table 1.

Table 1 General structure of the SSCC number

Application Identifier	Serial Shipping Container Code (SSCC)		
	Complementary digit	GS1 company prefix and unit identification	Control digit
0 0	N_1	N_2 N_3 N_4 N_5 N_6 N_7 N_8 N_9 N_{10} N_{11} N_{12} N_{13} N_{14} N_{15} N_{16} N_{17}	N_{18}

The **Application Identifier (AI)** for the SSCC is always ”00”. The identifier is used in the GS1-128 barcode to ensure the correctness of the SSCC scanning process. The AI ”00” is not an element of the SSCC number.

The **complementary digit** is used to increase the capacity of the SSCC number. It may range from 0 to 9. Its application depends on the company which creates the logistic labels, and it may be used in any manner.

The **GS1 company prefix** is assigned by the domestic GS1 organisation to the system user creating and identifying the logistic unit. It ensures global uniqueness of the number, but does not identify the origin of the unit. The length of the company prefix depends on the policy of the respective domestic GS1 organisations with regard to the assignment of numbers.

The **unit identification** is a serial number assigned by the company creating the logistic unit. It consists of a string of digits N2–N17. The simplest method of assignment of the unit identification is to assign numbers in the sequence ….00000, …00001, …00002, etc.

The **control digit** is calculated according to the standard algorithm defined by GS1.

Table 2 shows the 4-, 5-, 6- and 7-digit prefix assignment policy applied by the proper GS1 organisation (ILiM).

Table 2 Structure of the SSCC number applicable in Poland.

AI	Serial Shipping Container Code (SSCC)				
	Complementary digit	GS1 company prefix		Identification of the logistic unit	Control digit
		Prefix of the domestic GS1 organisation	Company number (coding unit)		
0 0	D	590	$J_1\ J_2\ J_3\ J_4$	$S_1\ S_2\ S_3\ S_4\ S_5\ S_6\ S_7\ S_8\ S_9$	K
0 0	D	590	$J_1\ J_2\ J_3\ J_4\ J_5$	$S_1\ S_2\ S_3\ S_4\ S_5\ S_6\ S_7\ S_8$	K
0 0	D	590	$J_1\ J_2\ J_3\ J_4\ J_5\ J_6$	$S_1\ S_2\ S_3\ S_4\ S_5\ S_6\ S_7$	K
0 0	D	590	$J_1\ J_2\ J_3\ J_4\ J_5\ J_6\ J_7$	$S_1\ S_2\ S_3\ S_4\ S_5\ S_6$	K

GTIN

The ***G**lobal **T**rade **I**tem **N**umber* (GTIN) is used for globally unique identification of commercial units. The right to create GTINs belongs to an entity registered with the appropriate domestic GS1 organisation.

A commercial unit is any unit (product or service) which may be quoted, ordered or invoiced for commercial purposes between the participants in any supply chain point. Commercial units are identified by the GTIN, using any of its four structures: GTIN-8, GTIN-12, GTIN-13 and GTIN-14. The selection of the structure depends on the type of goods and the scope of application.

The main use of the GS1 system is the identification of units that are to be scanned at a retail sales outlet, also called consumer units. For this, GTIN-13 is used, or GTIN-8 in the case of very small units. GTIN-14 is used for collective (wholesale) packaging with uniform content which does not go through retail sales outlets. For such units a 14-digit number is usually created, using the number of the goods contained in the packaging. It is also permitted to use a GTIN with 13 digits.

Table 3 Structure of GTINs for companies registered in Poland.

	Indicator	GS1 prefix	Coding unit number	Individual goods number	Control digit
GTIN-14	1-9	590	$J_1\ J_2\ J_3\ J_4$	$T_1\ T_2\ T_3\ T_4\ T_5$	K
		590	$J_1\ J_2\ J_3\ J_4\ J_5$	$T_1\ T_2\ T_3\ T_4$	K
		590	$J_1\ J_2\ J_3\ J_4\ J_5\ J_6$	$T_1\ T_2\ T_3$	K
		590	$J_1\ J_2\ J_3\ J_4\ J_5\ J_6\ J_7$	$T_1\ T_2$	K
GTIN-13		590	$J_1\ J_2\ J_3\ J_4$	$T_1\ T_2\ T_3\ T_4\ T_5$	K
		590	$J_1\ J_2\ J_3\ J_4\ J_5$	$T_1\ T_2\ T_3\ T_4$	K
		590	$J_1\ J_2\ J_3\ J_4\ J_5\ J_6$	$T_1\ T_2\ T_3$	K
		590	$J_1\ J_2\ J_3\ J_4\ J_5\ J_6\ J_7$	$T_1\ T_2$	K
GTIN-8		590		$T_1\ T_2\ T_3\ T_4$	K

The **indicator** is used only with GTIN-14. It can take values from 1 to 8 for commercial units with fixed quantity, and 9 for commercial units with variable quantity. The simplest approach is to assign indicators in sequence (1, 2, 3, …) for each type of collective packaging.

GS1 company prefix. The two or three first digits N_1, N_2, N_3 form GS1 prefixes, which are administered by GS1. The company number which follows it is assigned by the domestic GS1 organisation. In Poland, this is called the Company Identification Number (CP). The GS1 prefix and the CP create a globally unique GS1 company index, assigned to each system user by the domestic GS1 organisation. Usually it contains from 6 to 10 digits, depending on the needs of the company.

Individual goods number. This is usually a 1- to 6- digit number. It is not an identifying number, which means that the digits in the number do not refer to any classification and do not carry any specific information. The simplest approach is to assign unit identifications in sequence, i.e. 000, 001,002, 003, etc.

The **control digit** is the last (extreme right-hand) digit of the GTIN. It is calculated from all of the other digits in the number, and serves to check the correctness of barcode scanning and of the creation of the number.

5.1.3. HIERARCHY OF PACKAGING AND THE LOGISTIC UNIT

Almost every product can occur in different forms in the packaging hierarchy. A simple structure is shown in Fig. 24. Here we have a canned drink marked by GTIN-13, then a box (a collective package) containing 12 cans of the drink (identified by GTIN-14), and finally a logistic unit consisting of 12 boxes.

As regards the correct method of describing the unit's content on the logistic label, there are three cases to choose from:

1. When a logistic unit is a commercial unit (it appears on the manufacturer's product list as a unit which is ordered, quoted and invoiced), i.e. it is assigned a GTIN, then it should be indicated by means of AI (01). This case seldom occurs.
2. When a logistic unit is not a commercial unit (i.e. it is a unit created for transport and distribution purposes), it is possible to present information about the content of the logistic unit using AI (02) followed by the GTIN of the highest packing level in the product packaging structure, and AI (37) to identify the number of such packages. So, for instance, in AI (02) we provide the GTIN-14 of the collective package, and in AI (37) the number of such packages, in this case 12.
3. The third case is similar to the previous one, except that no GTIN is assigned to the collective package – it is a transport package whose only function is to enable the physical creation of a logistic unit. In this situation we describe the logistic unit by means of AI (02), in which we specify the GTIN-13 of the canned drink, and AI (37) to specify the number of cans on the logistic unit, i.e. 144.

Conclusion – We always provide the GTIN of the highest packaging form identified by such a number and the quantity of those packages on the logistic unit.

Fig. 24 Example of a simple hierarchical structure.

5.2. HOW TO APPLY A LABEL IN PRACTICE

In principle, it should be assumed that the label is printed on self-adhesive paper with the appropriate format. In the case of logistic labels, this is A5 format. Always affix the logistic label after wrapping the pallet, since a scanning device may not be able to read barcodes placed underneath the wrap. As a rule, two labels are placed on each pallet: one on the longer side and the other on the shorter side.

Barcodes must be located in the area of the green field shown in Fig. 27 (the labels shown in the figure appear at the extreme locations).

As a rule the labels are affixed close to the right edge of the pallet, because the majority of people are right-handed and it is easier for the forklift truck operator to scan a label in that position.

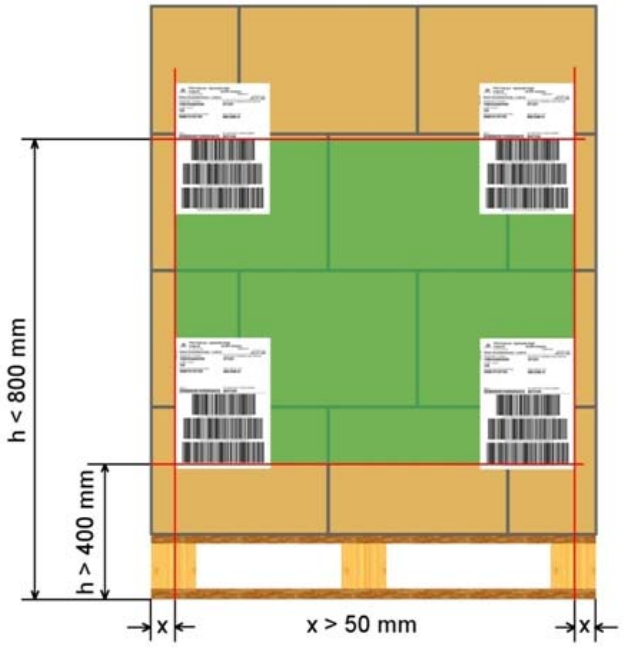

Fig. 25 Placement of the logistic label on the EURO pallet.