Manual

Software IPCS 1.4.0

iret
Gesellschaft zur Entwicklung
elektronischer Steuerungen mbH

Inhaltsverzeichnis

1   Introduction

1.1   Preamble

This manual describes the software application IPCS. With this software it is possible to connect and control Continous-Inkjet-printer and CAB-Labelprinter with either a Marken® or an Ulmer® cutting-machine with a Windows PC.

The software is optimized for the alphaJET Inkjet-printer made by KBA-Metronic® GmbH and it is based on our many years of experience with these devices. In addition the software works with labelprinters made by CAB Produkttechnik® GmbH. Furthermore we optimized it for using the cutting machines made by MarKen® GmbH and Ulmer® GmbH.

To connect the alphaJET to the PC you can either use the serial RS232 interface or a usual ethernet connection. The CAB-labelprinter expects an ethernet connection. The software IPCS is compatible with the operating systems Windows 7/10.

With the IPCS application, articles and article lists with printing and labeling positions as well as cutting positions and various other setting options can be created and imported. In addition, various settings of the different printers and machines can be changed, so that the application combines the control of the different components and thus simplifies and improves the production process for the user. improved.

In the further manual only "articles" are spoken of. These articles are individual case hoses, tubes, cables or further.

1.2   Installation

The installation follows the usual Windows conventions and is therefore only briefly described here:

1. Startup the PC and login to the Windows operating system.
2. Startup the IPCS-setup „ipcs_X_Y_Z_setup.exe", whereat X_Y_Z stands for the specific version of IPCS.
3. Follow the on-screen prompts. In most cases you can respond to each question in the installation program by clicking "continue".

After completing the installation the IPCS program is usually started automatically. If you would like to start the IPCS program again at a later time, simply use the respective entry in the Windows start menu under programs.

Depending on the bought licence, a licence dialog appears and shows you further details about the licensing (See chapter 1.3).

1.3   Licensing
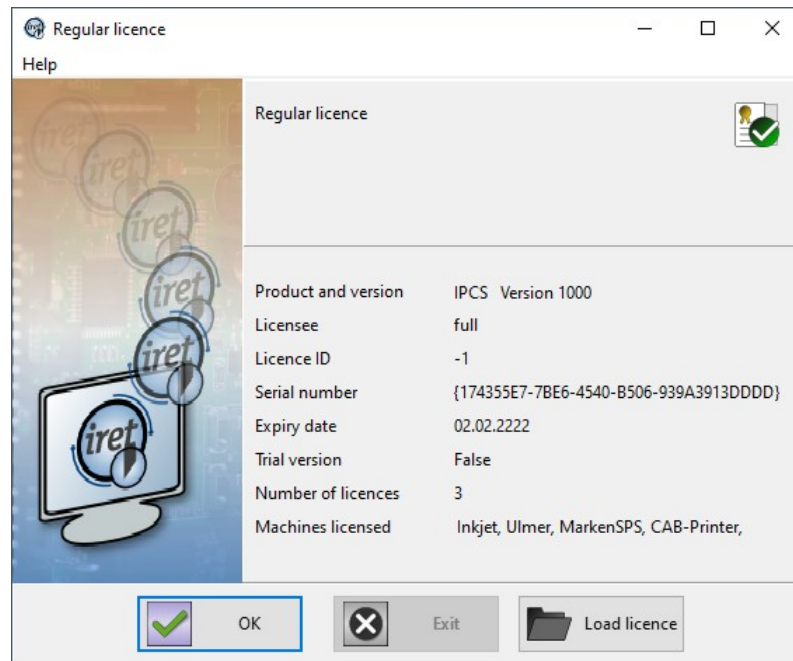
If the licence was correctly installed, it shows the current licence with details and further features.

Licensing defines:

- Cutting machine (Marken® or Ulmer®)
- Inkjetprinter allowed? How many?
- Labelprinter allowed? How many?
- Advanced features (See chapter 1.3.2)

1.3.1   Demo Licence

After installation a demo licence is activated automatically which is valid for 60 days. If this licence is expired you have to load/install a valid licence on startup. You can also load a different licence while running the program in the menu: „Help" → „Load licence".

1   Introduction
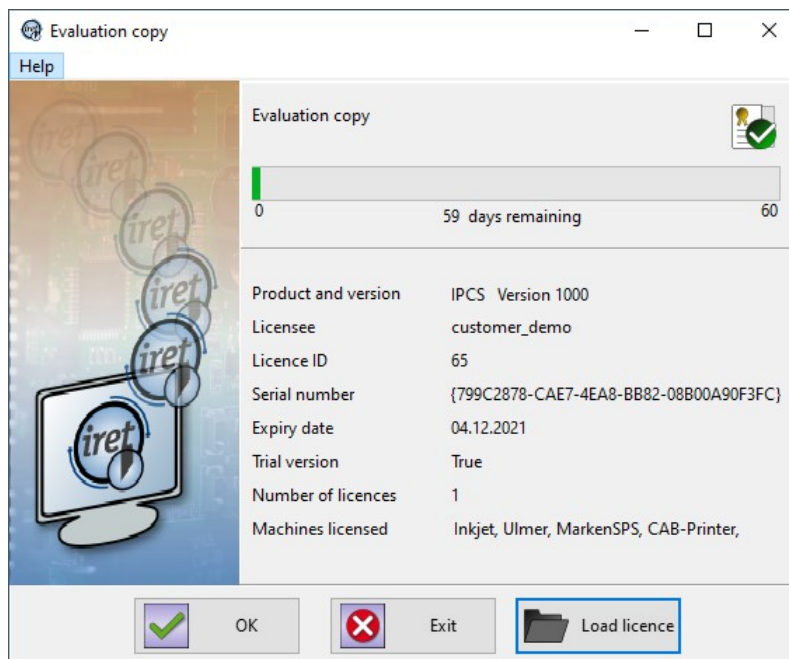
1.3.2   Advanced features

The licence has some extensions that can be bought to unlock further functionality.

Function	Description
Advanced Inkjet	With this extension you can use for example insertion depths.
Advanced Article	Various comments can be added to the articles. These comments can be entered as well as imported. In addition, they can be used as variable fields in the label templates during printing. can be used. You can also use 9 labels instead of just two.

1.4 **User**

After installing the software two users are created: "Admin" and "Automat" (they are case-sensitive). The password for both is "didu". The "Admin" user has got access to all of the IPCS software's options and can create, delete or modify everything. The user „Automat" can only produce article lists but can not modify them. Other settings like system- or machine settings are not allowed for this user.

Please take note of the following:

- By going to the "Administration" - „Manage user settings" menu, you can see an over-view of the users. You can also add or edit users and change passwords or rights.
- Every user (except for „Admin") can be logged in automatically without password. For this option go to the station settings and choose a user for „Auto login".
- The user „Automat" does not need a password and is automatically logged in when no other login is made or the current user logs out.

1.4.1 **Manage users**
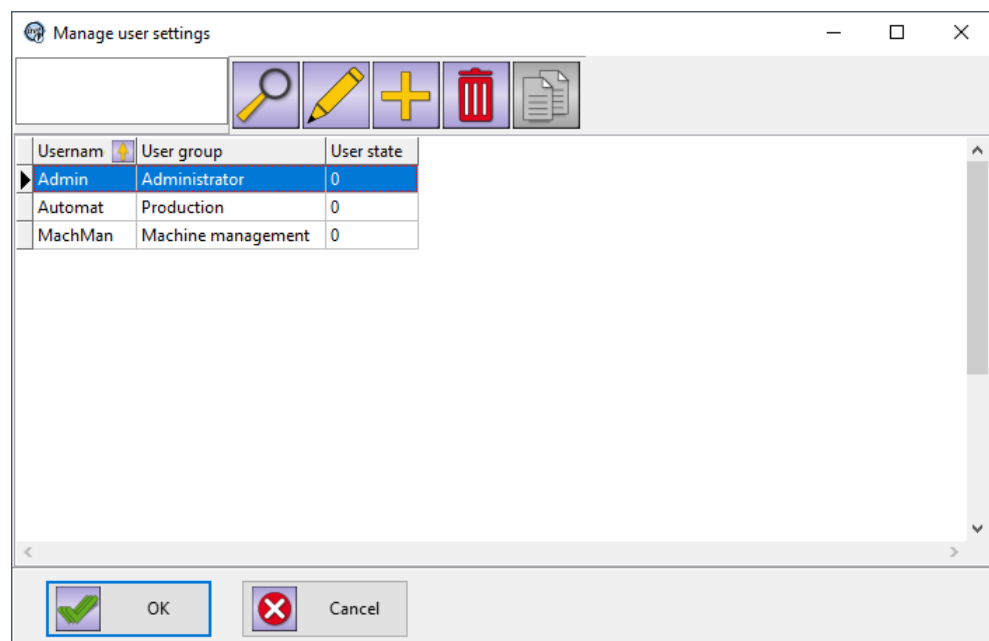
Function	Description
Search	Search for a user in this overview. Filters the overview and only shows users that match the search.
Edit	Opens the dialog to edit the user options and settings.
New	Creates a new user and opens the edit dialog for this user.
Delete	Deletes the currently selected user.

1.4.2 **Create/Edit user**

1   Introduction

Function	Description
Name	The name or the personal ID of the user.
Group	Choose a group of the following: • Administrator • Work Preparation • Machine Management • Production • Quality Assurance These groups have different rights (see chapter 1.5).
Status	An active user should have status „0".
New password	Enter the new password or leave empty.
Confirm Password	Confirm the new password or leave empty.

1.5   **Rights**

The rights and permissions of users are defined by the group they are in:

Group	Permissions
Administrator	Can change all settings and data.
Work Preparation	Currently no function. Same as „Administrator".
Machine Management	This group can change printer and machine settings but no data.
Production	Can only start/stop the production but cannot change data or settings but can view them.
Quality Assurance	Currently no function. Same as „Machine Management".

2　Menu

2　Menu

2.1　System
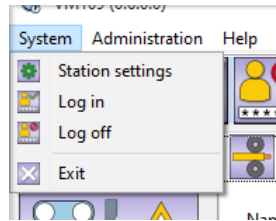
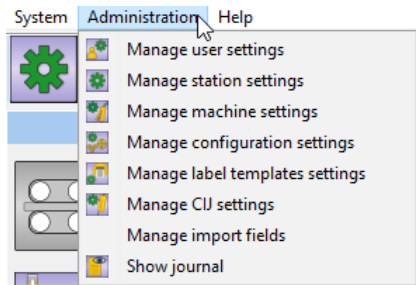| Function	Description
Station settings	See chapter 3.2
Login	Opens the login dialog to login another user.
Logout	The current user gets logged out. The rights of the user „Automat" are active.
Exit	Exits the application IPCS.

2.2　Administration

Function	Description
Manage user settings	An overview of the users where they can be created, edited or deleted. (See chapter 1.4)
Manage station settings	An overview of the stations where they can be created, edited or deleted. (See chapter 3.2)
Manage machine settings	An overview of the operators (machines and printers) where they can be created, edited or deleted. (See chapter 3.4)
Manage configuration settings	A collection of operators in use and some settings regarding this collection. (See chapter 3.3)
Manage label template settings	An overview of the users where the can be created, edited or deleted. Further you can scan for label templates (in the label folder) and you can send the scanned labels to the printer via FTP.
Manage CIJ settings	Settings regarding the CIJ-printer. printmode, stroke distance etc. These settings can be set and can be associated with a material. (See

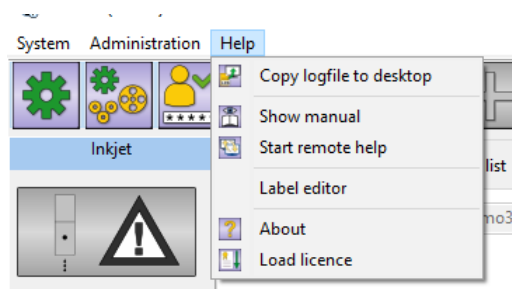| Function	Description
	chapter 3.7)
Manage import fields	Setup of the Excel import, see Chap. 3.8.
Show journal	The journal is a list of finished productions. Everything that is produced, including zero cuts, is documented here. (See chapter 2.2.1)

2.2.1 Journal
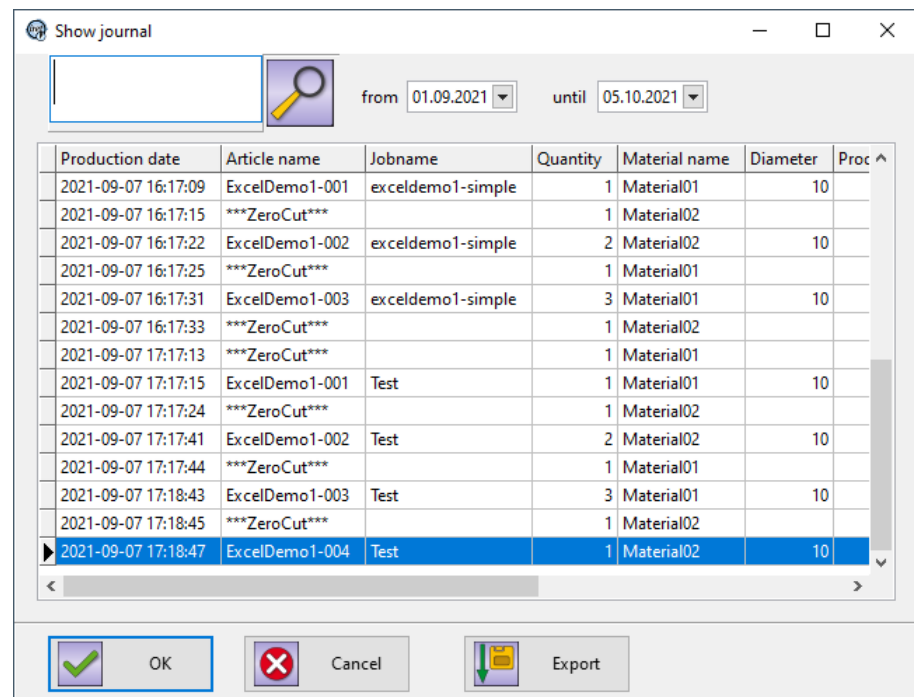
The journal is a list of finished productions. Everything that is produced, even the zero cut, is listed here. You can search for produced articles or filter them by date.

You can also export this protocol with the „Export"-Button at the bottom. Then you can choose where to save the CSV-file.

2.3 Help

2 Menu

Function	Description
Copy logfile to desktop	Copies the current logfile as a zip-file to the desktop. This file is important for troubleshooting and should be saved in case of an error or other problems.
Show manual	Opens the manual for the application IPCS.
Start remote help	Opens the "Anydesk" application intended for remote maintenance on our part.
Label editor	The settings and variable fields for a Windows printer or label printer can be selected here. This is a separate printer that should not be confused with the CAB label (article marking) printer.
About	Shows the copyright, version and a service contact to the iret company.
Load licence	Opens the licence dialog in which the details of the licence are shown. Furthermore you can load a purchased licence. (See chapter 1.3)

3   Administration

3.1   General

There are a few recurrent buttons and functions which are explained here. In this context „element" is used as an abstract name to describe for example articles, materials, label templates or any other.

Function	Description
	This button is to create an element.
	This button is to edit the selected element and it's options and settings.
	This button duplicates the selected element.
	This button deletes the selected element.
	This button is usually next to an input. On clicking this button the list gets filtered by the search keyword in the input.

If a button is grayed out, the user rights are not sufficient or the function is not available in this context.

3.2   Station settings

The station settings are basic settings of the production workplace.

3.2.1   General

3   Administration

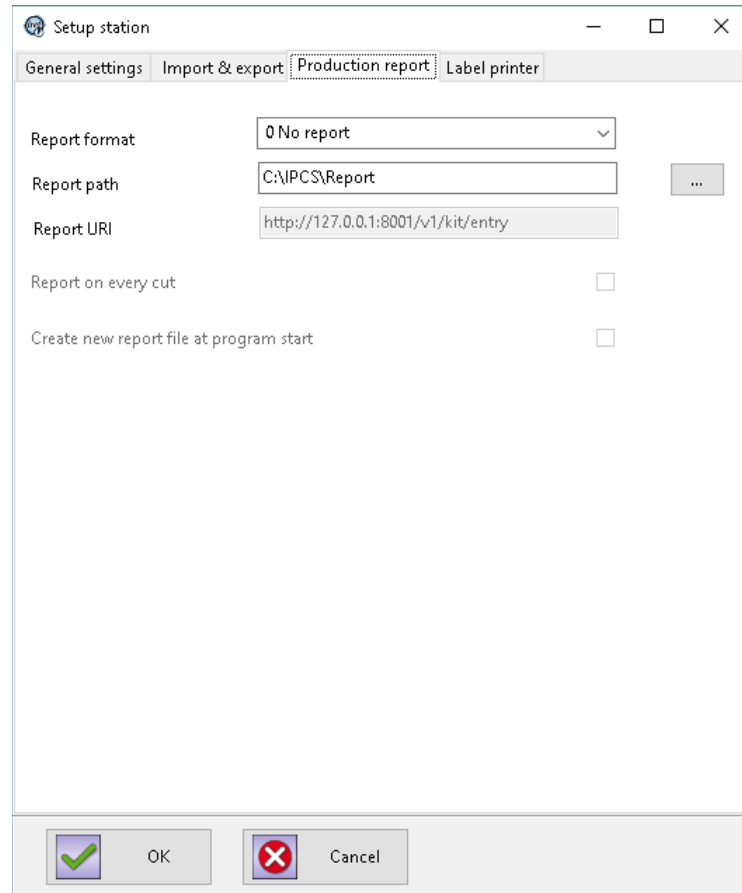| Function	Description
Name	The name of the station.
Auto login ID	The user that is automatically logged in at the start. The user „Admin" always needs a password input.
Language	The user language of the application IPCS.
Configuration	The name of the machine configuration in use.
Use virtual keyboard	If checked a little internal virtual keyboard for input via touchscreen is invoked.
Label path	The path to the labels and label templates for label printing.
Production mode	• List production: Working with article lists. These can be created, edited and then moved into production (See chapter 4). • Spreadsheet production: Working with imported excel lists. These are created beforehand and then get imported directly into production (via text input or barcode scanner) (See chapter 4).
Append jobs to list	This option is only available if production mode "Spreadsheet production" is selected. When this option is checked, scanned jobs or articles are appended to the production. If not checked, scanning a job will clear the current production queue and only the scanned job is put into production.

3.2.2　Import & Export

Function	Description
Import path	The path to import jobs or article lists. This folder is also used in the production mode "Spreadsheet production".
Export path	The path to exported data (for example the journal export)
Job creation	Defines the name and creation of the job on import: • No job: Only an article list will be created. This will not be put in production right away. • Name of file: job name will be the same as filename with date and time added. • Ask for name: On import a name is needed and prompted.
Scan mode	Describes the wanted file identification in mode "Spreadsheet production". • Exact Match: Input must match exactly the name of the import file. • Filename may be longer: The input is also valid if the filename is longer but no other file name fits. (i.e. „Test" matches „Test123.xls" if no other file starts with „Test")
Scanner operation	Defines when the job will be loaded: • Load job immediately: The import starts as soon as the file is uniquely identified. • Press <Enter> to load job: The file will be loaded when <Enter> is pressed and it is uniquely identified (filename highlighted in green).
Import automatically	When this option is checked, the import folder will be scanned regularly for new files. If new files appear they will be automatically imported. If the import succeeds the file will be moved to the sub folder "archive". If they fail they will be moved to the sub folder "error". Either way they will be moved and a timestamp is added to the filename, so that

| Function	Description
	the files will not be imported twice and can be traced back by the timestamp.

3.2.3 Production report

These settings are for the production reporting. For further information see the documentation "ipcs_production_reporting_en.pdf".

Function	Description
Report format	Defines the format of the report: • No Report: No report is created. • CSV Format: Report will be saved as a CSV-file • REST Report: Report will be sent as Json via REST to the Report URI. (For Further information see the interfaces documentation: ipcs_interfaces_en) • WPCS format: Report will be saved as a "Job.sdc" file. (For Further information see the interfaces documentation: ipcs_interfaces_en)
Report path	The path for the reports if they are created. Reports serve as a kind of production logging.
Report URI	This is the URI to which the REST report is sent to. (For Further information see the interfaces documentation: ipcs_interfaces_en)
Create new report file at program start	Indicates if a new report is created each time the program IPCS is started. Else it will be attached to the existing one. (Only available if CSV report is selected)
Report every cut	This option defines whether the REST report is sent on every cut. Else it will

Function	Description
	only send the report if the target quantity is reached or the production is stopped. This option is only available if the REST report is selected. For the other reports it has absolutely no effect.

3.2.4 Label printer
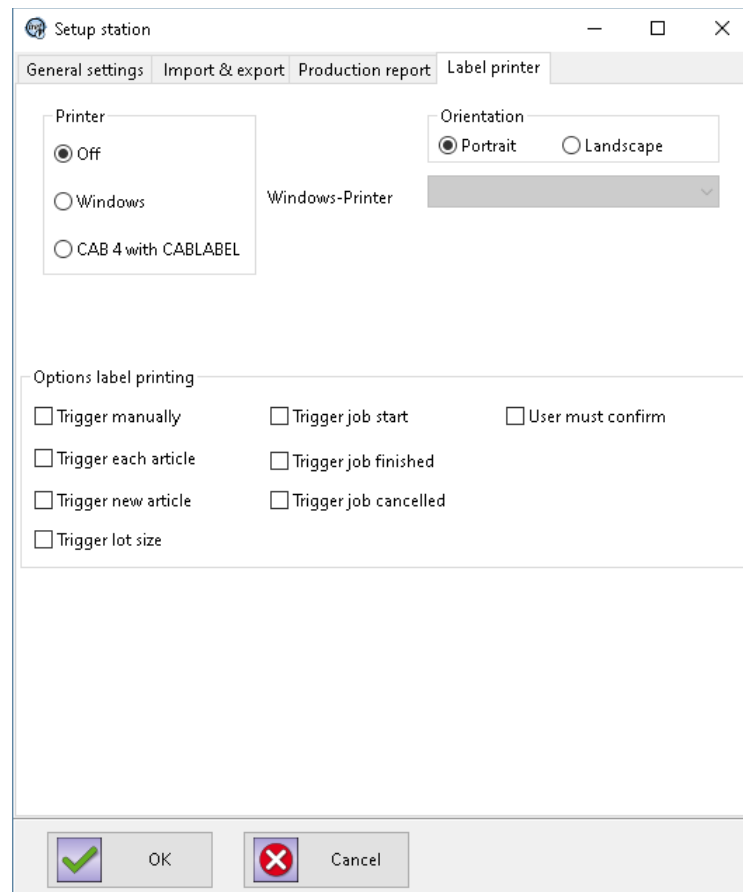
These settings refer to a separate label printer that prints a label, for example, when a certain batch size is reached, e.g. for shipping, sorting, etc..

This does not refer to the (optional) CAB label printer that labels each article during ongoing production.

| Function	Description
Printer	Indicates which printer is used for the separate label print: • Off: There is no additional label print • Windows: Choose a printer installed in the Windows operating system. • CAB4 with CABLABEL: Use a CAB-label printer to print these additional information
Orientation	Indicates the orientation in which the label should be printed.
Windows-printer	If „Windows" is chosen as „Printer" you can choose you printer that is installed on Windows.
Option label printing	Defines for which events a label is to be printed.

Administration

3.2.5   Label editor

The label editor is called from the menu 'Help', subitem 'Label editor' (s. ch. 2.3).
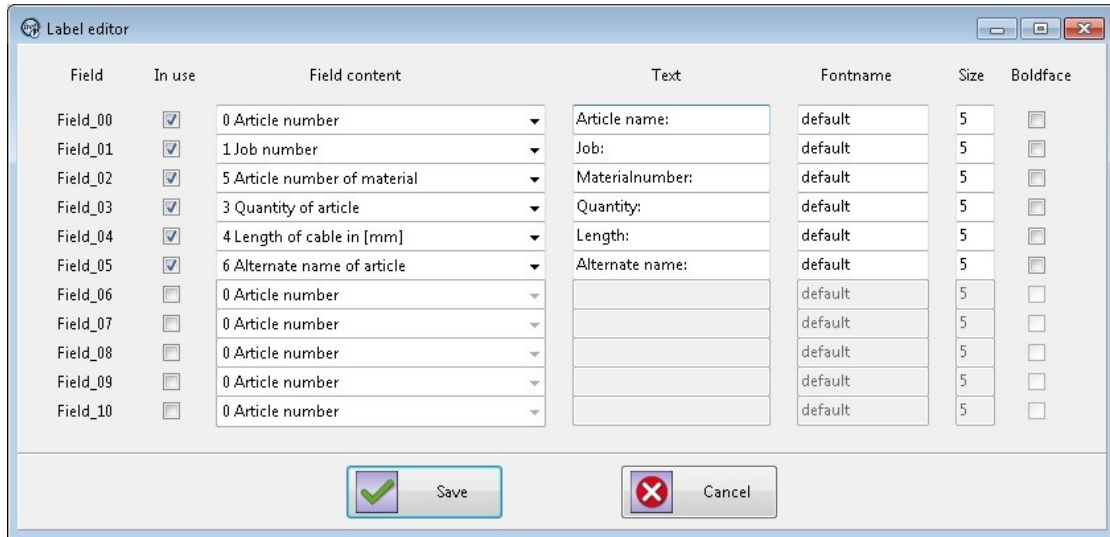
The label editor is used to define the layout of label printing with Windows printers. This includes the number of entries, the order of field contents, (free) marking texts and font attributes (type, size, bold).

Function	Description
Field	The internal field for this entry.
In Use	Activates this entry in the layout. Each activated entry creates exactly one text line in the label. Entries that are not activated will not be printed.
Field content	Selects the production value which will be printed in this label line.
Text	Free text, which will be printed **before** the production value ('Field content').
Fontname	The font used for this line. Note: The font must be installed in Windows..
Size	The size of the font of this entry [pt]
Boldface	Activates the bold print for this entry.

3.3   Configuration settings
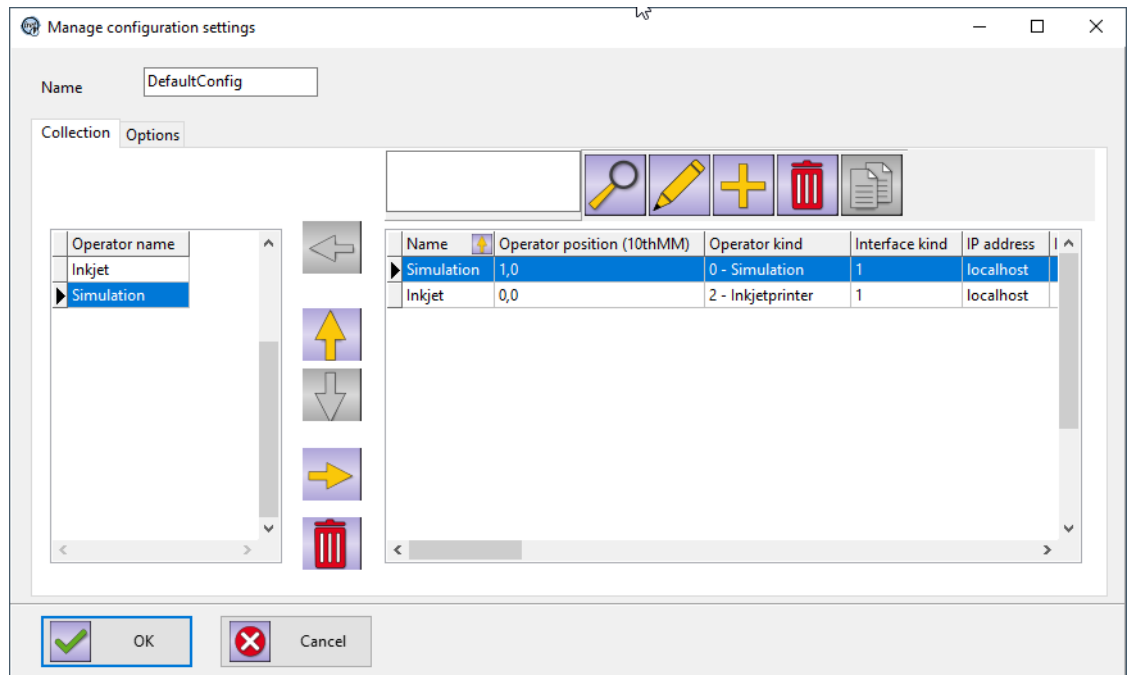
The machine configuration has an overview over the operators on the right side which is the same as you would find in the machine settings (See chapter 3.4). Here you can create, edit or delete operators. An operator can be either a printer (Continuous Inkjet or label) or a cutting machine.

On the left is the collection of active operators currently in use. With the help of the yellow arrow-buttons the operators can be moved in or out of the collection of active operators. The active operators will be expected on production start.
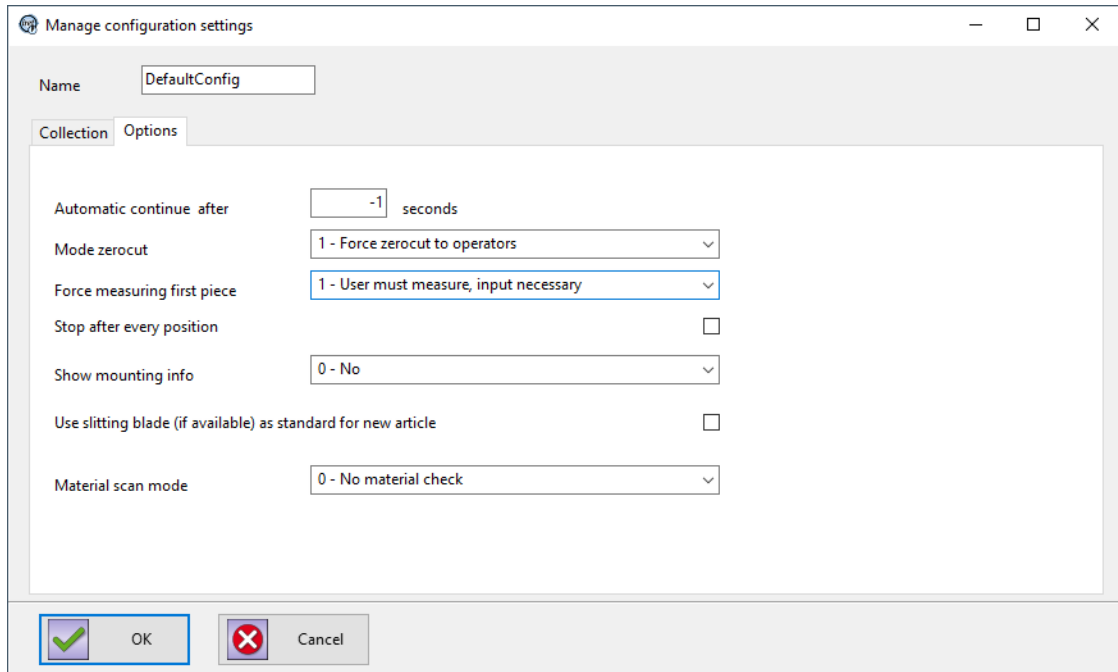

Please note!

To prevent possible side effects it is important that the cutting machine is placed at the bottom of the operator collection.

---

3   Administration

3.3.1   Options

The options for the configuration is valid for the whole collection of operators and therefore for the whole production process.
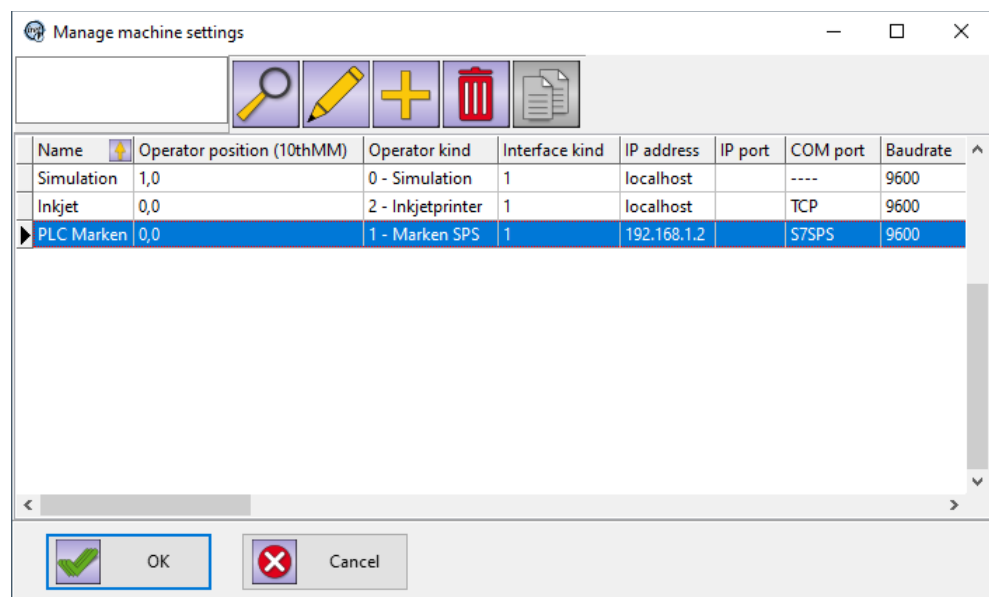

Function	Description
Automatic continue after	Determines after what time the production continues if a dialog appears which does not need any confirmation. A progress bar shows the remaining time until production continues. A value of „-1" is equal to no automatic continue, so that a confirmation by the user is required.
Mode zerocut	Indicates if a zero-cut should be done: • Start with first article: No zero-cut will be done • Force zero-cut to operators: Zero-cut will be done. Distance is the operator distance of the operator that is the furthest away from the cutting blade. • Force optimized zero-cut: Depending on the list of operators and on the article list which is currently in production the distance of the zero-cut is calculated to minimize the waste.
Force measuring first piece	Determines if the first piece must be checked and measured: • User does not have to measure: No measurement required • User must measure, input necessary: Measurement is required and the input is empty so that the user is forced to input the correct length in order to continue. • User must measure, confirm only: Measurement is required, but the expected value is already entered in the input field. This value can still be edited. This means the dialog can be closed by the „Automatic continue after"-function or by a machine key in case the length of the article is as expected.
Stop after every position	Indicates the application stops after every article cut.
Show mounting info	Indicates if mounting information will be shown. Mounting information give an overview over the current machine setup. Here distance settings, gaps, material,article and other data

Function	Description
	can be checked again before production:
	• No: The user will not see any mounting information.
	• Always: Mounting information will be shown every time.
	• Only when changed: Shows the mounting information only if article or material properties have changed.
Use slitting blade (if available) as standard for new article	This is an indication for the machine operator to manually slitting knife manually. An automatic control of the slitting knife does not take place.
Material scan mode	Determines if and how a material check should be done:
	• No material check
	• Complete material check
	• The scanned material may be longer
	• The scanned material may be shorter

3.4 Manage machines

Under „Administration" → „Manage machine settings" you have an overview over the operators and you can create, edit or delete operators. These operators are also available in the configuration settings (See chapter 3.3).

3.4.1 General

3   Administration

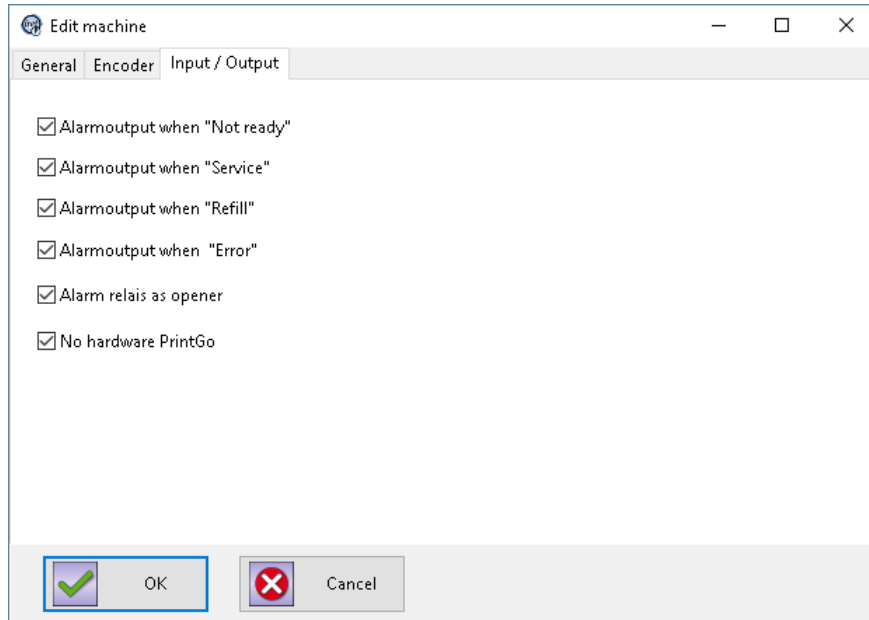| Function	Description
Name	The name of the operator.
Distance to cutting blade [mm]	This is the distance between the operator (i.e. Inkjet printer) and the cutting blade. This is necessary to achieve a correct positioning of the prints.
Device kind	• Simulation • MarkenSPS • Inkjet-printer • Label-printer • UlmerSSM • UlmerWSM eTouch
Interface	Choose how the operator is connected. Standard: TCP
Baudrate	Choose a baud rate that is selected in the operator. Standard: 38400 Baud
Parity	Choose the parity that is selected in the operator. Standard: 2 ('Even')
IP address / hostname	This is for the name or the IP address.
Port for receiving data	Here you can set the port for receiving data (Depends on the operator)
Port for sending data	Here you can set the port for sending data (Depends on the operator)
Data directory	This option is only available if the interface type is „FILE". It is the path to which the files are sent. Mostly for testing purposes.

3.4.2   Inkjet settings encoder

Function	Description
Encoder phases	• „Internal" means that the printer creates the pulses, no external encoder is used. • „1 phase" means that only 1 phase of the encoder is used. Using this setting, the direction of rotation cannot be determined, meaning the printer cannot differentiate between forward and backward. • „2 phases" means that the printer analyzes both the forward and backward movement.
Invert encoding direction	With this button the detection of the moving direction of the printer is adjusted to the actual conditions. This function must be activated when the product moves „forward", but when the printer interprets this action as „backward".
Encoder circumference [mm]	When using a shaft encoder enter the circumference of the measuring wheel in mm here.
Encoder pulses	When using a shaft encoder the number of impulses per rotation must be specified. The correct value is usually found on the name plate of the shaft encoder.
Print orientation	The following adjustments are possible:

### 3.4.3   Inkjet settings In- /Outputs

Function	Description
Alarm relay on „Not READY"	The alarm relay is activated when the printer is not ready for operation (LED Ready is off).
Alarm relay on „SERVICE"	The alarm relay is activated when the printer needs service (LED Service is on).
Alarm relay on „REFILL"	The alarm relay is activated when ink or solvent are running low.
Alarm relay on „ERROR"	The alarm relay is activated when a printer error occurs (LED Error is on).
Alarm relay normally closed	The activation of the alarm relay is reversed, so the relay operates as a normally closed contact and not as normally open contact.
No hardware PrintGo	No PrintGo-signal is sent to the printer. PrintGo is handled externally and IPCS has no impact on it.

3.4.4   Label settings

Function	Description
Operation mode	Describes how the label printer works: • Direct printing: The label is sent to the printer and is printed directly. • Field content only: Only prints the content of „Default label". • CAB-Selection Box: All labels used in the current production list are sent to the printer before the production starts. If a specific label is to be printed, this label is selected from the printer and its variable fields will be filled.
Default label	Describes what is printed when the operation mode i „Field content only" is selected.
CAB printer type	This is the printer type of the CAB label printer: • Hermes+ • HermesQ
No hardware PrintGo	No PrintGo-signal is sent to the printer. PrintGo is handled externally and IPCS has no impact on it.

3 Administration

3.4.5 Machine settings
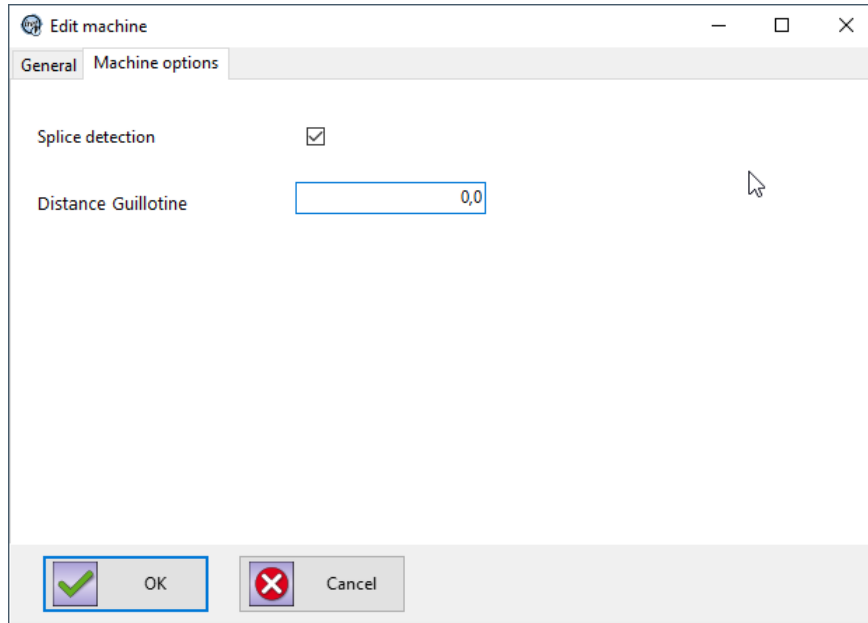
Function	Description
Splice detection	If set splices will be detected.
Distance Guillotine	This is the distance between the (optional) guillotine and the cutting blade of the machine. Additionally the use of a guillotine must be set (see chapter 3.6.4) to assure correct positioning.

3.5 Article settings

3.5.1 Article lists

The bottom part of this window is for creating, editing and deleting articles for this article list.

Function	Description
Name	The name of the article list
Production mode	Currently without function.
Release status	Indicates the status of the article list: • New: This article list is new but not yet released. • Approved: This list is released and can be produced. • Obsolete: This is either an old list or a faulty list, but should not be produced in either way.
Default quantity	This is the quantity with which the list is produced by default. ATTENTION: This quantity gets multiplied for production with the quantity of the job and the production multiplier of the article.
Default batch	When this quantity is reached the production halts for some time. This can be used for example to package the produced articles and then continue production. A batch value of „0" means this functionality is disabled.
Production hint 1-3	These are additional Production hints for this article llist

Function	Description
Productions comment 1+2	Additional production commentary possibility for the article list. These can also be used as variable fields for label printing.
Comment list	Additional production commentary possibility for the article list. These can also be used as variable fields for label printing.

3.5.2 Article

The lower part of this window is intended for the creation, editing and deletion of the marking positions, which are located in this article.

Tab 'General'

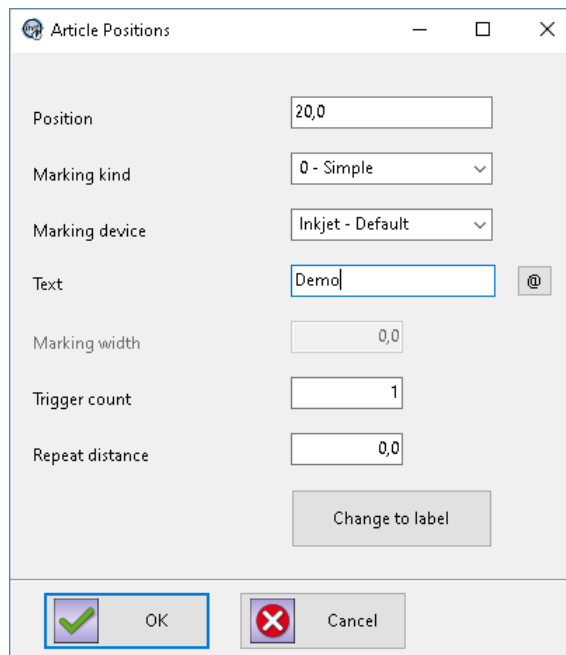| Function	Description
Part number	The name, ID or number of this article.
Alternate part number	An additional name for the article (can also be used as a variable in the label printing).
Length	The desired length of the article (in millimeters).
Material	The associated material for this article can be chosen here.
No.	The number or order of this article in the list.
Production multiplier	The quantity of this article. ATTENTION: For production this quantity is multiplied with the quantity of the article list and the quantity of the job.
Batch	This is the batch quantity with which this article will be produced. ATTENTION: For production this quantity will be multiplied with the quantity of the Job.
Post processing	Indicates the use of post processing after production:

Function	Description
	• No post processing • Winder: There is a post processing with a winder and this will be taken into account in production.
Use slitting blade	Indicates the use of a slitting blade.
	Clicking this button opens a dialog for creating a new print position for the inkjet printer.
	Clicking this button opens a dialog for creating a new print position for the label-printer.

Tab 'Advanced'

With an enhanced licence you can here add or edit additional comments. These can be used as variable fields in label templates.

3.5.3   Print Position – Inkjet

Function	Description
Position	Determines the positioning of the print.
Marking kind	Defines what should be printed: • Simple: Normal printing • E-Tiefe: Printing insertion depth (only available with an enhanced licence). In this case a symbol is printed, the stored marking text is irrelevant.

Function	Description
	• Clamp: Printing clamp marks (i.e."| clamp |"). Only for this option the marking width exists.
Marking device	Here a printer selection can be made according to ink color. • Standard • All • Black • White
Text	This is the text that will be printed at the specified position. The button with the @-sign adds variable fields, for example date, time, consecutive number and more.
Marking width	This is the width of an inkjet "Clamp" mark (i.e."| clamp |") and describes the outer margins of a clamp mark. This option is only relevant for printing clamp marks
Trigger Count	Specifies how often the text should be printed.
Repeat distance	If trigger count is greater than 1 the print text will be printed more than once and will be positioned with the repeat distance (in millimeters).
Change to label	This button allows a quick change between label- and inkjet position.

3.5.4   Print Position - Label

Function	Description
Position	Determines the positioning of the print.
Template	The label template which was created beforehand and can now be selected.
Text	The print text if no template is assigned.
Change to inkjet	Herewith the inkjet print position can be converted to a label position (and vice versa)..

# 3 Administration

3.6 Material settings

3.6.1 General

Function	Description
Name	The name of the material.
Part number	The identifying material number.
Type	The type of material (hose, pipe, cable and other)
Color(s)	Up to 3 colors can be selected.
Pressure	Variable field for the permissible pressure of the article (e.g. maximum pressure of a hydraulic line).
Outer diameter	Indicates the outer diameter of the material.
Length correction factor	Displays the calculated correction factor for this material. This is calculated after the first measuring (if the need to measure the first piece is activated, see chapter 3.3.1)
Large	Indicates that this material is extra large or thick and this has to be taken into account when producing.

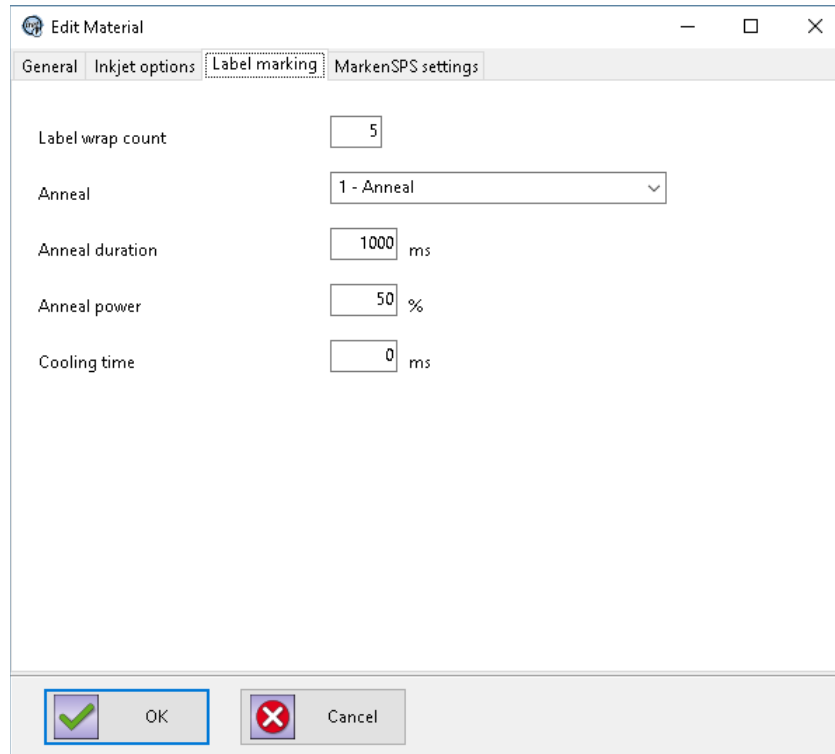### 3.6.2 Inkjet options
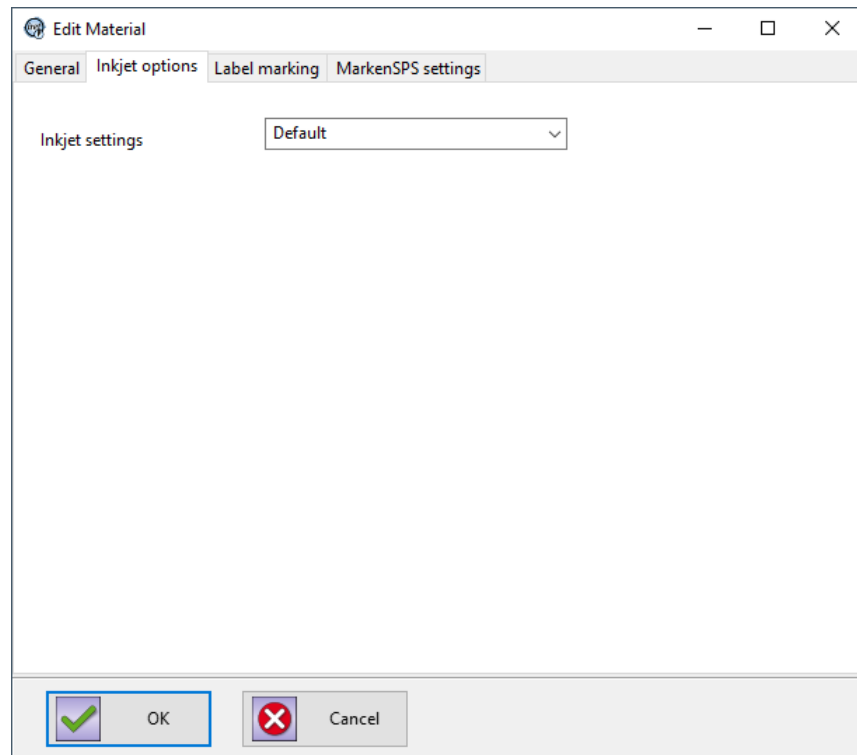
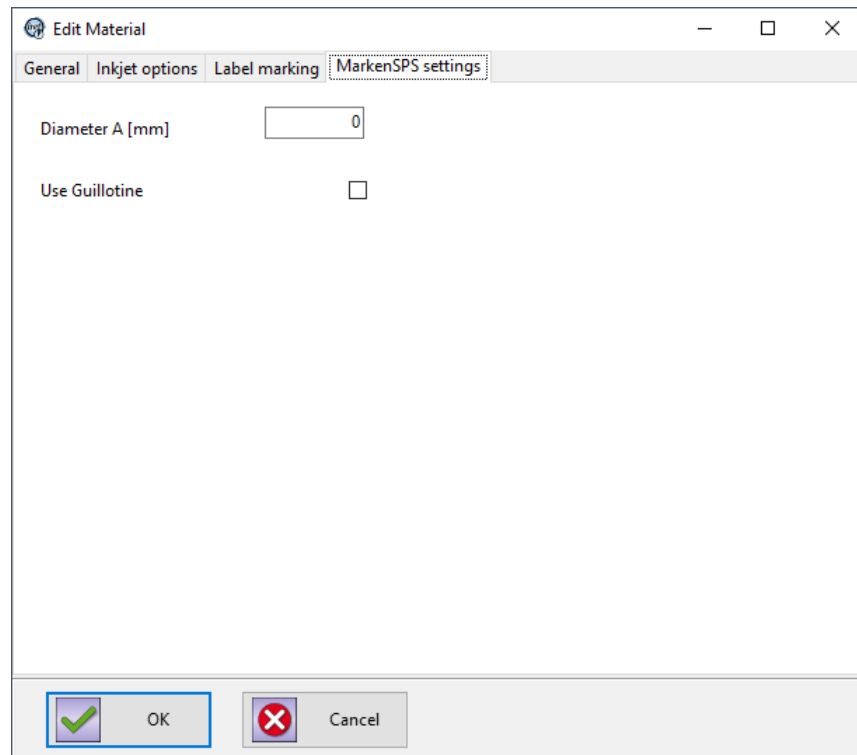| Function	Description
Inkjet options	Here you can select a specific set of CIJ-Settings which will be sent to the printer. Since these can differ from material to material, these settings are attached to the material. 3.7

3.6.3 Label printing

Function	Description
Label wrap count	Determines how many rotations the labeler makes when winding.
Anneal	0 – No anneal: No anneal will be used for production. 1 – Anneal: An anneal is used for production. 2 – Anneal with cooling: An anneal is used for production. In addition to that a cooling is also available.
Anneal duration	Determines the duration of the anneal in milliseconds.
Anneal power	Determines the power of the anneal in percent.
Cooling time	Determines the time of cooling after the annealing in milliseconds.

3.6.4   PLC settings

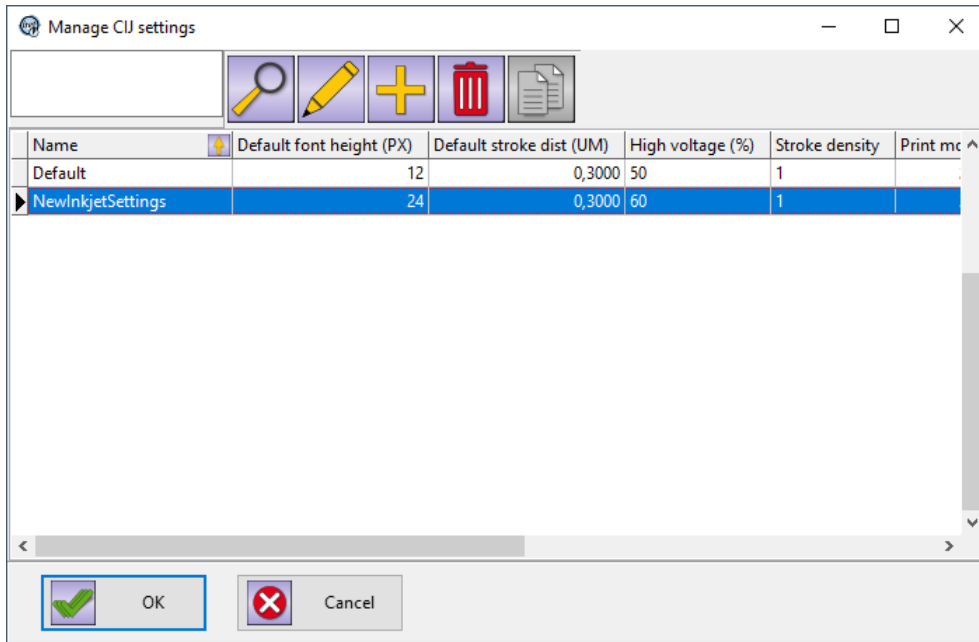| Function	Description
Diameter A	Diameter of the guide tube.
Use Guillotine	For this material a guillotine will be used.

Please note!

If a guillotine is used, a different zero-cut calculation and positioning will be used. In this case the value of the machine for distance guillotine is decisive. (see chapter 3.4.5)
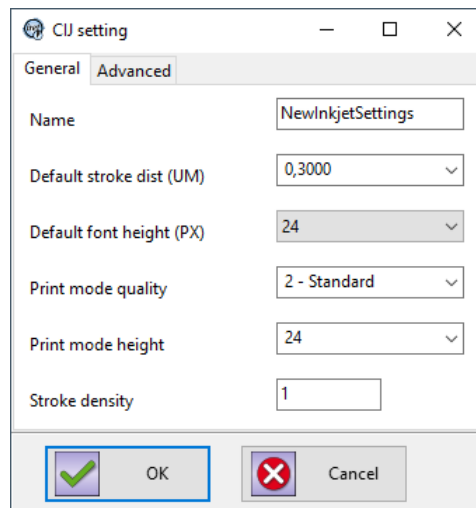
3   Administration

3.7   CIJ settings

In the printer options of the material (see chapter 3.6.2) you can select a set of CIJ-settings. These settings can be created, edited and deleted in the menu „Administration" → „CIJ settings". These sets of settings will show up in the selection box of the printer options.

3.7.1   General

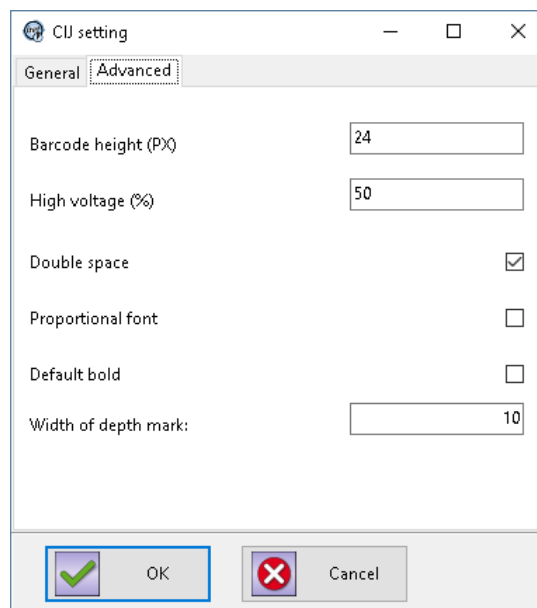

Function	Description
Name	The name of this set of CIJ-settings.
Default stroke distance	This value affects the length of the printout. **Note:** This is the desired value; the resulting value depends on the

Function	Description
	resolution of the shaft encoder.
Default font height	The default font height in pixel.
Print mode quality	• Hi-speed: for maximum printing speed. • Low: better quality but still a high printing speed (with emphasis on speed). • Standard: for normal operation. • High: highest quality but low printing speed.
Print mode height	• 0 – automatically: IPCS determines the height of the printout automatically. • other values: the height of the printout is limited to the number of pixels. When the print text is higher than specified, you will miss some of the upper pixels in the printout.
Stroke density	The stroke density specifies how black the printout will be. The larger the value the more times a stroke of ink is repeated. • Default value is 1 • The higher the stroke density the lower the maximum production speed.

3.7.2 Advanced

| Function	Description
Barcode height	Defines the height of the barcode in pixel.
High voltage	• This value affects the height of the printout. • Default value is 50% • < 50%: the distance between two ink drops is decreased, resulting in reduced height of the printout. • > 50%: the distance between two ink drops is increased; the printout will be higher.

Function	Description
Double space	Determines that spaces get the double amount of space.
Proportional font	Determines whether a proportional font should be used . **Note:** Not all printers support proportional font.
Default bold	Determines that the text will be printed with doubled stroke density so that it looks thicker.
Width of depth mark	Determines how large the marking sign (By default it is a square) of the insertion depth will be.

3.8   Manage import fields

When importing from Excel, spreadsheet columns can be assigned to IPCS import fields. Furthermore import filters can be defined. For details please refer to the separate manual 'ipcs-dataimport_en.pdf', which is located in the IPCS installation folder in the subdirectory \doc\.
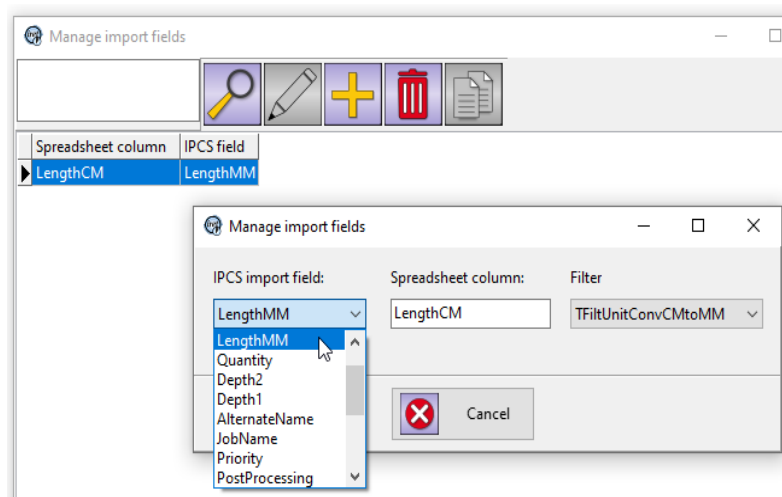
Example: In the Excel worksheet, the column 'LengthCM' shows the article length in centimeters [CM], but IPCS calculates internally with millimeters [MM]. The supplied import filter 'TFiltUnitConvCMtoMM' converts the lengths during import.

4 Additional manuals and information

Additional information can be found in further documentation. These are installed to the subfolder „\doc" in the main installation path. Here the following functionalities and processes will be explained in detail:

- **Import and interfaces:** ipcs_interfaces_en.pdf
- **Labelprinting:** ipcs_labelprinting_en.pdf
- **First Steps and production:** ipcs_quickguide_en.pdf