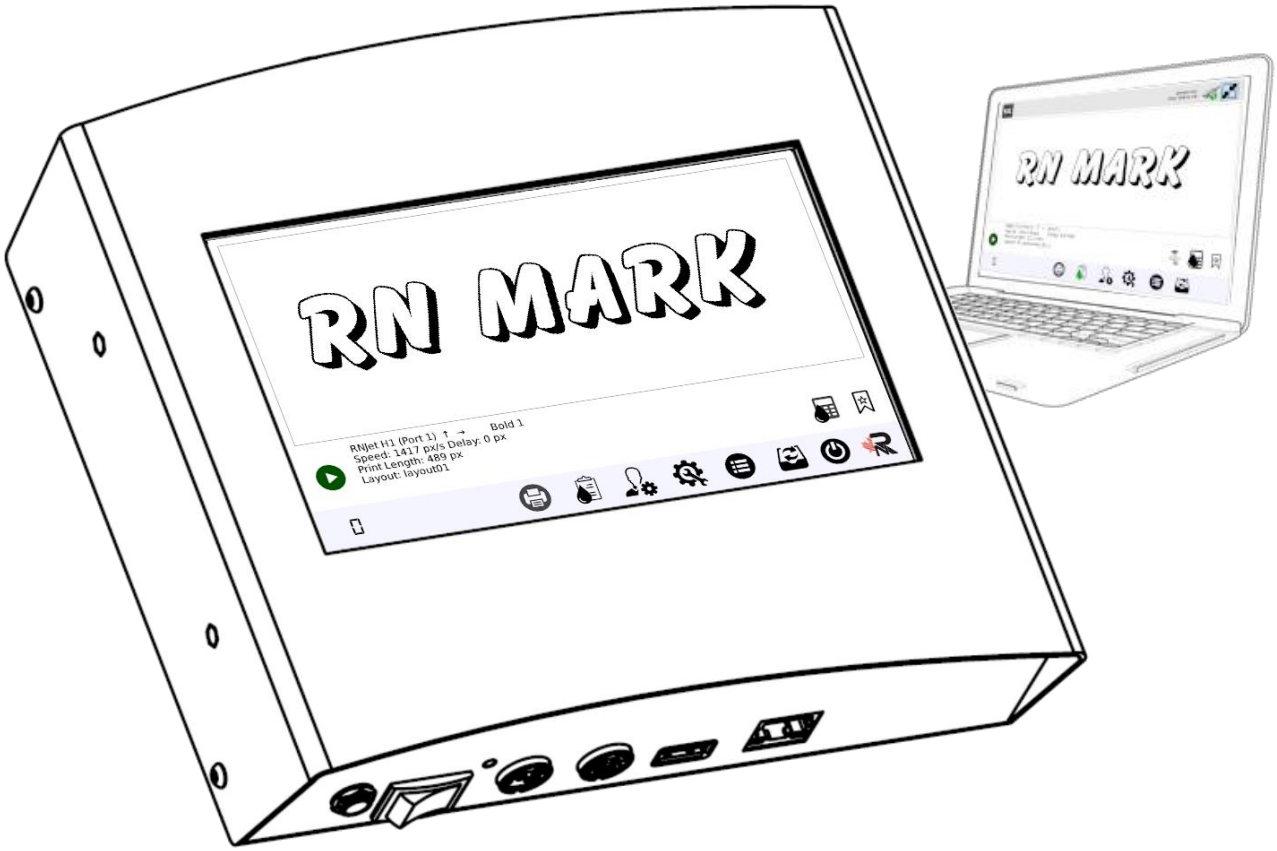
RNJET INTERFACE

Reference manual



RNJET Plus Interface

Industrial Hi-Resolution Inkjet Printing System

Reference Manual

Revised April 2025

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1. Introduction

This document provides instructions to use the software for RNJet series high resolution ink-jet printers (referred to as ***RNSoft*** in this document). For installation and maintenance instructions please read Installation Manual documents.

RNSoft is used to make printable labels for RNJet printers and operate the inkjet printer. RNSoft comes in two main versions:

- Embedded version installed on the printer controller interface.
- Windows version runs on the Desktop/Laptop computer.

The embedded version is the software that operates the printer controller and make printable labels. The windows version is an optional tool to create printable labels using a larger screen. First, we review a few concepts that are frequently used in this document:

1.1. Layout and Message

A printable label is created in two steps:

- First a template is made describing the object types and positions. This template is called print ***Layout***. A printable object could be a text object like expiry date or serial number, a barcode or logo. Print layout defines each object's coordinates and properties like font-style and size.
- Finally, the 'Print Data' is applied to the objects the print layout. Now the printable label is called print ***Message***.

For example, to make a label with one expiry date, the 'print layout' describes the X, Y (top-left) coordinate, font-style/size, and date-format; Then the printer's internal clock will generate the 'print data' to be applied to the date-object, so the print Message is created:

yyyy-MM-dd	2020-01-01
print layout	print message

1.2. Print Objects

Some print-objects have fixed data, so their template will look exactly like their print result, they are called: ***Static Objects***. Other objects can automatically change in between prints such as expiry date; they are called ***Dynamic Objects.*** They will have different looks in Layout stage and Message stage.

Static objects can be one of the following types:

- Fixed Text
- Fixed Barcode
- Picture (logo)
- Simple Shape (line, square, circle)

Dynamic objects can have one of the following types:

- External Text (data source from a remote computer or PLC)
- File-DB Text (data source from a database file)
- Dynamic barcode (data source from remote PLC or database file)
- Counter (automatic serial number generator)
- Expiry date/time (updated from Printer's internal clock)
- Shift-code (updated from Printer's internal clock)

1.3. Print ON/Print OFF

Print Power is OFF **Print Power is ON**

While the printer controller (Touch-Screen LCD) is Powered On, the operator can interact with the printer interface. When the start icon (green play) is pressed, the power is applied to the printhead and it turns into stop icon (red pause), to indicate the ***Print ON***. The green icon is shown there is no electrical power applied to the printhead, and this state is called ***Print OFF***. This statement highlights the fact that 'Print ON' is different than the RNJet controller being Powered On.

When print is ON, certain features and parameters will be inaccessible.

Important Note

It is important NOT to connect/disconnect the print-head cables while Print ON. Only when Print is OFF it is safe to remove/attach print-head cable.

2. Startup screen and Main Navigator

2.1. Startup Screen

Figure 1 shows the start-up screen for the RNJet Printer Interface. On the top a preview of the current job is displayed (Print-Job' view) and on the bottom a ribbon of buttons called Main Navigator.

Figure 1: Startup Screen

2.2. Main Navigator

Figure 2 shows the main Navigator. This ribbon includes a collection of buttons to navigate through different views. Different views work independently, and users can switch between them while printer is working. For example, operator can start designing a new print layout while the printer is printing. Some views may be blocked while 'Print ON' or access level is reduced.

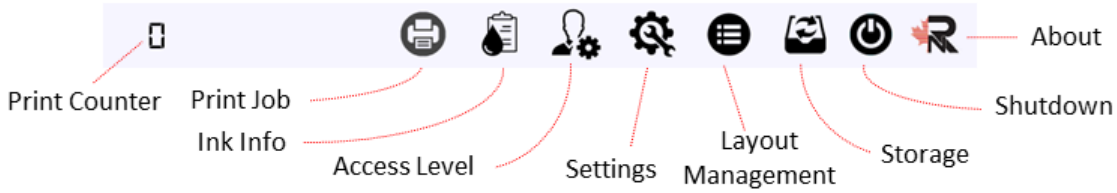


Figure 2: Main Navigator

2.2.1 Print Preview

Shows the 'Print Preview' as described in section 3 Print Preview P#14.

2.2.2 Settings

Opens the setting menu to view/change System settings, print setting or print parameters as described in section 6 Settings on P#50.

2.2.3 Message Management

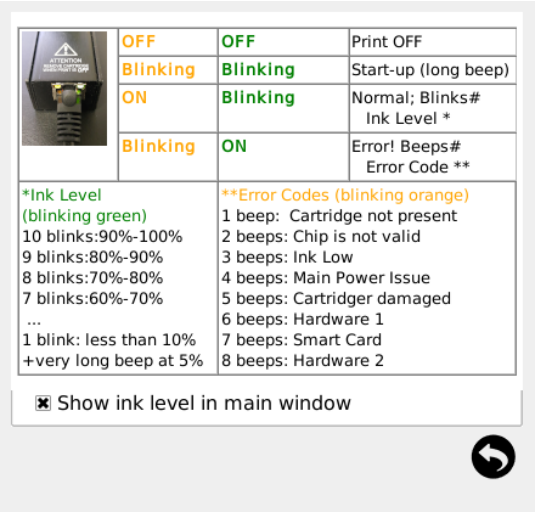
Shows the list of print templates (layouts) as described in section 4 Message Management P#22

2.2.4 Storage

Shows the 'Storage' view to import/export files and system update as described in section 5 Storage P#46

2.2.5 Ink Info

The color on this icon will indicate if the ink is low or if there is no ink detected. If this happens, please check the ink-system and NFC-Tag on the Cartridge/Bottle to be present and valid. With TIJ printer types (RNJet H1 and H2 series), While the print is OFF, it shows a description of alarms and error information for the TIJ driver head. While the print is ON it shows the ink percentage for the cartridge.



	OFF	OFF	Print OFF
	Blinking	Blinking	Start-up (long beep)
	ON	Blinking	Normal; Blinks# Ink Level *
	Blinking	ON	Error! Beeps# Error Code **

*Ink Level (blinking green)	**Error Codes (blinking orange)
10 blinks:90%-100%	1 beep: Cartridge not present
9 blinks:80%-90%	2 beeps: Chip is not valid
8 blinks:70%-80%	3 beeps: Ink Low
7 blinks:60%-70%	4 beeps: Main Power Issue
...	5 beeps: Cartridger damaged
1 blink: less than 10%	6 beeps: Hardware 1
+very long beep at 5%	7 beeps: Smart Card
	8 beeps: Hardware 2

☒ Show ink level in main window

Figure 3: Ink Status

2.2.6 Access Level

Open the access level menu to lower or elevate access level:

- Admin level:

  Everything is fully accessible on the controller display. If there is a password set for this level, operator must enter the password to elevate the access level to Admin level. See section 6.4 General settings P#66 for how to set/change passwords.

- Operator Level:

  There is limited access to operating the printer, but no access to change. The operator can:

  - start/stop the print (see 3.2 Start/Stop P#14)
  - select (load) a layout to print (see 4.1 Layout list P#22) or load a bookmarked job (see 3.3 Bookmarks P#15).

  If a password is set for this level, operator must enter the password to elevate from locked level.

- Locked:

  Ther is no access to change or operate the printer. The only accessible tools in this state are:

  - Print Preview
  - About (check version)
  - Ink info
  - Safe power off

If you forget the admin password and the screen is locked, you can use the master password to reset both Admin and Operator passwords. See section 6.4.1 on page 67 for master password.

2.2.7 Shutdown

It is strongly recommended to use the proper shutdown button before switching the main power off. Like any other computer, sudden loss of power while the controller is working may result in loss of data or software crashes.

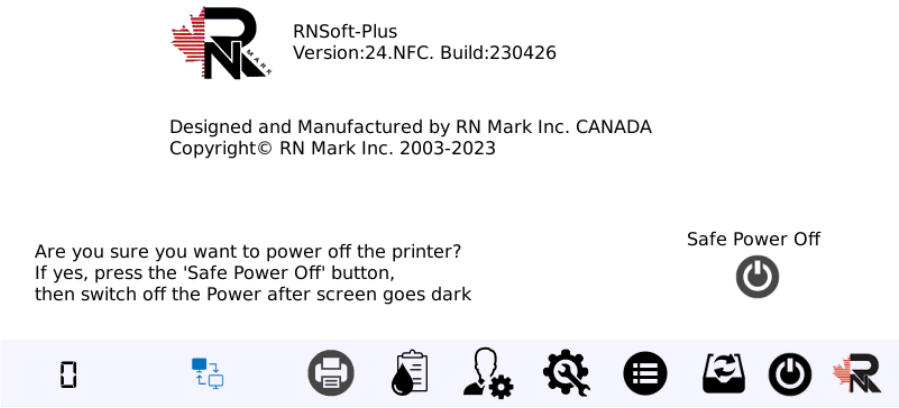
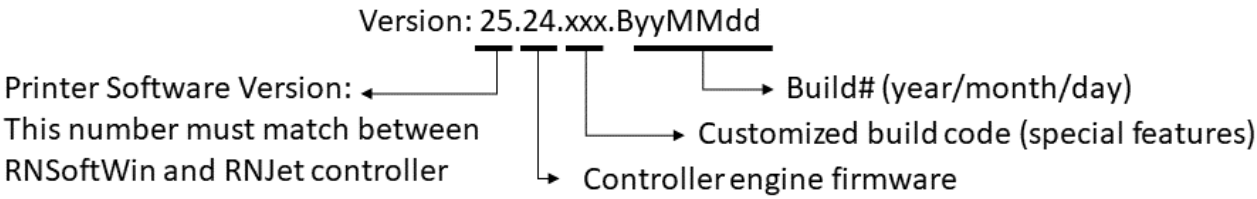


Figure 4: Safe power off

When the shutdown button is pressed, the controller asks for confirmation: press the safe power off button then wait for the following screen; now it is safe to turn the power switch off.

2.2.8 About

Shows controller's software version and legal information.



Depending on the printer status other icons may appear in the main navigator as shown in figure 3.

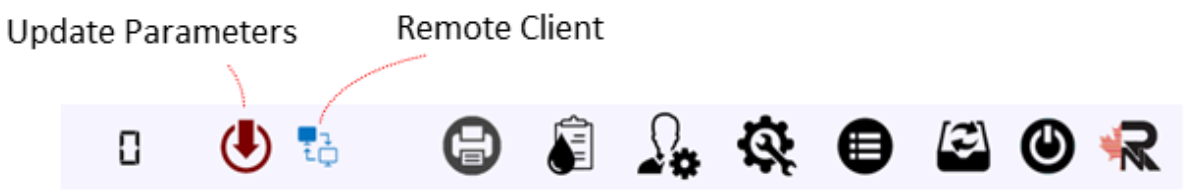


Figure 5: Main Navigator Alarms

2.2.9 Update Parameters

When parameters and settings are modified, this Icon appears showing the changes are pending for confirmation. Press this button after all changes are final, so the new parameters are applied. While Print is OFF, pending changes are applied automatically after a few seconds, or when the print start button is pressed. While Print is ON, operator must press this button for the pending changes to apply.

2.2.10 Remote Client

This icon shows a remote client (PC or Laptop) is connected and has taken control over the printer controller. For more information on how to connect from a remote computer (see section 7 RNSoft for windows)

3. Print Preview

Figure 6: Print preview shows what is printing now; A preview of current print message plus a summary of print parameters. Depending on the print-head type and layout type this page may contain some additional features.

Figure 6: Print preview

3.1. Print Preview

A preview of the current 'Message' to be printed. Dynamic objects show the actual data applied. The size of this preview will automatically shrink to fit in the area. If this area is blank, it may be because the current selected layout is blank, or it contains only dynamic text(s) without any value.

3.2. Start/Stop

This button turns the print power ON or OFF. When the green Icon is shown, the print is turned off. There is no power applied to the print-head. When the red icon is shown, the print-head is powered on.

CAUTION: Do not connect / disconnect the print-head cable while the print is turned ON. This may cause permanent damage to electronic components.

Operators must press the print stop button at the end of working shift, before powering off the printer. This action will save the last version of print parameters, counters, and database indexes so the job can resume on the next working shift.

3.3. Bookmarks

This feature allows to save/recall print parameters (Delay/Speed/…). For example, we want to print a complex label on different boxes. The print content looks the same, but the delay is different for each size of box. The bookmark feature will help us avoid making multiple templates for these boxes.

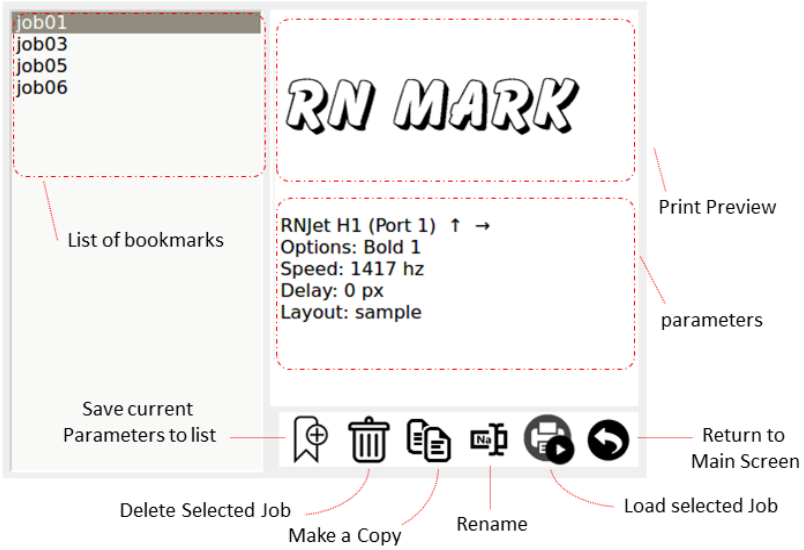


Figure 7: Bookmarks

Click on the item from the list, then you can recall saved parameters. You can also rename or delete items from bookmarks.

Use the icon to save current print parameters into the list; if an item is already heighted on the list, current parameters will over-write the previous bookmark.

The button to access this option is hidden by default; to enable this feature, go to section 6.4.2 More options P#67

3.4. Ink Estimator

Calculates a rough estimate for the ink usage based on the total pixel count in current message. If the current print message contains dynamic objects, the estimate is based on the current data applied to dynamic objects (what shows in 'Print Preview') this estimate does not take the amount of 'Purged Ink' into account. Any spillage or leakage of ink (during startup or maintenance) will not be considered in this estimate.

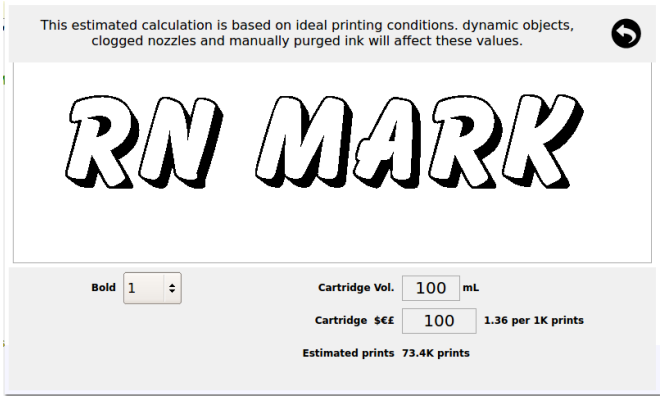


Figure 8: Ink Estimator

3.5. Product-detect Simulator

The following icons appear in print preview dialog only when **Print ON.**

This simulates one falling edge signal on the product detector input. This is equivalent of moving your hand quickly in front of the photo-electric sensor.

This icon will simulate keeping the sensor activated (NPN signal is activated in low state). This is equivalent to keeping your hand in front of the photo-electric sensor. This option is useful for testing, troubleshooting and also when continuous mode printing is selected.

These options are enabled by default; to enable/disable this feature, go to enable this feature, See section 6.4.2 More options P#67

3.6. Quick Edit

the blue border (dash lines) in print preview will appear only if one of these object types are present in the current layout:

- dynamic COM-Text object (see section 4.3.7 P#35).
- counter-text object (see section 4.3.3 P#29).

Operator can modify the content of dynamic COM-Text or Counter objects simply by clicking on the object inside the blue square.

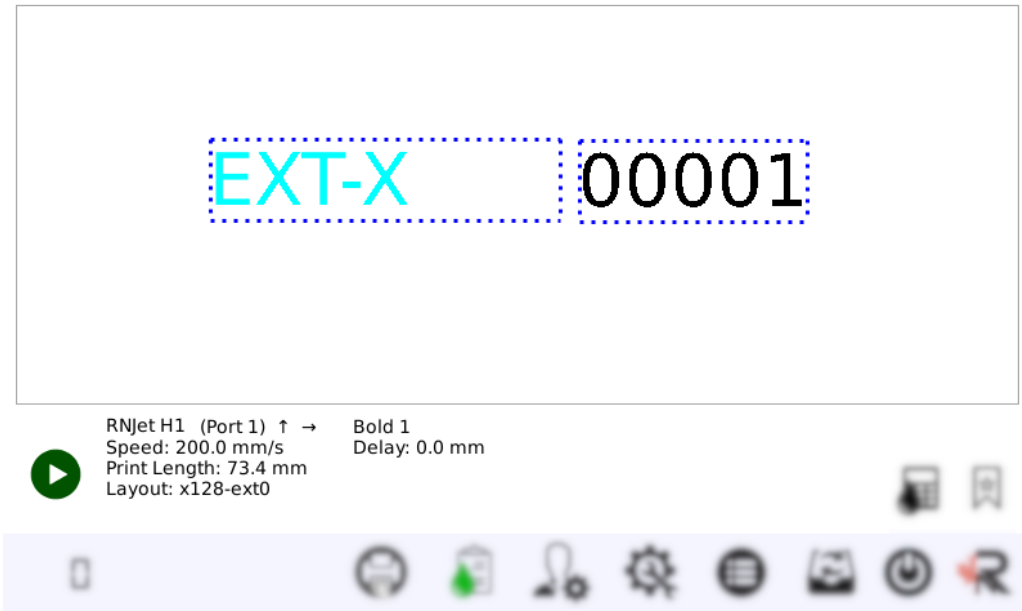


Figure 9: Quick Edit for Counter/COM-Text

The option is enabled by default; to enable/disable this feature, See section 6.4.2 More options P#67

Figure 10 shows the additional button when the printing layout contains dynamic text objects.

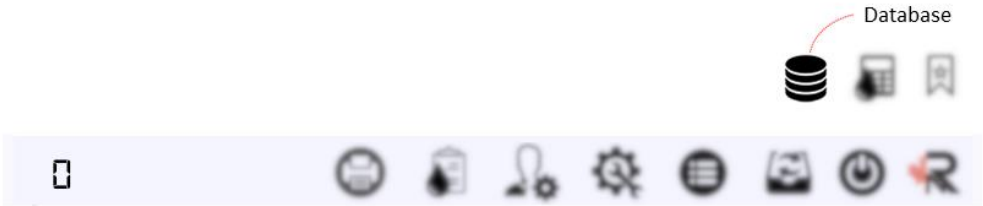


Figure 10: Print preview Additional Icons

3.7. Database console

Opens the 'Database management console' view as shown in Figure 11. This icon will appear on the Print Preview tab only if there is a dynamic DB-Text object in the current layout (see section 4.3.6 on how to add/modify dynamic DB-Text).

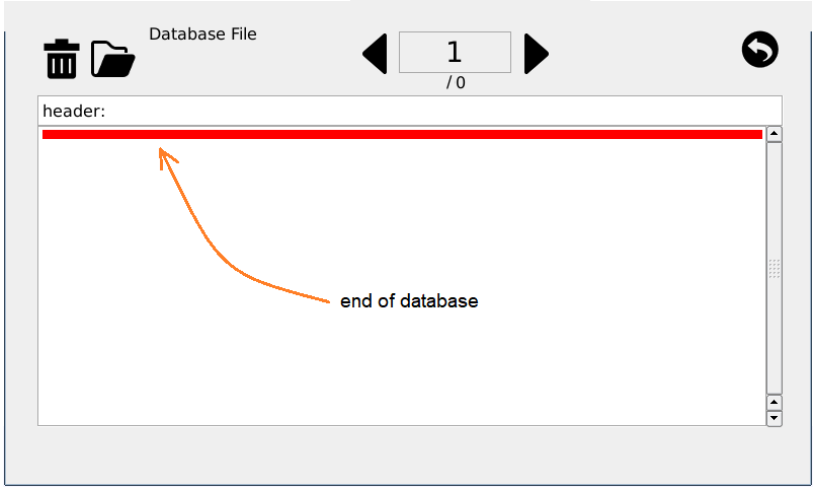


Figure 11 Database Console

A horizontal red line means we are at the end of database. In other words, no record is selected for print.

- Click on icon to clear the previously loaded records in print queue.
- Click on the icon to load a new CSV database file from printer's storage. On Figure 12 only files with the extension *.csv or *.txt imported on the printer's storage will appear in list. Operator may transfer csv-files to the printer using a USB-Flash memory, or through network connection (See section 5.1 on how to import CSV files into the printer).

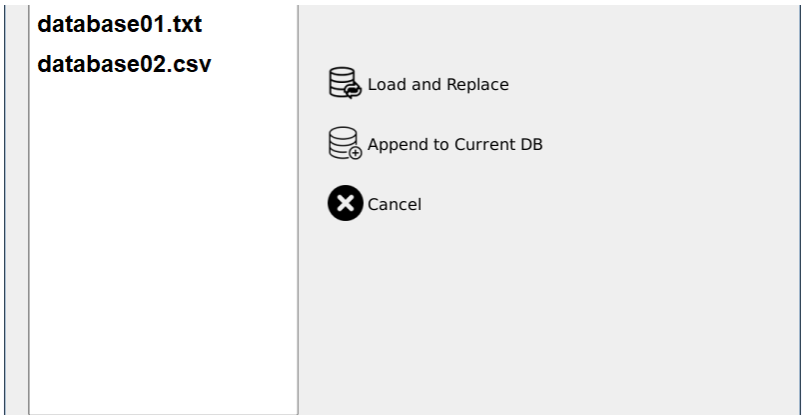


Figure 12: Load database file

If the option ‘Ignore first record of DB-File’ is checked, (6.4.2 More options P#67) the first row from the database will be considered as header.

To load a database, select the database file from the list and then click on one of the load buttons:

Load and replace will over-write the selected file into the memory.

Append to current DB will add the content of the selected file to the end of currently loaded database (if any)

> **Important Note**
>
> To maintain the record of database index for resume on the next shift, always use the ‘Load and Replace’ option.
>
> If the ‘Append to DB’ option is used, the database reference cannot be saved in a bookmark and will not be resumed after reboot.

After loading the database, user will have a preview of the data available in the selected database and can navigate through the rows using ◀ ▶ arrow buttons. The blue frame indicates the ***current record*** or ‘selected record’ which is the start point of print operation. The horizontal red line indicates we are at the end of database (current record has moved beyond the last record)

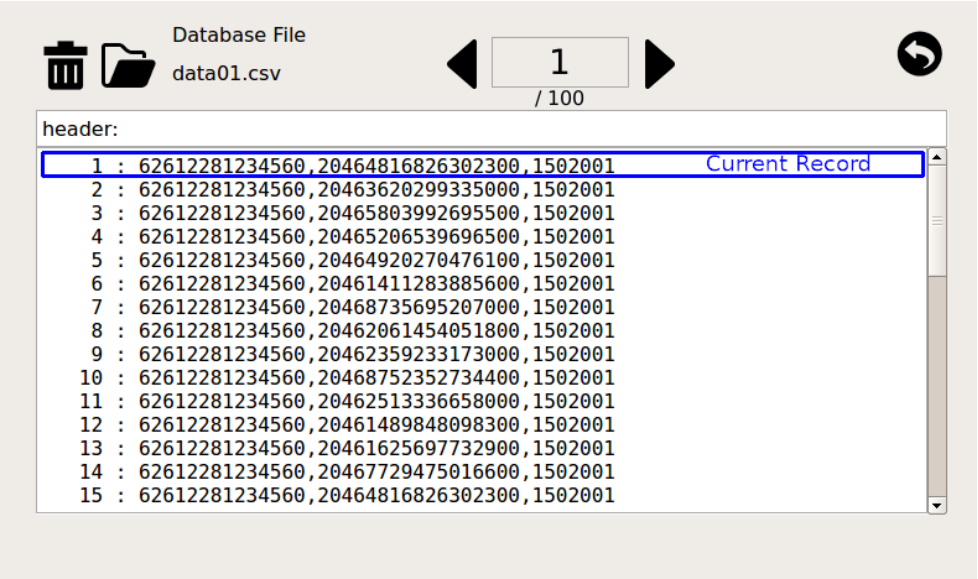


Figure 13: Database management, data preview

To apply new selection, click on the return icon or *double-click* on the blue highlighted record, going back to print preview. Content of the current record will be used to fill the dynamic fields (text/barcode) in the print-preview. If database is empty, or 'At-the-End' (horizontal red line) nothing will be printed (See section 4.3.6 Dynamic DB-Text Object P#32 on how DB-text object are updated).

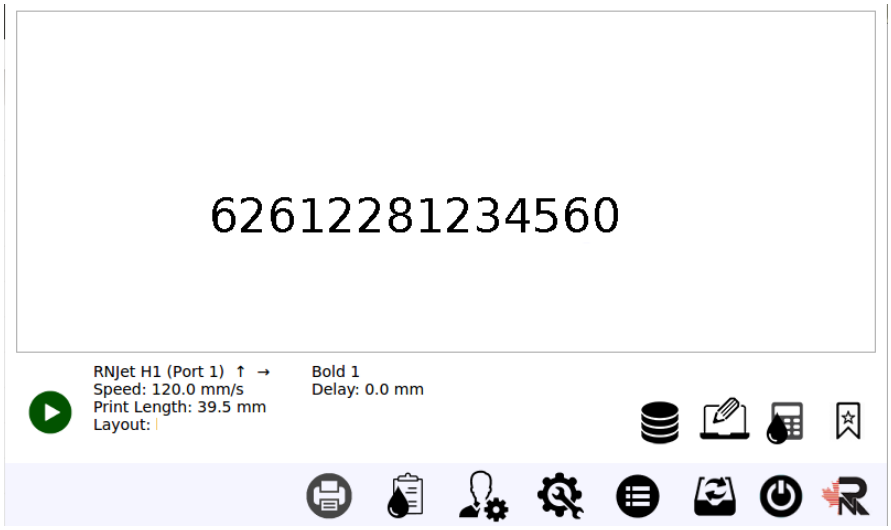


Figure 14 Print preview with data from DB

The database in memory can be updated from a remote PC or PLC device over ethernet port, using TCP-IP network comm. protocol, (see document ***Error! Reference source not found.*** for more information).

Another way to update the database in memory is to change the serial port mode into 'DB-Text Mode' in *Serial port settings* (see page 75). When this mode is selected, all incoming data from the serial port are redirected to the database in memory. Every line-break character (\n) inside the data stream defines a new record. New records will be attached to the end of the database and wait for their turn to be printed.

3.8. Extended Database

This feature is hidden by default. to show this feature go to section 6.4.2 More options P#67. This icon will only appear if a COM-Text object is used in current printing template.

Working with this section is very similar to the Database Console explained above. The difference is, when a record of data is selected (double-clicked) the content will update COM-Text objects (instead of DB-Text) in the print template. This database will not follow the trigger signals from sensor, but instead the selected data will remain valid until user selects a new record from the screen, or a new external data record is received from PLC.

4. Message Management

This panel is where the layouts (print templates) are stored and managed. A layout is a schematic file that contains objects and their position in print-label.

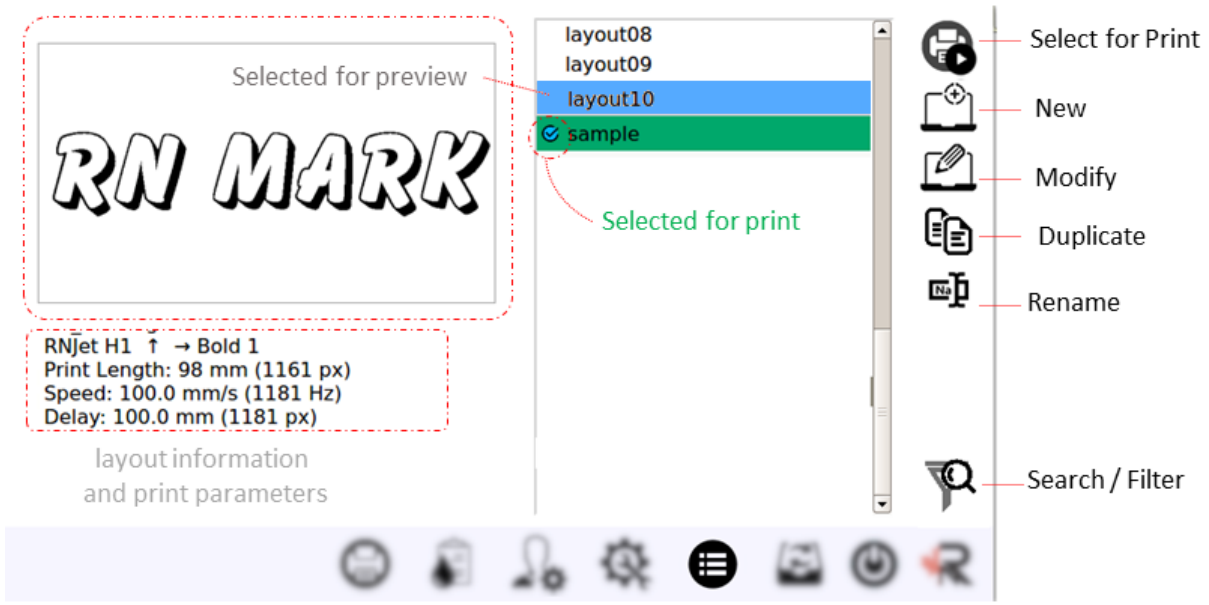


Figure 15 Message Management Console

4.1. Layout list

Each item in this list is a print template, linked with the print parameters from the last time it was printed. The highlighted (Blue) item from the list is selected for preview; a brief overview about the print-head type (layout height) and print length is displayed on for highlighted item.

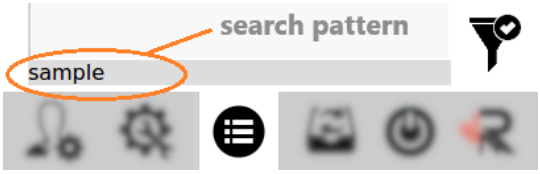
- The blue checkmark icon is an indicator for ***current printing layout***. This item is also highlighted with green background while print operation is NOT started. (Current print layout is the template which is loaded in memory for print operation).
- The red lock icon is an indicator for ***current printing layout*** while the print is ON; this item is also highlighted in red background when print operation is in progress.

This button loads the grey-highlighted item for print. The blue checkmark icon will move to ***blue highlighted layout***. Only layouts with a matching print-head type to your printer model can be selected for print.

Delete the selected layout. It is not available for current printing layout.

Rename the selected layout. Current printing layout cannot be renamed.

Search/Filter for the layout list; when the filter is activated a search pattern is asked for and applied to the list.



Search pattern is activated; if you see this icon, it means you may not have all the available messages in the list. to see all messages, click and clear the search pattern.

> By default, only the compatible layouts will show in the list. it means if there are print templates made for other types of printheads, they will not show in this list. to see all the messages for on the printer memory, go to:
>
> section 6.4.2 More options P#67

The following buttons will open the layout designer console:

Use this icon to modify the highlighted item from the list.

Use this icon to generate a new layout. A new blank template will be displayed in the workspace area (Figure 16)

4.2. Layout Designer

In 'Layout Designer Console' (Figure 16), the print layout can be created or modified. When this console is open, the message management button in main navigator turns red, indicating there is layout design in progress. This notice is helpful when user decides to switch to other pages (like Print Preview or Storage management) in the middle of designing a layout.

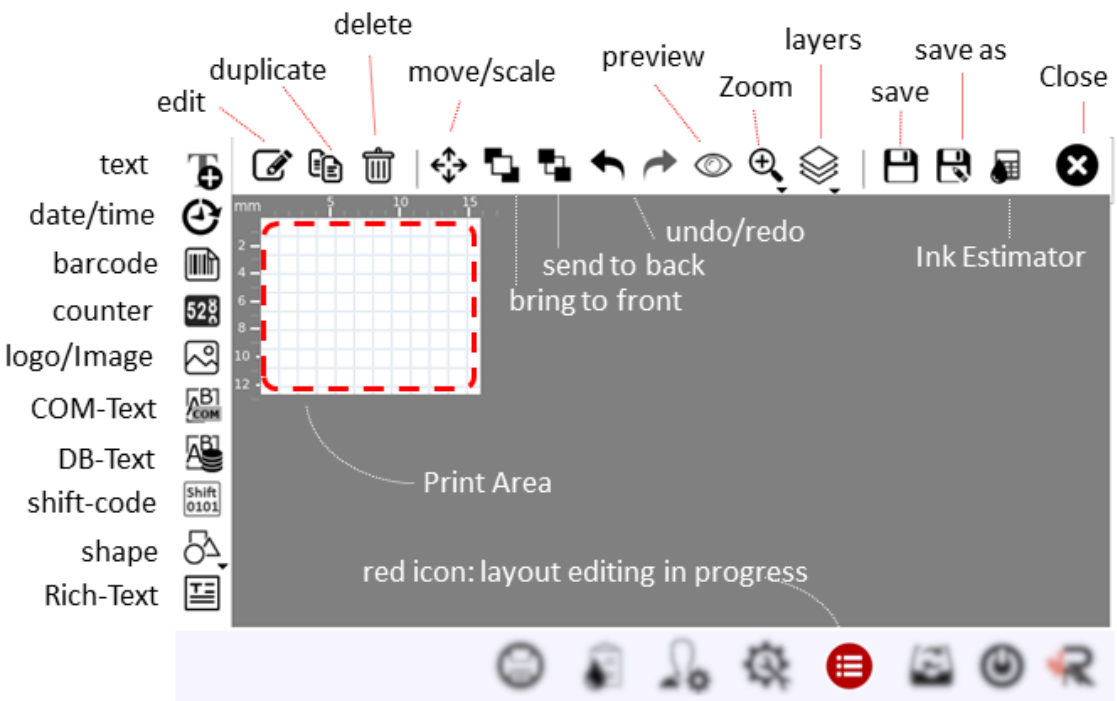


Figure 16 Layout Designer

The area with the grid background is called the ***print area***. This is the actual size of the 'print label' marked on the product. The height of print area is fixed and depends on the model of the print-head. The length of the print label is user's choice (will automatically grow/shrink by placement of the objects).

In the top toolbar, as shown in Figure 16, some tools are available in all printer models. Other tools are just available in specific models. For example, Figure 17 shows additional tools for Dual-head printer models.

With dual print-head layouts, a horizontal divider line will split the printing area into two sections (blue line). Any objects interacting with this divider will be cut off in the final print results. To get the best print results, it is recommended to avoid any overlaps between printing objects and the divider line.

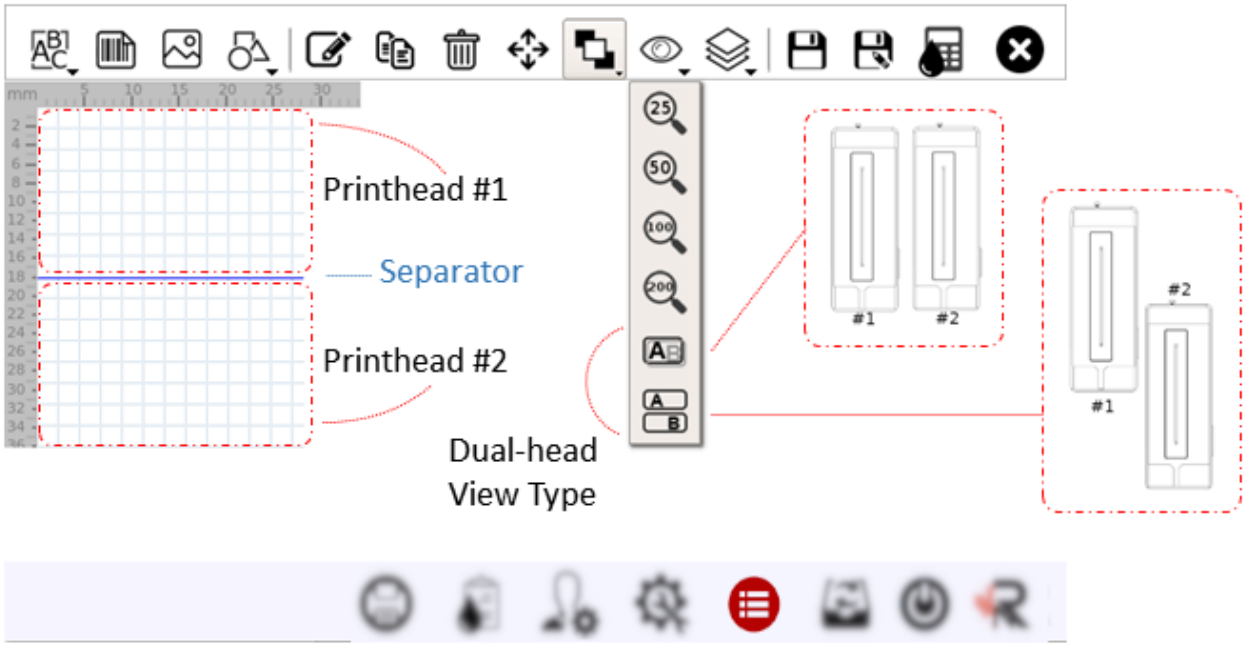


Figure 17 Layout designer for Dual head

The 'dual-head View Type' options will only affect the preview of the template layout at design time. The option A/B will provide a stacked design view (useful when the two print-heads are stacked vertically to achieve more print height). The option AB will provide an overlay design view (useful when the two print-heads are stacked horizontally for dual color printing).

4.2.1 Layout View Tools

Closes layout design page and goes back to the list of layouts.

Save; Saves your work.

Save As; save a new copy or make a copy with a different name.

shows ink consumption estimate based on the total black dots.

shows a list of all objects in the template. Helps to select objects that are outside of display or too small to select. The first item will select all objects.

will open a dropdown menu for zoom options and visualization of dual print-head if applies.

Stacked Design View: dual print-head stacked on top of each other.

Overlay Design View: dual print-head installed for dual color printing.

4.2.2 Layout Editing Tools

Move/Scale selected object.

Edit selected object.

Delete the selected object.

Make a copy of selected object.

Bring selected object to the front.

Send selected object to back.

Tip: In the layout design window, selected objects are highlighted by a blue border. Other objects are highlighted with gray. Editing tools above work only after selecting an object.

4.3. Printable objects

There are two categories of printable objects: static and dynamic. A static object like 'Text' or 'Logo' will print exactly as it looks on the screen. A dynamic object depends on external data that will arrive later at print time. Example, a 'date code' is an auto-generated label, based on the internal clock of the printer.

4.3.1 Static Text Object

This is a static object. A 'Static Text' object on the screen will look exactly like in the print result. The content of the text object can be modified using the on-screen keyboard button.

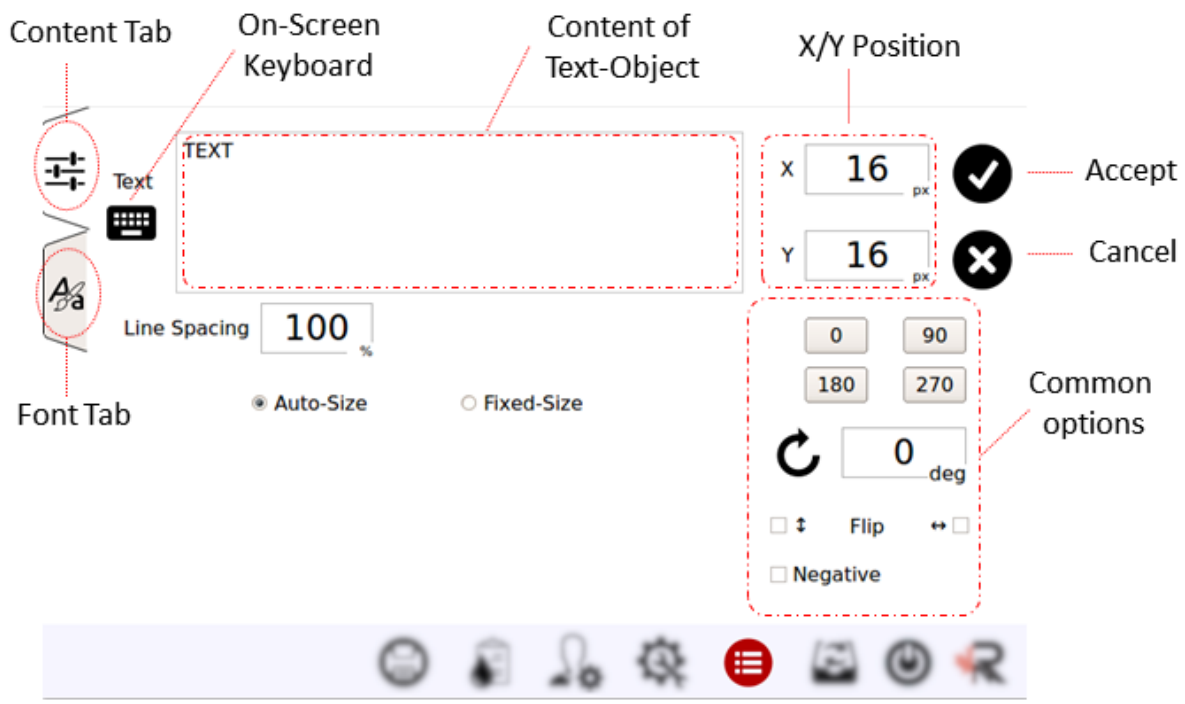


Figure 18: Text object / Common Tab

- The 'Auto Size' option will adjust the static text frame size based on the content of the text. Length of text and number of Line-breaks (Return key) will adjust the frame size. Font-size and line-spacing are other factors that affect the frame size for a text object. This option is the most common case for text.

- The 'Fixed Size' option will create a paragraph-like text with text alignment options. The value for Width and Heigh of the frame-size is defined by user and the text content will be placed inside the frame. Text will be cropped if the frame-size is not large enough. Using this option may complicate the design and is not recommended unless it is necessary. Rotation options are not available for this mode.

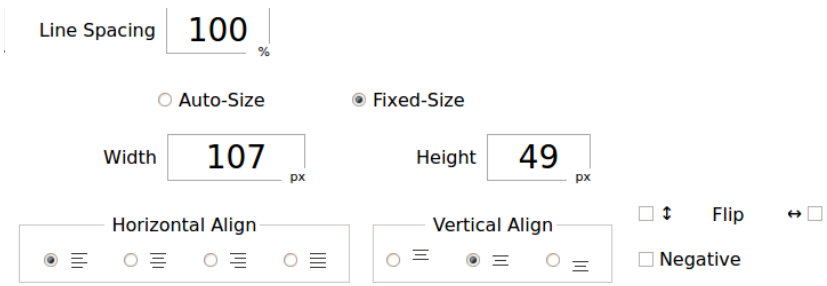


Figure 19: Fixed Size Text

4.3.2 Common Options for Text Objects

All Text Object can be rotated, mirrored, and made negative. These are called common options (Figure 18).

Another common option for text is the font tab (Figure 20) allowing user to select font face, size, and style of the text. The Writing-system combo-box will filter the font list based on the required character set for any specific language group.

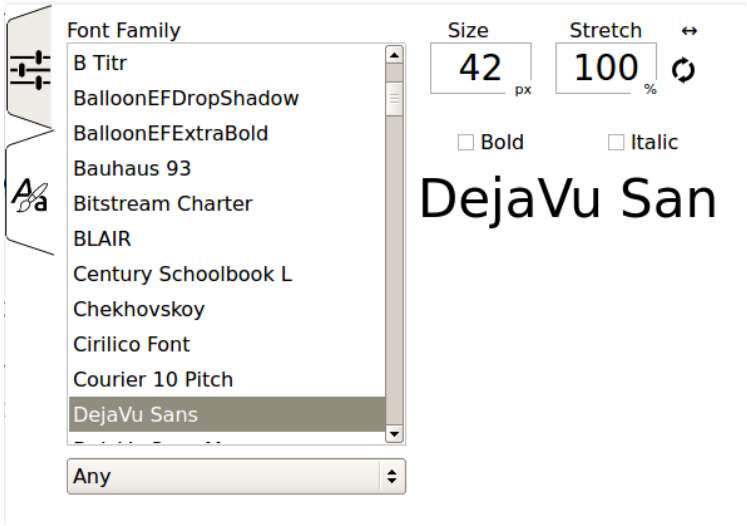


Figure 20: Text object / Font Tab

4.3.3 Counter Object

This type of text is considered a dynamic object (Figure 21).

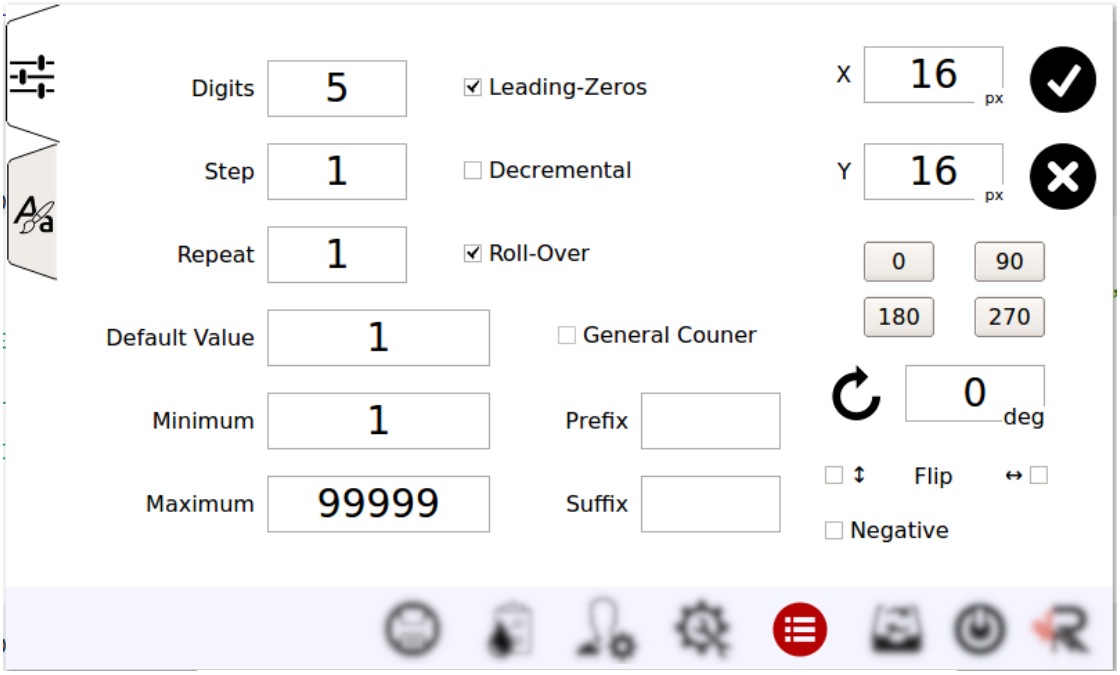


Figure 21: Counter Object

- Default value is the starting value of the counter when the layout is loaded.
- It will increase to maximum and roll-over to minimum, or if Decremental option is checked, it will decrease to minimum and roll-over to maximum.
- If the roll-over is not checked, the counter will get stuck on maximum or minimum value.
- Having the leading-zero(s) is optional. A prefix or suffix can be attached to the counter value.
- The counter can also 'repeat' its current value by the number selected as 'Repeat' option.
- General Counter: links all the counters in the current print template together so they have the same value at all times: this is useful when we want to have a readable text barcode and a QR barcode with the exact counter value inside.
- Like other types of text objects, common options such as rotation, mirror, negative and font/style are also available for counter.

4.3.4 Date-Time Object

This type of text is considered a dynamic object.

- It generates Date/Time labels using the internal clock of the printer controller, based on the 'Format' option provided (Figure 22).
- The format characters for date-time format are case-sensitive, for example **mm** is for minutes and **MM** is for month.
- In the format field, any character that is described as a 'Format Identifier' in the table (Figure 22) will be translated to the corresponding value. All other characters will be printed without translation, for example letter **h** is translated to value of hour, but letter **b** is printed exactly as b.
- In the format field, any set of characters put inside single quotes are printed without translation. Example: **yy** is translated to value of the year but **'yy'** is printed as yy
- Offset is usually used to calculate expiry-date. Printed date may shift forward into the future (days, months, years). Hour/minutes offset may be positive or negative.
- See section 6.6 Internal clock P#74 for how to set/change printer's clock.

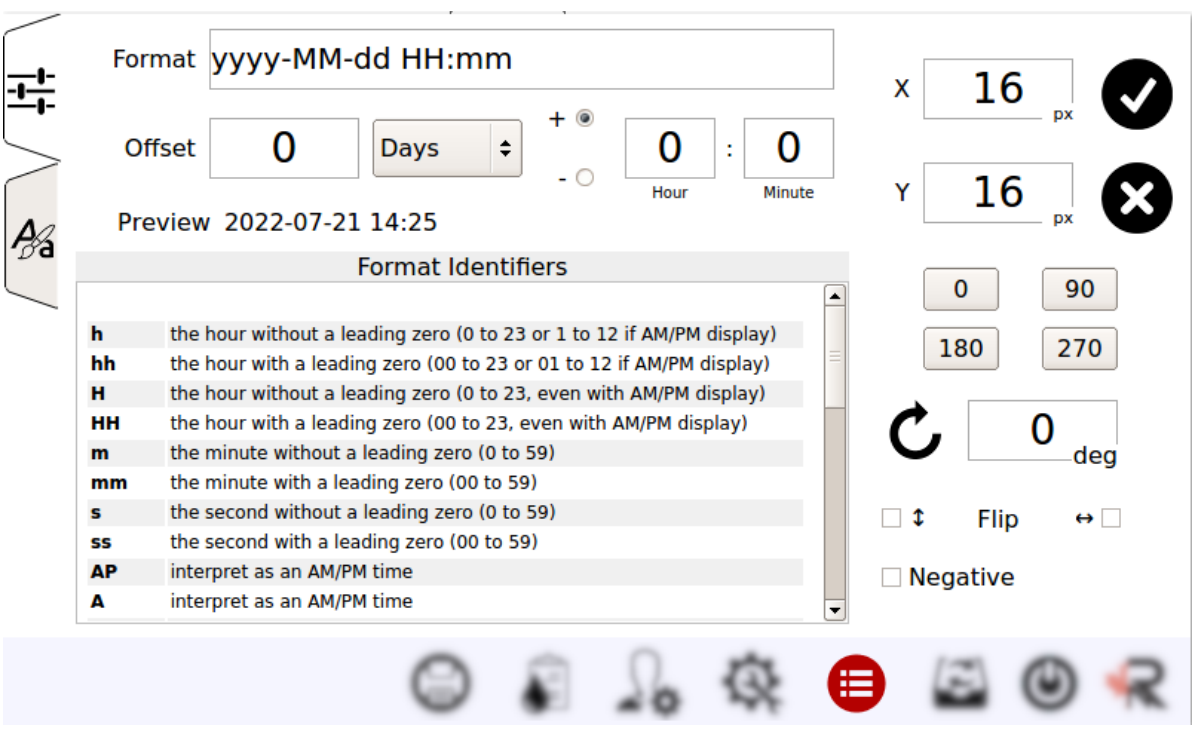


Figure 22: Date-time object

4.3.5 Shift-code Object

The shift-code is a dynamic object whose content will be generated at the print time based on the internal clock of the printer.

In the shift-code design window, you only need to define the starting time of each shift. The shift's end will be calculated based on the start of the next shift. To define the last shift in a day, you must create an empty shift at the end of that shift. The last shift that you define in this table will automatically end at 23:59:59.

To add break times in between shifts, just add a shift with a blank code.

- To add a new shift, press the icon.
- To modify/delete a shift click on the item from the list.
- When the Hour, Minute and Code are set, press the ok icon to accept.

Example: suppose we have a two-shift per day production as follows:

- From 8:00-15:30 morning shift with the code 'Morning' to be printed.
- From 16:00-23:30 evening shift with the code 'Afternoon' to be printed.

To design a shift-code object for this scenario we need to add four items into the table as shown in the Figure 23.

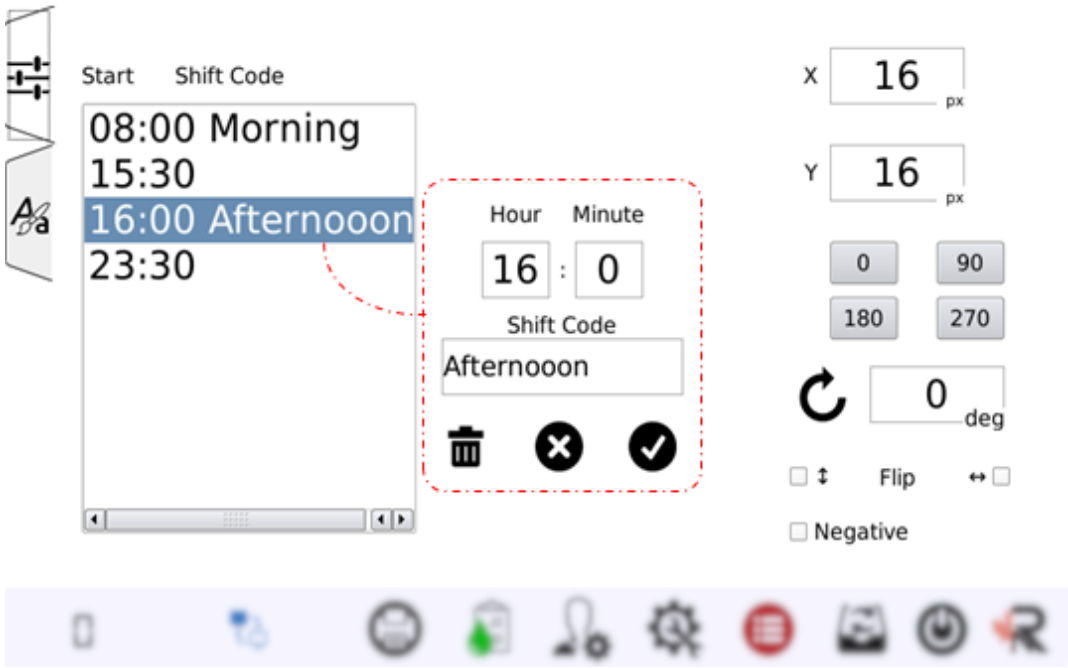


Figure 23: shift-code

4.3.6 Dynamic DB-Text Object

This is a dynamic object that is used to print text or barcode from a Database file (*.CSV or *.TXT). Any print layout that contains DB-Text object, will require a database to work in print operation. When this layout is selected for printing, a database file also must be loaded into memory before the print operation starts. (See section 3.7. Database console P#18)

4.3.6.1. How does database printing work?

It is important to understand the concept of '**Database Printing**':

- the print template is 'bound' to a database file; Meaning the number of records in database is the maximum possible print results.
- Only when the print is OFF, operator may load a new database file or clear current content.
- With each line (data-record) in the database, only one print is generated. At any given time, the current record (blue frame) in 'Database console', marks the reference record for next print. Operator can navigate through the records to resume from a certain point in database.
- With each sensor trigger signal, one print is generated, and the database navigates to the next record. When the end of database is reached, the print will automatically stop.

4.3.6.2. What format is the printer database?

- The database used in this context is a 'Text' file with .csv or .txt extension.
- The records (rows) are separated by 'Line-feed' (AKA line-brake, \n, ASCII 10).
- The fields (columns) are separated by comma ',' character. Therefore, comma is a 'special' character, use '\,' sequence to print comma.
- Database encoding is **utf-8**. All Latin, Cyrillic, Asian, Arabic and symbol characters are supported.
- Filename for the database is case-sensitive.

Error! Reference source not found. shows the design view for DB-Text object. In this figure, the top section, marked as '*Preview/Training*' is an optional tool to preview and evaluate the effect of parameters. The file that is loaded here for preview has no effect on the print operation.

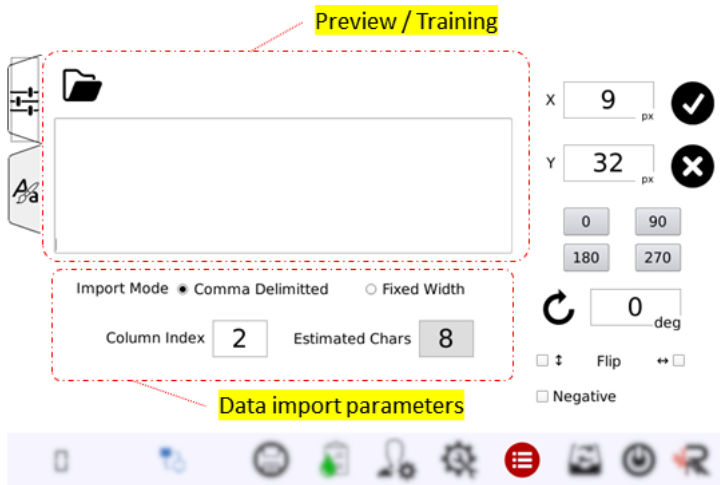


Figure 24: DB-Text object

The Bottom section marked as '*Data import parameters*' is the only section that has effect on dynamic DB-Text behavior. It contains parameters and instructions to read data from database and generate the printing text.

4.3.6.3. *How DB-Text object content is generated?*

When a record of data from database is selected as reference for next print, the data for COM-Text object is imported using one of the following methods:

Comma Delimited: In which the record is divided by comma into fields (columns). The DB-Text object requires only an Index parameter to point to the target field. Use escape sequence '\,' to print comma. The 'Estimated chars' parameter is hint for the printer to predict the size of dynamic object before the actual data is available. This parameter is NOT used to cut-off the data.

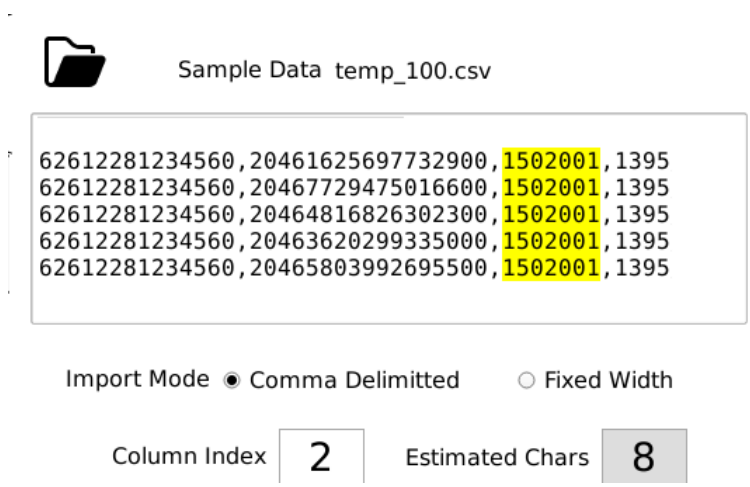


Figure 25: Text, Comma Delimited

Fixed Width: In which two parameters are provided to extract the data from the current record: starting index and length of data. With this method, comma will be a regular printable character.

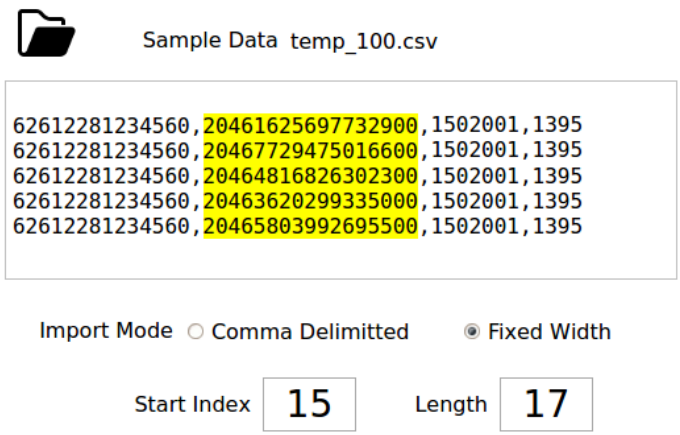


Figure 26: DB- Text Fixed Width

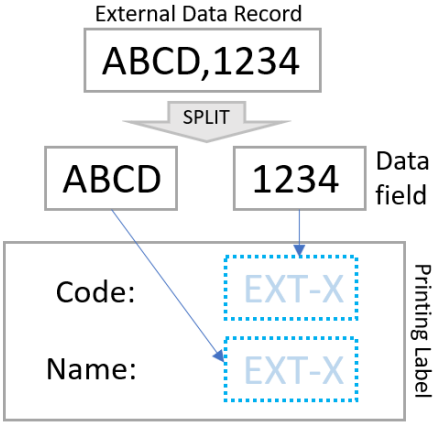
4.3.7 Dynamic COM-Text Object

This type of dynamic object is used to print text or barcode from an external source of data. The 'external source' may be one of the following devices connected to the RNJet printer controller:

- A Serial device (PC, PLC, barcode reader) connected to the serial port (either physical RS232 port or virtual USB COM-Port.
- A computer (PC or PLC) with network access to the Ethernet port or serial port.
- A database file (.csv or .txt) saved on the printer's local storage
- Manual input from RNJet touchscreen interface by user

4.3.7.1. How COM-Text object content is generated?

Any received string (stream of data that terminates with Linefeed) on the serial port is considered a record of data. This data will be split into one or more fields. The COM-Text object gets the value from these fields(s) of data.



A new 'external data record' received, will replace any previous record in printer's memory. This record of data remains valid for infinite number of prints. Print operation never stops due to lack of external data. If no data is received, then the COM-Text object is blank.

After reviewing how to create a dynamic text, we will go through external sources in section 4.3.7.3 forward.

Figure 27 shows the design dialog for the COM-Text object.

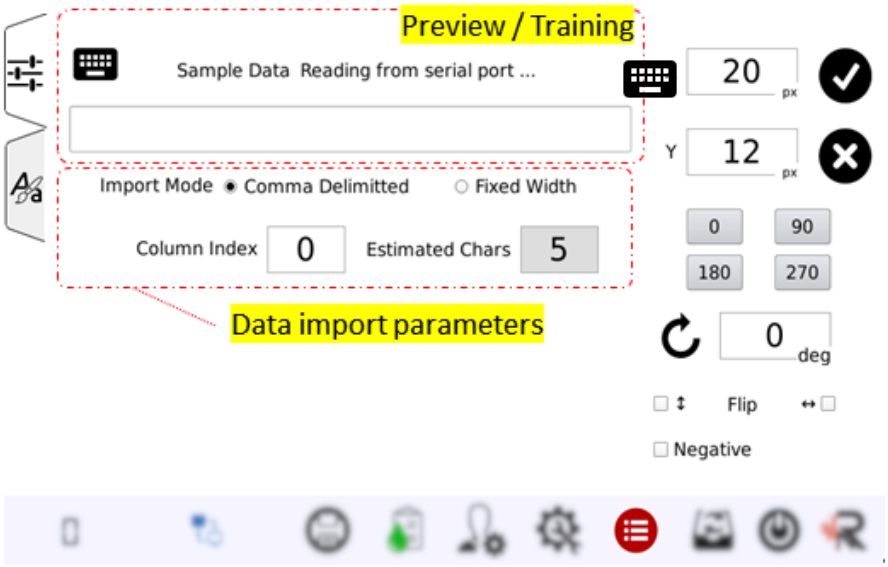
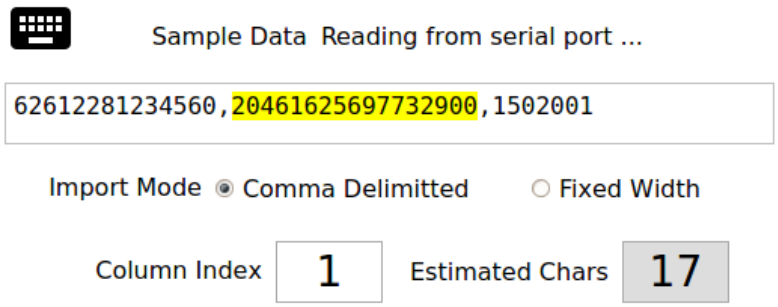


Figure 27: COM-Text object

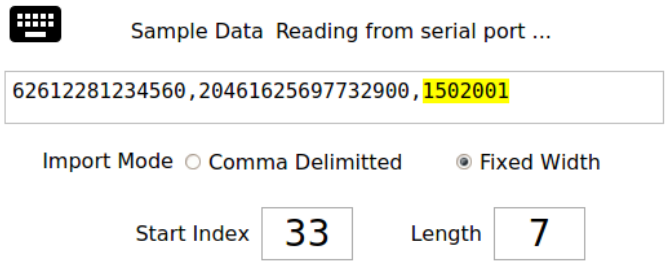
In this figure, the top section, marked as *Preview/Training*, is an optional tool to preview and evaluate the effect of parameters. Use the icon to enter sample data (simulating incoming data from serial port) and evaluate how COM-Text parameters are affecting the data field. Any sample data that is used here for preview will NOT have any effect on the print operation.

The Bottom section marked as '*Data import parameters*', is the only section that has effect on dynamic COM-Text behavior. It contains parameters and instructions to read data from serial port and generate the printing text. When a new record of data is received, one of the following methods is used to import data:

Comma Delimited: In which the data is divided by comma into fields (columns). Then a COM-Text object requires only an Index parameter to point to the target field. Use escape sequence '\,' to print comma. The 'Estimated chars' parameter is hint for the printer to predict the size of dynamic object before the actual data is available. This parameter is not used to cut-off the data.



Fixed Width: In which two parameters are provided to extract the data from the **Error! Reference source not found.**: starting index and length of data. With this method, comma will be a regular printable character.

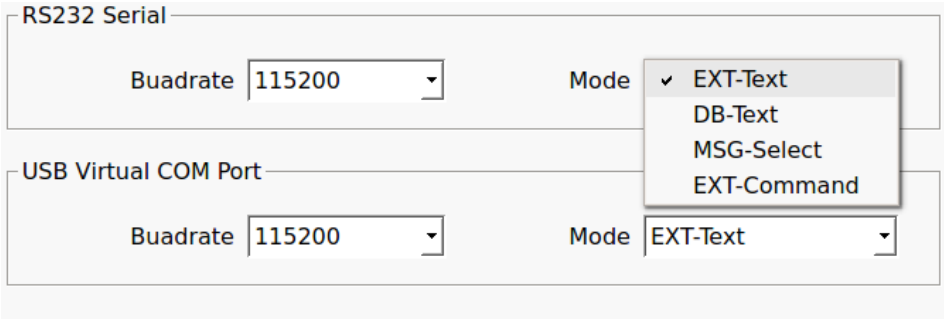


4.3.7.2. External Data from HMI

One method to send update the COM-Text object is Quick Edit feature on RNJet display. click inside the blue dotted frame on RNJet screen in print preview page. this method is explained in section 3.6 Quick Edit P#17

4.3.7.3. Receiving External Data from Serial Port

To receive external data from the serial port, the serial port mode must be set to 'EXT-Text' mode in settings. See section 6.7 Serial port settings P#75

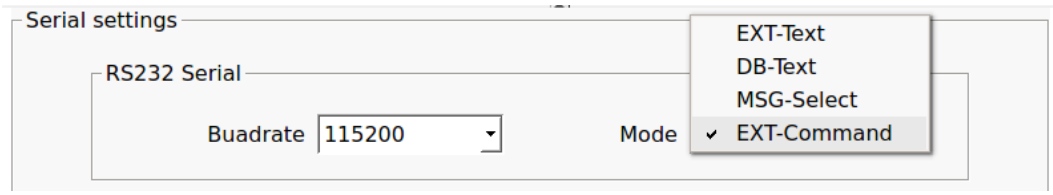


It is important to understand how 'EXT-Text' mode works:

- There is no data exchange protocol involved. Everything must be sent as printable characters. Any device using serial communication must send the print data as 'plain text' with utf8 encoding.
- A record of data must be terminated with 'Line-feed' (AKA line-brake, \n, ASCII 10). In other words, the printer continues to read the serial port until Linefeed is received.
- There is only one direction of data flow: from external source to the printer.

4.3.7.4. External Data using advanced communication protocol

This protocol allows sending printable data and control commands to the printer. For ethernet communication see section 6.5 Network settings P#74 and for serial port select the EXT-Command mode for the serial port:



It is important to understand the following facts about this communication:

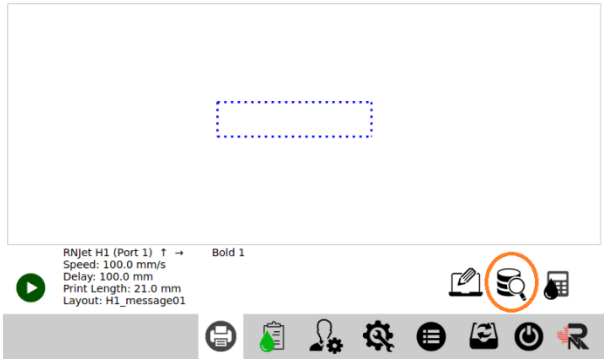
- This communication is bidirectional both over Ethernet and serial port.
- A remote device (PLC) must have programming API capabilities to perform this type of communication. (such as c/c++ programming capabilities) Please see the following document for detailed instructions:

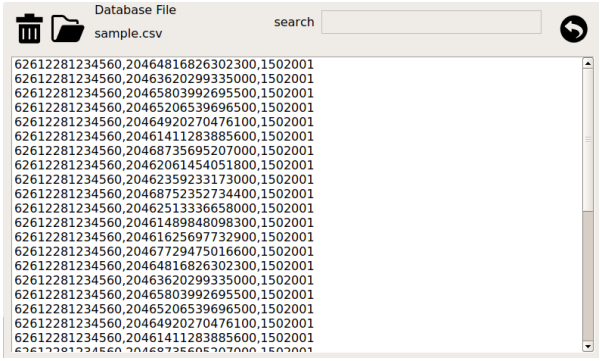
'048-0501-007-xx RNJetPlus Network Communication Protocol'

4.3.7.5. External Data from Extended Database

This feature is hidden by default to prevent confusion with regular database; To enable this feature see section 6.4.2 More options page 67.

This method is explained in section 3.8 Extended Database page 21





Unlike the 'Database printing' mode, the 'extended database' is not affected by sensor trigger signal. The data held in buffer remains valid as source of printing until a new record is selected.

4.3.8 Image Object

This is a static object to print Logo so other symbols. RNJet printers will only print fixed size black dots, so any selected picture will be converted into monochrome format to be included in the layout.

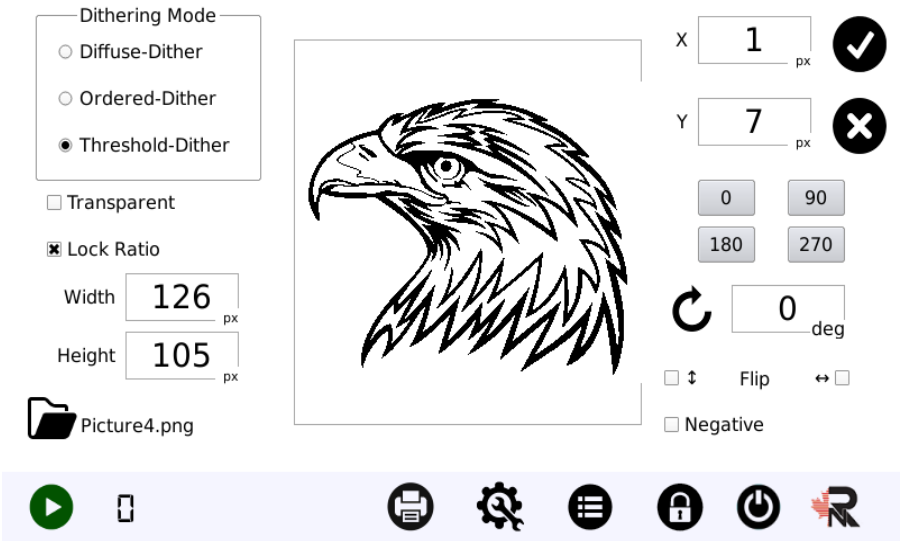


Figure 28: Image object

Since monochrome pictures do not contain any shades of gray, dithering algorithms are provided to simulate the gray shadows. The following pictures compare different methods of image conversion:

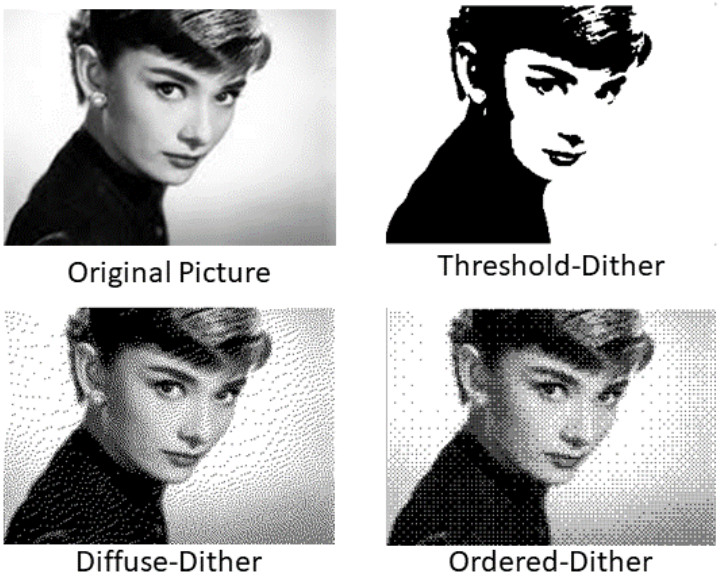


Figure 29: Dithering Options

The image/Logo size can be adjusted in this dialog to fit inside the print area; however, it is strongly recommended to resize the logo pictures to the proper size before importing into the print layout (using image modification software like windows paint, photoshop …). Large pictures may consume printer's memory, and the resized quality might not provide the best results. The proper size for the logo is when the height of the picture (in dots) fits inside the print area of the printer:

Printer Type	Print area height
RNJet H1 / H2	150 dots
RNJet 100 / 200	128 dots
RNJet 72 / 140	510 dots

4.3.9 Barcode Object

Use this icon to print Barcodes. A diverse collection of Linear and 2D barcode types (symbology) are supported by RNJet printers. Rotation and Negative options are available for barcode objects.

Each symbology has its own data constraints; It means according to the selected symbology a certain number of numbers and/or characters must be entered as data. Example (Figure 30): for EAN14 barcode, user must enter 13 digits from a valid GTIN number, the 14th digit is a check digit generated by the printer.

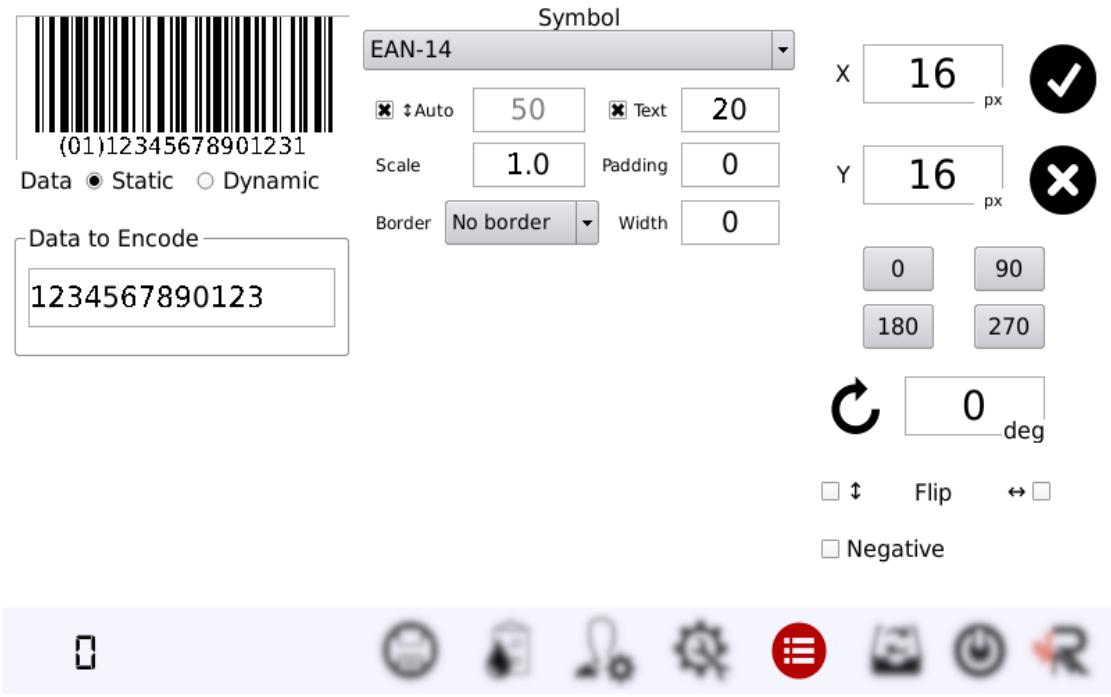


Figure 30: Static Barcode object

This document is drafted based on the assumption that users have enough background knowledge about barcodes and especially GS1 standard. For more information about the GS1 standard please see www.gs1.org

For data inside the barcode (Data to Encode), there are two options:

- Static data: barcode is a static object (Figure 30).
- Dynamic data: barcode becomes a dynamic object; it may contain multiple fields of dynamic text (Figure 31).

Use the button to add more fields.

Point to any field and use to modify the field, use to reorganize the order of fields, or use to remove the field.

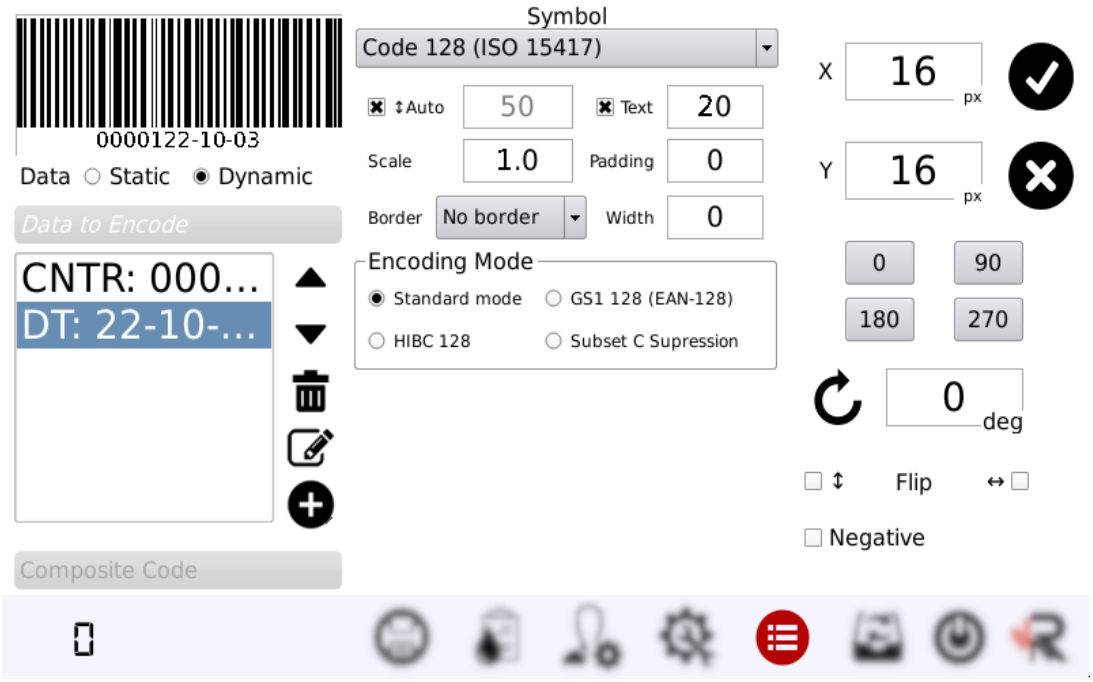


Figure 31: Dynamic Barcode object

For '*symbology*' there are over 30 different options. Each selected symbology asks for a specific set of options. Some options are not available for certain barcode types. Please lookup online documentation for data restrictions (data format and length) for your selected symbology.

For '*Encoding Mode*' there are two general modes: '*standard*' and '*GS1*', plus some extra modes (like 'HIBC') for certain barcode types.

- Standard mode: There is no restriction for input data, other than what the selected symbology requires.
- GS1 mode: The data must start with an AI (Application Identifier) enclosed in brackets [ ]. All following AI's also must also be enclosed in brackets and data length/type rules for each AI must be respected. for more information regarding AI codes, please see www.gs1.org

Please keep in mind that each encoding mode dictates certain rules for the input data. Users must be aware of all the requirements for the encoding mode they select. If you are not sure what encoding mode to select, always choose 'standard' mode if asked.

In case of 'GS1 Data mode' for encoding, the option 'Use separator for GS1' will enforce FNC1 at the end of each variable length field (before next AI).

General barcode options:

- Bar height: (only for linear barcodes) adjusts the height of the black lines.
- Scale: 2-D resize factor for height-width of the barcode.
- Text: (available for some linear barcodes) optional human readable text.
- Border: (available for some linear barcodes) must set with of the border.

4.3.10 Shape Object

Simple static objects, similar to image objects, will allow users to draw rectangle, circle, lines, or tables around text. (Figure 32)

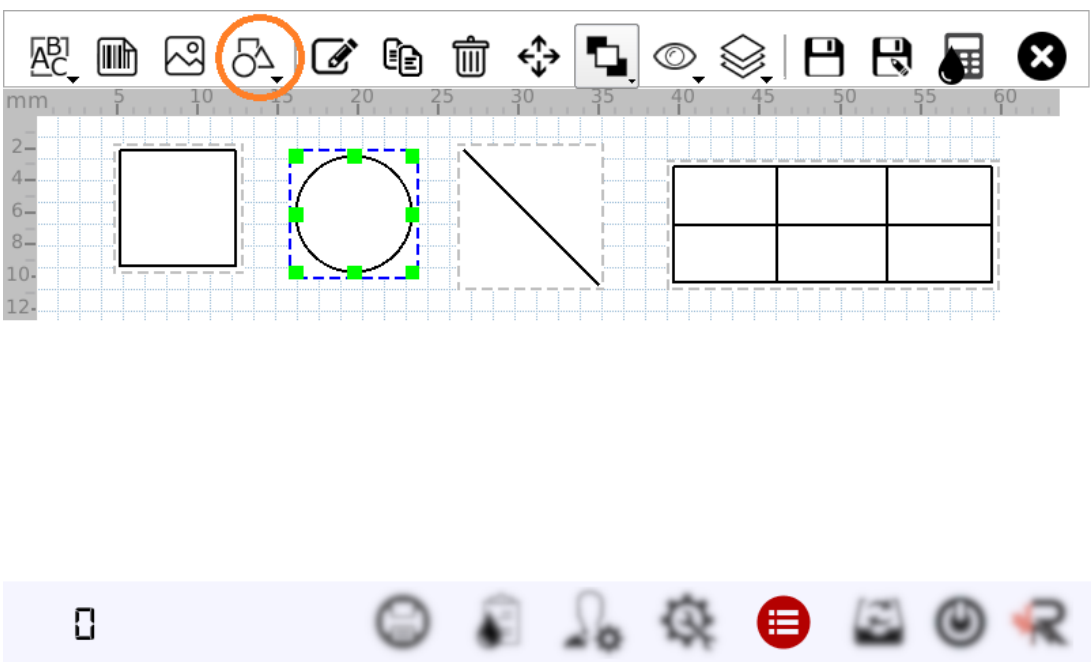


Figure 32: Shape object

4.3.11 Rich text Object

This type of text object allows text and paragraph formatting. The main intent for this type of object is to make a template design in RNSoft windows app using a desktop or laptop PC. It is recommended to create/modify this object only from the RNSoft-Windows application.

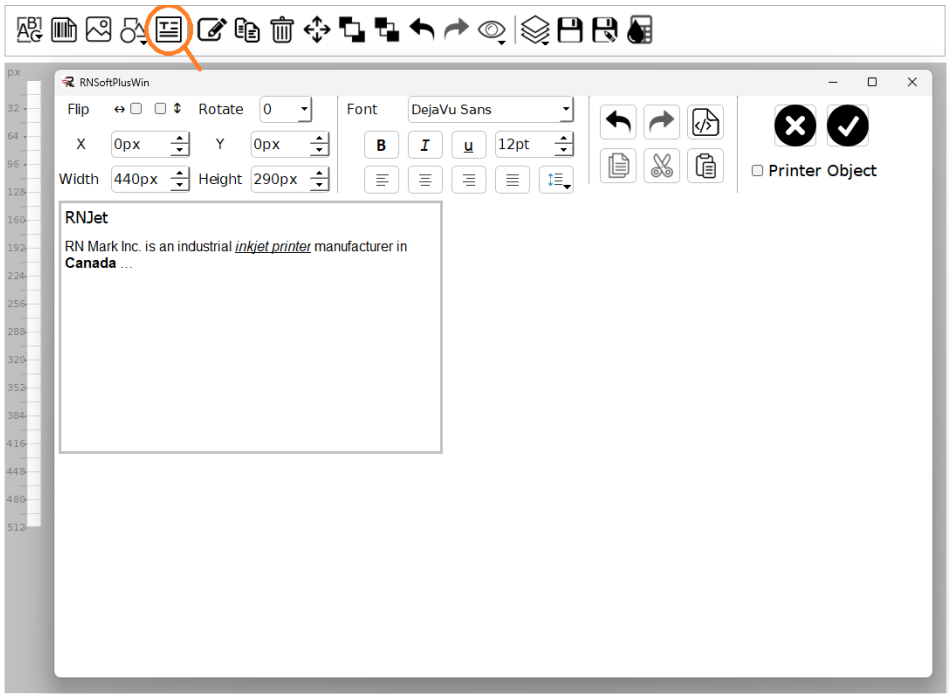


Figure 33: Rich text object dialog

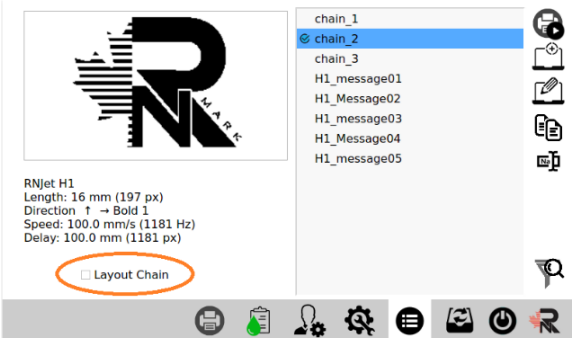
Printer object: This option makes it possible to edit/modify this object from the RNJet controller screen. The disadvantage of enabling this object is that the print result may or may not be the same as shown in layout design.

Detailed explanation:

With this option enabled, all text will be rendered on the controller using the fonts available on the RNJet controller. The RNJet controller has an '*Embedded Linux*' operating system; Even if we upload the exact same font files into to RNJet controller, the final results on the controller may look different compared to the results from Windows (Laptop/PC) since they use completely different platforms. Leaving this option disabled, will guarantee the font-size, and looks on the RNjet controller, are exactly the same as shown on the laptop/pc screen.

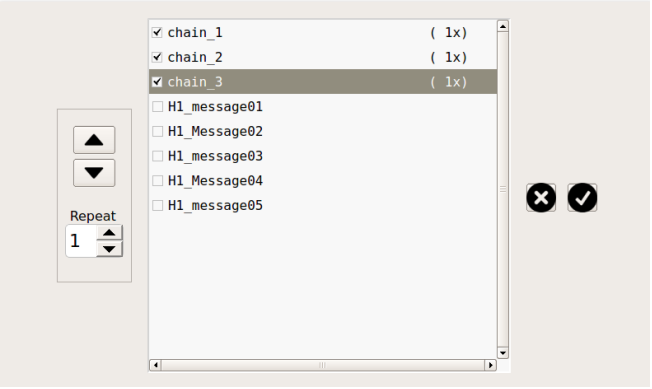
4.4. Layout Chain

This feature is hidden by default, to enable it go to section 6.4.2 More options P#67 This option is rarely used and only for special applications.

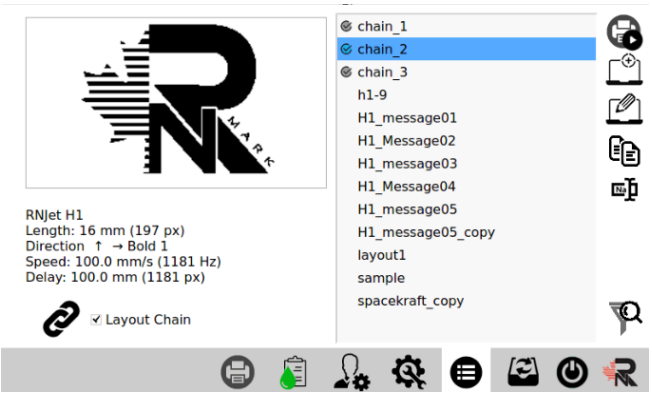


With Layout-Chain option checked for the first time, we will be asked to make a selection of layouts; The printer will automatically switches between these templates every time the sensor is triggered. The number shown beside each title is how many times this item is printed before switching to the next template.

Click on the ok icon to accept changes.



When layout-chain is enabled, every layout selected in the list will have a check-mark. It is not allowed to delete these items unless they are unchecked from the chain list.



When layout chain is already enabled (checked), user can click on the icon to modify the list of chained layouts. To disable this feature, un-check the Layout-Chain option.

5. Storage

Within this panel, the following functions are provided:

5.1. Import/Export files

This window is the import/export panel between the printer and USB flash disk.

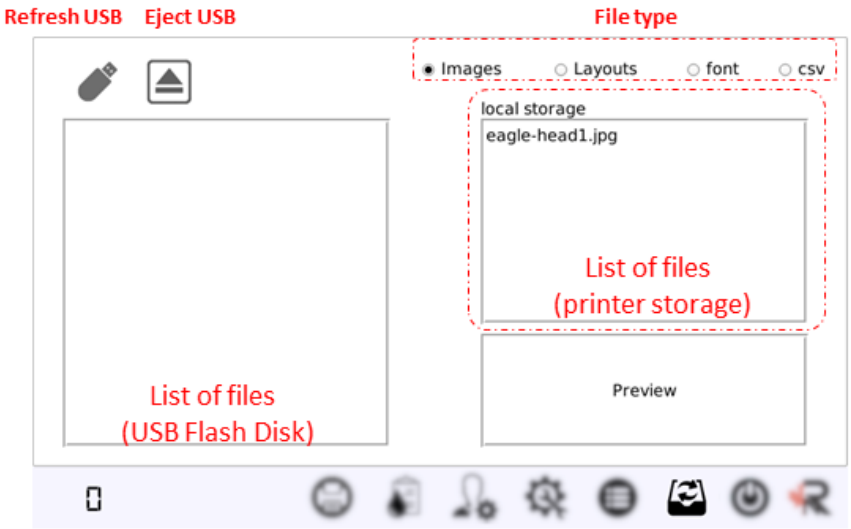


Figure 34: Storage

On the left side the content of USB flash drive (if connected to the USB port) is displayed. Use icon to refresh and icon to eject the USB flash drive.

On the right side the content of printer storage is displayed in four separate categories: picture, layout, font, and csv/txt databased files. The remaining free storage is also displayed at the top of the list.

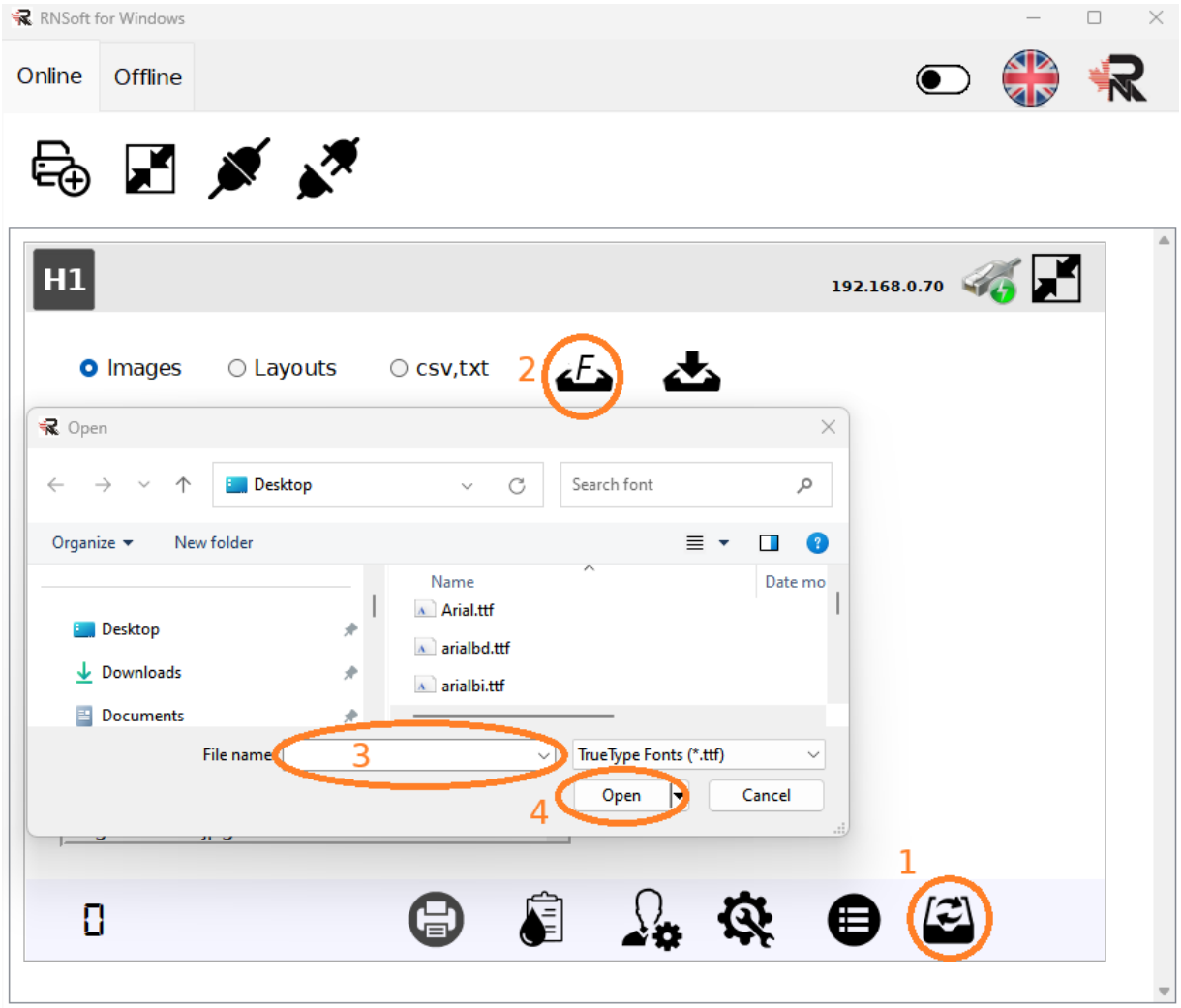
Select a file from one side and use icons to transfer them to the other side. The delete option works only for printer storage side. The USB flash drive is read-only.

5.2. Import Font

While **print is OFF**, select a `*.ttf` file (True-Type font) from the USB-storage side (left side) and click on the icon which appears on top.

After a successful font installation, the new font must appear in the font-list on local storage (right side). To uninstall the font, select the font from the local storage and press delete icon. Fonts displayed in red are system protected fonts and cannot be removed.

Alternatively, you can import fonts using the RNSoft Windows application:

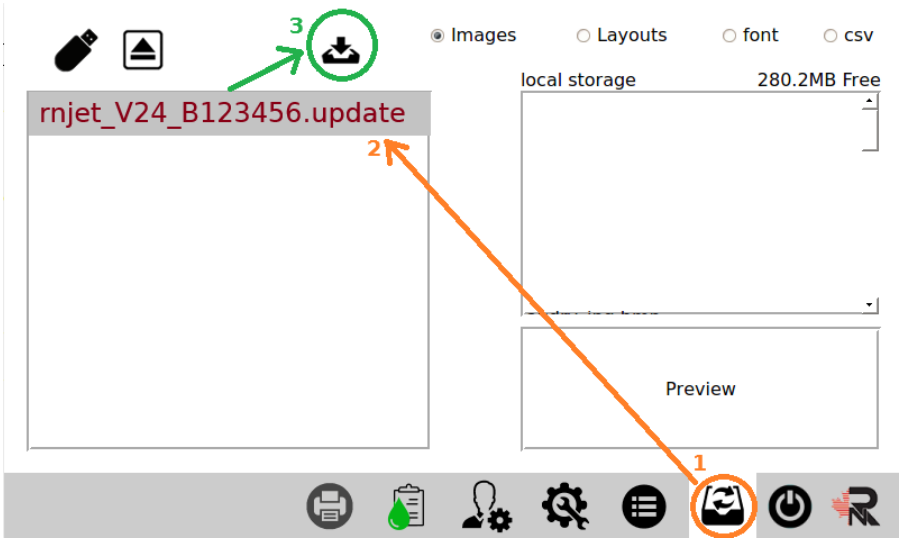


5.3. Update Firmware

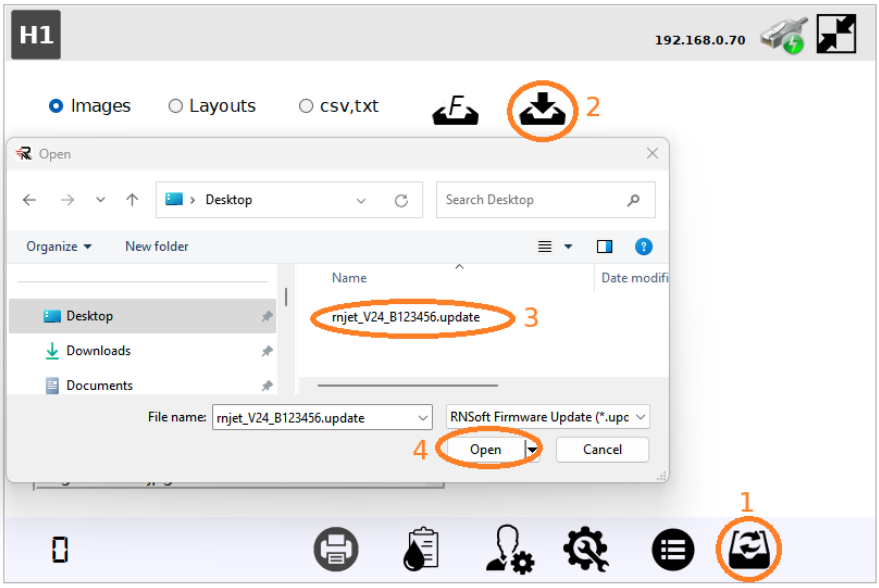
To update the firmware, make sure the print is OFF.

5.3.1 RNJet controller firmware update

connect the USB flash and select a `*.update` file (RNJet Firmware file) from the USB-storage side and click on the download icon which appears on top.

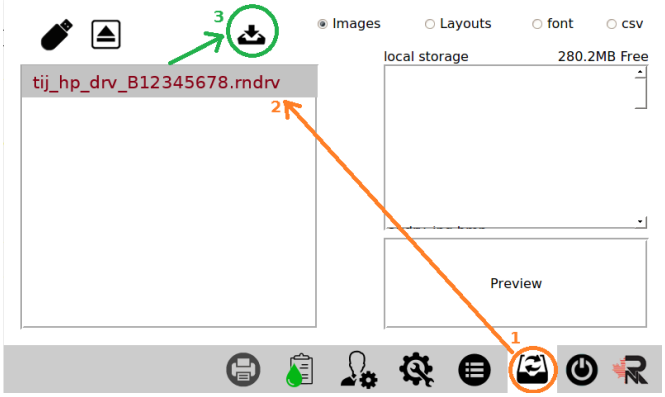


After a successful update the printer will reboot automatically. You can check the firmware version/build number using the icon as explained in section 2.2.8 on page 12. Alternatively, you can perform the firmware update from RNSoft Windows app:



5.3.2 Printhead Driver firmware update

Select a `*.rndrv` file (RNJet Driver Firmware file) from the USB-storage side and click on the download icon which appears on top.



- The print must be OFF for this operation.
- The firmware file must match the print-head type of RNJet controller.
- For dual head printers (RNJet H2 and RNJet 140) it is recommended to connect printhead drivers one-by-one and perform the update separately.
- The printhead driver must support the update as well. RNJet H1/H2 printhead drivers manufactured from 2nd quarter of 2024 support this feature. RNJet 72/140 printhead drivers manufactured from 1st quarter of 2025 also support driver update.

Important note: when a printhead driver update starts, the printer will show a warning. It will take between 7 to 10 seconds for the update to finish. During this time if the main power is cut off or the cable is disconnected, the printhead driver may permanently fail. The only way to recover a failed driver in this context is to send back to manufacturer for repair.

WARNING:
Driver Update in progress ... Keep printer powered ON!
Please do NOT power down the printer or disconnect any cables!

6. Settings

The configuration and parameters of the printer are divided into groups (Figure 35). Some settings are not accessible while 'Print ON' (Figure 36).

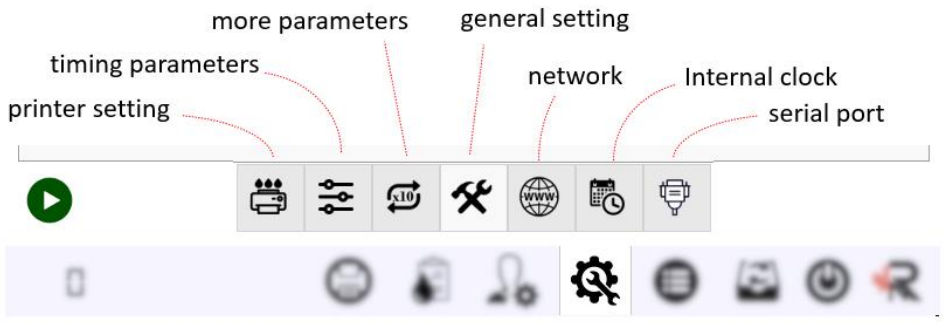


Figure 35: Setting while Print OPF

Figure 36: Setting while Print ON

6.1. Printer settings

This section (Figure 37) is only accessible while the print power is OFF. Some options are only available for a certain type of printer.

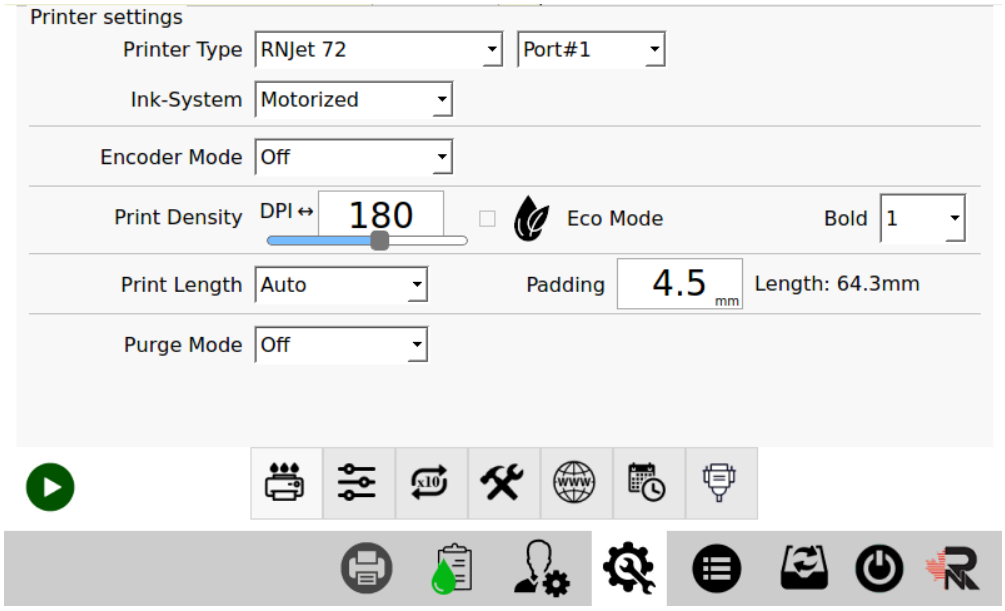


Figure 37: Printer settings

6.1.1 Printer Type

shows the type of print-head assigned to the controller. Print-head type is fixed on the RNJet controller and cannot be changed by the operator, but we can switch between single-head and dual head types. The following table concludes different modes of the RNJet printer.

Printhead Type	Printer type	Print Layout Overview
TIJ 13mm	RNJet H1	150 pixels print height, 300 dpi (½ inch)
	RNJet H2	300 pixels print height, 300 dpi (2x ½ inch)
	RNJet 2xH1	150 pixels layout height (2x ½ inch clone prints)
Piezo 18mm	RNJet 100	128 pixels print height, 180 dpi (¾ inch)
	RNJet 200	256 pixels print height, 180 dpi (2x ¾ inch)
	RNJet 2x100	128 pixels layout height (2x ¾ inch clone prints)
Piezo 72mm	RNJet 72	510 pixels print height, 180 dpi (2¾ inch)
	RNJet 140	1020 pixels print height, 180 dpi (2x 2¾ inch)
	RNJet 2x72	510 pixels layout height (2x 2¾ inch clone prints)

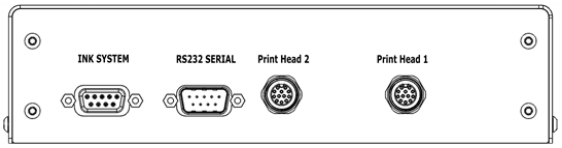
For each printhead type from the list above, there are three options to select from this list:

- **Single head**: will show RNJet 100, RNJet H1 or RNJet 72; user may select 'Head1' or 'Head2' option to select which one of the physical ports on the controller is connected to the print-head. The print layout height is the same as the print-head nozzle count.
- **Dual head**: will show RNJet 200, RNJet H2 or RNJet 140; both print-head ports on the controller are used and active, the print layout height is twice the nozzles of printhead. The print layout maximum length is reduced in half:
  RNJet 72 maximum layout width: is 182" ~ 4.6m
  RNJet 140 maximum layout width: is 91" ~ 2.3m
  A dual-head layout file is loaded for printing and each head prints different images independently. The dual-head layout has a horizontal blue line in the middle showing the border between the print-heads. All the black pixels above the blue line are printer by print-head#1 (connected to port 1) and everything below the blue line is printer by print-head#2 (port 2 on controller).
  See section 4.2 Layout Designer P#25.
- **Dual head clone-mode**: will show RNJet 2x100, RNJet 2xH1 or RNJet 2x72; both print-head ports on the controller are active and connected to printheads, a single-head layout file is loaded for print and both printheads print the exact same image. This is useful for printing the same label on both sides of a box.

Every time Printer Type option is changed, the default layout type of the printer is also changed, the previous type of layout files on the printer cannot be selected for printing.

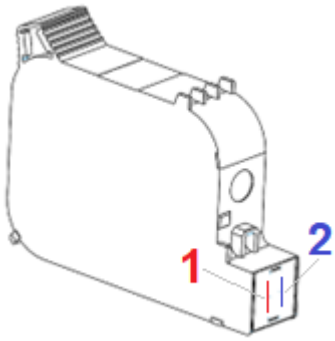
6.1.2 Print-head port#

Operator can choose which one of the 12-pin round connectors on the controller is used for connection to the printhead. This option is only available for single-head printer models.



6.1.3 Channel#

Operator can choose which one of the two channels on the TIJ cartridge is active. If one has clogged nozzles, we might get better print results with the alternate channel. This option is only available for TIJ printer models (RNJet H1/H2).



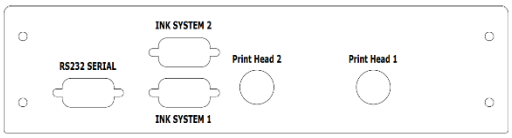
6.1.4 Ink-System type

There are two types of ink container for RNJet printers: cartridge and motorized. This option is not available for the RNJet H1/H2 controllers. If the printer model is set to a Dual-head printer (RNJet 200 or RNJet 140) there is an additional option for 'Dual' Ink-system. This option must be enabled when two separate ink containers are used (one for each print-head).

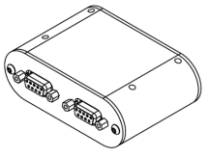
If this option is not checked, only one ink system (shared for both print-heads) must be directly connected to the printer.

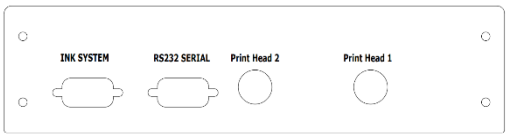
If this option is enabled, we have two ink-systems connected to the RNJet controller:

- RNJet controller from 2024 and later, have two ink-system ports on the controller:



- for RNJet models before 2024, an external module called 'Y-Switch adaptor' is used to connect two ink-systems into one ink-system port on the RNJet printer:



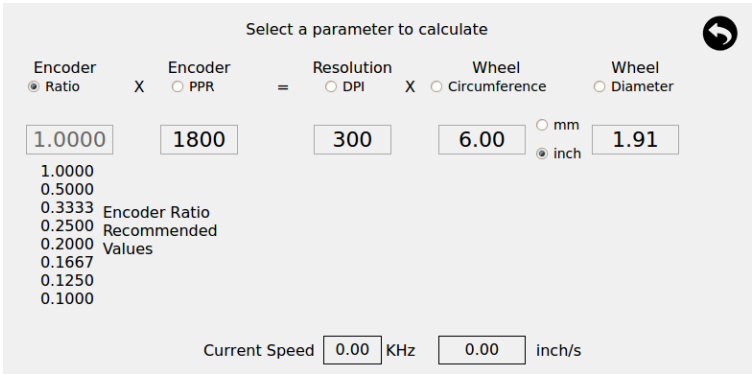


6.1.5 Encoder

Using a rotary encoder, you can synchronize the speed of the printer with your production line. When the encoder is enabled, the 'Speed' parameter (please see section 6.2 P#58) has no effect on printing.

> **Troubleshooting tip**: make sure encode mode is set to **Off** when no encoder is attached to the printer controller. If the encoder is enabled without any encoder connected to the controller, nothing will be printed.

- Mode: For most applications, the Bi-direction option is suggested. The two other options CW (Clockwise) and CCW (Counter-clockwise) will accept the wheel movement only in one direction. The CW and CCW are used when roll-back correction is needed. If you are not sure which mode is best for your application, select Bi-direction mode.
- Ratio: It is strongly recommended to keep the ratio parameter to 1.0000 which disables the rate conversion for encoder pulses. With the proper combination of encoder model (pulse rate) and wheel size, we can get the native resolution of the printhead (**180 dpi** for RNJet 100/200/72/140 and **300 dpi** for RNJet H1/H2) and achieve the best print quality. If the proper encoder assembly is not available, then we can use the ratio parameter to convert the encoder signal to the desired rate (which is usually the native resolution of the printhead). Click on the icon beside the ratio ? to get more information about the wheel size and encoder pulse-rate.



6.1.6 Print Density

This section controls the amount of ink used for printing. Each parameter behaves in a certain way:

- **Bold:** This parameter defines the number of repeated ink-drops for each dot in the printing image. This is the level of darkness for the print results. Bold the ***recommended method*** of making a darker image.

- **Eco Mode**: This option reduces ink consumption by 50%. The printing image becomes lighter; this option simulates bold=0.5 by eliminating 1 in every two black dots in the image. Normal: Eco-Mode:

- **Horizontal DPI:** This option controls the density of the ink distribution in the direction of product movement.
  The vertical resolution of the print results is always fixed and depends on the printhead type:
  - 180 dpi for RNJet 100/200
  - 180 dpi for RNJet 72/140
  - 300 dpi for RNJet H1/H2

  The horizontal resolution of the print results depends on the speed of the line and firing frequency of the piezo. The best practice is to have the same horizontal resolution as the vertical. However, this option allows the operator to change the horizontal resolution (density of the printing image) to balance and compensate between darker results or faster printing. It is not recommended to use values other than the native DPI for the printhead (180 or 300), use bold option instead.

6.1.7 Print Length

It is recommended to keep this option set to ***Auto***.

With mode set to Auto, the length of the printing image is automatically calculated based on the selected layout for print. Operator may select an extra padding to the end of the print image.

Figure 38: Print Length Calculation

With mode set to Manual, operator must set the absolute 'width' of the printing label. This option will crop the printing image to the exact absolute length. This option is only used for special applications.

6.1.8 Purge mode

For solvent-based fast dry inks, we have this option to enable auto-purge. This feature is to jet-out a small amount of ink once every few seconds to keep the nozzles fresh and prevent ink being clogged while there is no product detected.

- Tickle mode is used for slow dry inks and works only with RNJet 100/200. The auto-purge does not shoot any ink out in this mode.
- Spit mode activates the auto-purge; a thin line is printed frequently.
- Spit-Plus also activates purge in continuous printing in between sequential prints. It also performs auto-purge when encoder wheel stops.
- Delay is the time interval to perform the auto-purge.
- Repeat is the number of vertical lines to print each time.

6.1.9 Sensor Options

This section is hidden by default, o show these features go to section 6.4.2 More options P#67. In most applications it is recommended Not to change the following parameters.

- **Sensor Filter**: it is recommended to leave this option ***unchecked***.
  In some environments with a lot of Electro-Magnetic noise, the product detector may generate unwanted print start triggers. This option will set a minimum pulse width for the sensor signal to eliminate the accidental triggers. In most applications this option is not required, and
- **Block sensor while printing**: It is recommended to keep this option ***checked***.
  This option will ignore any trigger signal while a previous print is in progress.
- **Reverse sensor polarity**: It is recommended to keep this option ***unchecked***.
  If enabled, the print-start trigger activates on the rising edge of the signal. With the standard photo-electric sensor provided with the RNJet printer, it will trigger the print-start signal when the product is no longer in front of the sensor.

6.2. Timing Parameters

This section of the settings includes parameters that control the timing of ink drops being placed on the product.

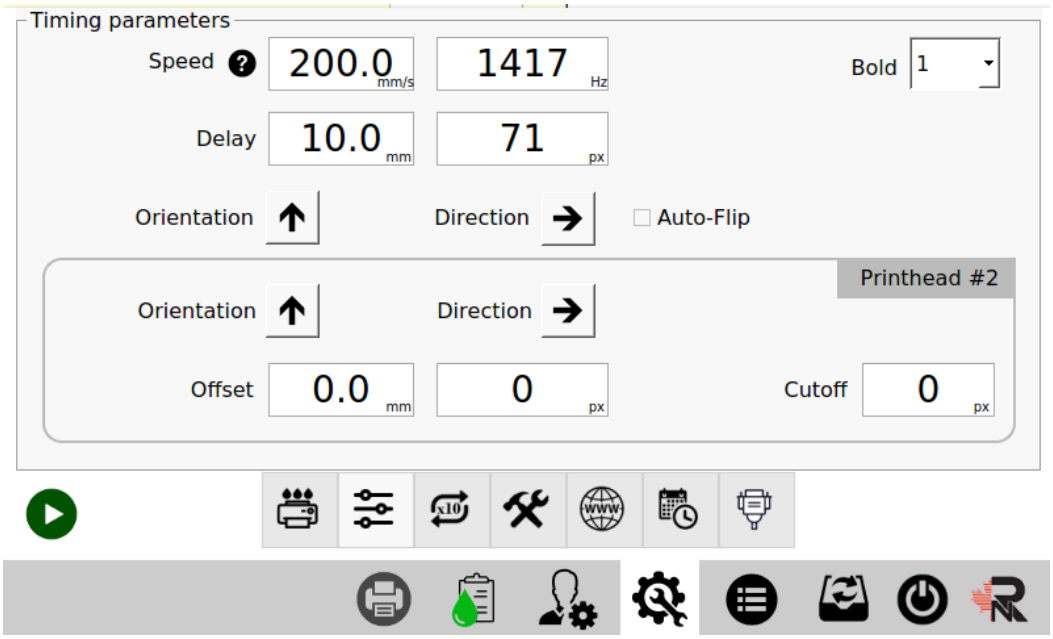


Figure 39: Timing parameters

- **Speed**: First and most fundamental parameter is the ***Jetting Frequency***. This parameter defines how many vertical lines from the printing image are printed in one second. This should be (roughly) equal to the linear speed of product movement. This parameter has no effect if the Encoder is enabled (please see section 6.1.5 Encoder P#54)
- **Delay**: This parameter defines how much time the controller waits after receiving the print-start signal. This is how many vertical lines of blank space are added to the start of print-image.

> **Helpful Tip**: Always try to adjust the *Speed* before delay. Without encoder (time-based printing) the speed parameter does not need to be the exactly equal to the conveyor speed. The value must be close enough until you find the printing results acceptable. The *Delay* is asked in units of distance and converted to time according to the speed parameter. When you change the speed, the delay must be adjusted again.

Important note: The distance between the two consecutive objects on the conveyor (production line) must be greater than Print Length + Delay. In other words, the previous print must be already finished before the sensor is triggered to start the new print. If the sensor is triggered again before previous print is finished, we will miss the print for the recent product.

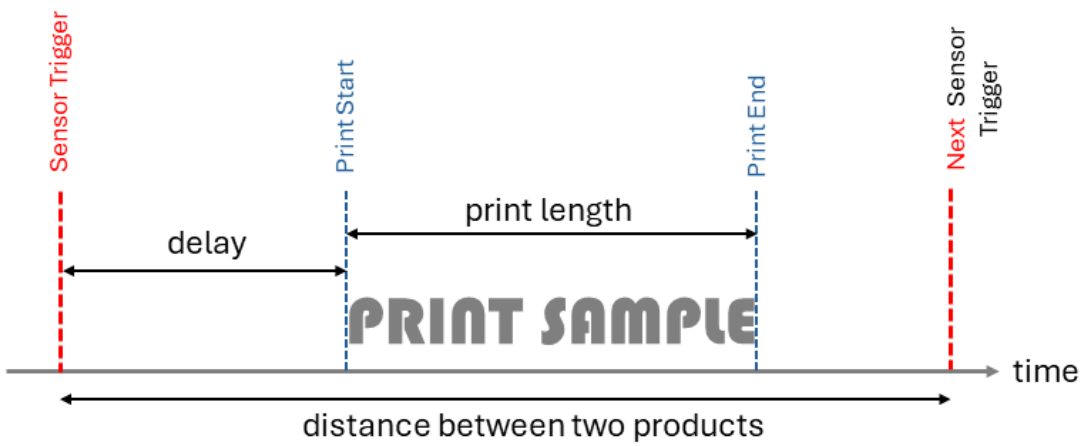
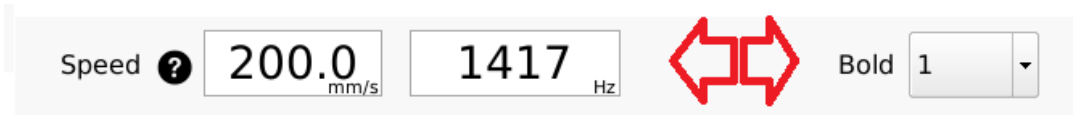


Figure 40: Timing diagram 1, total print length

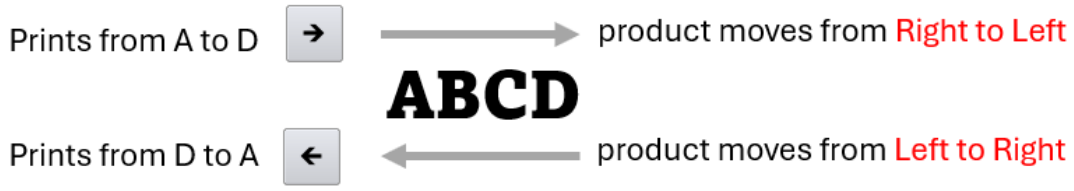
- **Bold:** This parameter defines the number of repeated ink-drops for each dot in the printing image. This parameter was explained in section 6.1.6 Print Density P#55 and replicated here to show how it affects the print speed:
  The *jetting frequency* of the printer is limited, so the print speed is inversely related to the bold level. When the speed is changed and exceeds the limit, the printer will automatically decrease the bold level. In the same way, if the bold level is changed and exceeds the limit, the printer will automatically decrease the speed.



The parameter *refill-frequency limit* for each type of printer follows:

RNJet H1/H2	18 kHz (solvent based) / 12 kHz (Aqueous)
RNJet 100/200	7 kHz
RNJet 72/140	7 kHz

- **Direction/Orientation:** Defines the direction of the object's movement in front of the print head.



- **Auto-Flip**: Change direction in between prints. With continuous printing mode, direction flip happens in between sets of N prints.

6.2.1 Printhead#2

This section is available only for dual-head printer models. Direction and orientation for each head is independent.

- **Cutoff:** is the number of pixels to cut from the top of the print image section for printhead#2. (Below the blue separator line in layout designer, (see Figure 17 P#25). This option is to compensate for the overlap in '*Dual-head Stitched*' setup.

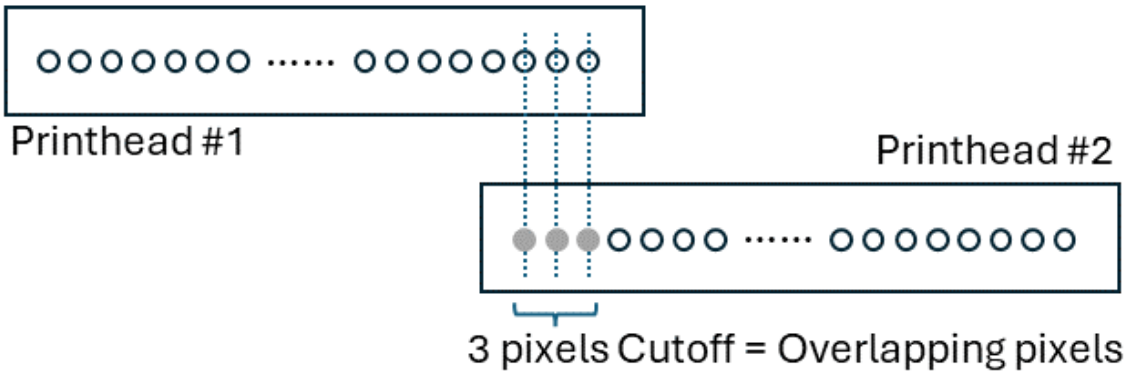


Figure 41: cutoff

- **Offset:** is the distance between the two printheads. If is a positive value, printhead#1 starts to print first. If offset is negative, printhead#2 starts first. Please see below examples:

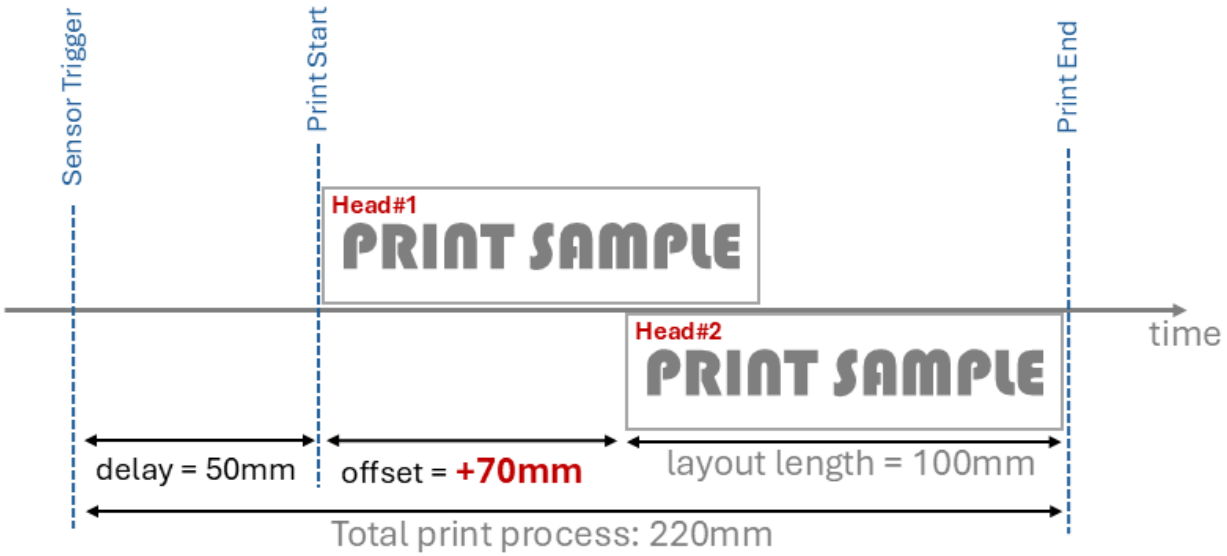


Figure 42: Timing diagram2: Positive offset

Important note: The distance between two consecutive products must be greater than delay + offset+ print length = 220mm

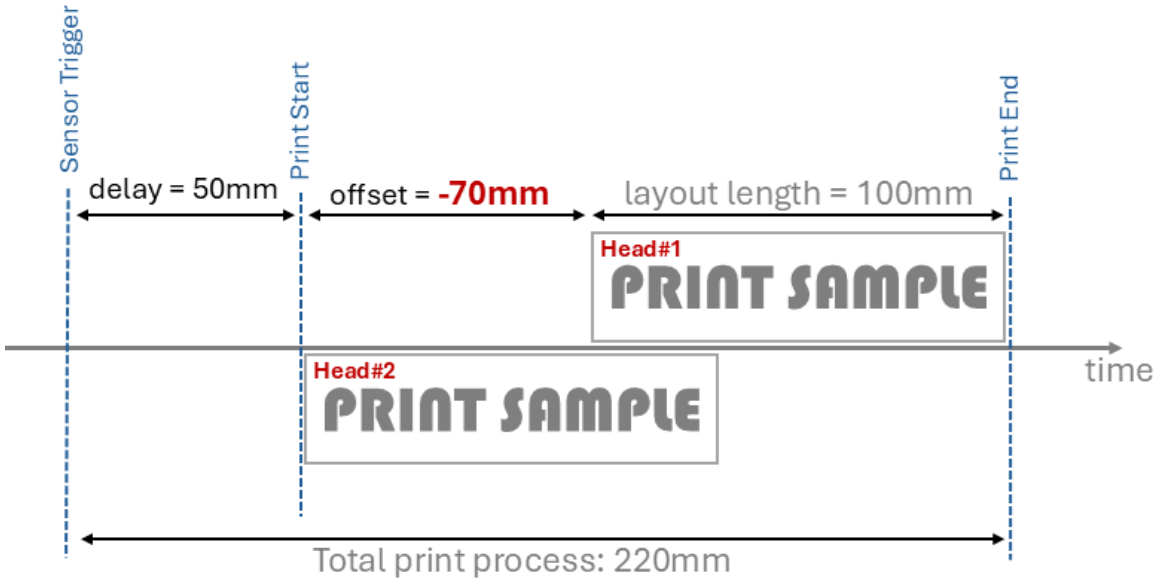


Figure 43: Timing diagram3: Negative offset

6.3. Extra Printer settings

This page shows additional options for printing. Some of the features on this page are hidden by default and only required by some special applications. Some features are only available when print is OFF:

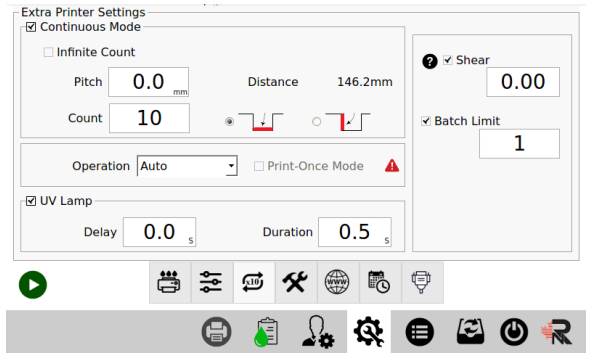


Figure 44: Extra Print Settings

6.3.1 Continuous Mode:

This option is usually used to print on extruded products like pipes, duct, or cable.

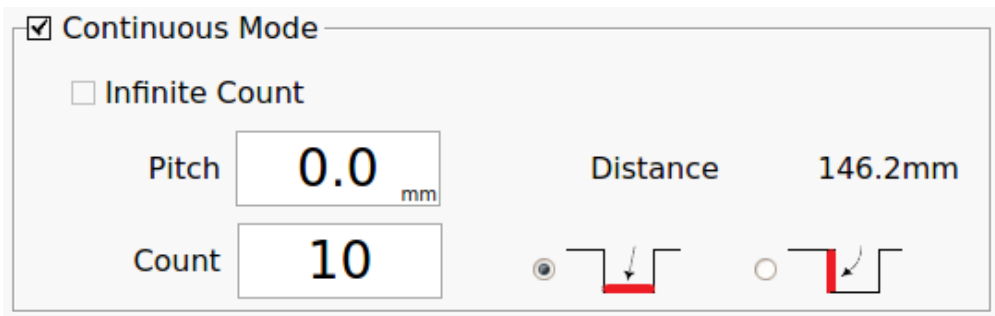


Figure 45: Continuous mode settings

- **Count:** defines how many prints should be done when the product-detect signal becomes active. With the infinite option checked, the printer will continuously print as long as *Print ON* and the product-detect signal remains active.
- **Pitch:** defines the gap between prints. The 'Distance' parameter shows the start-to-start distance between sequential prints.
- Note: With the 'infinite count' unchecked, and the count set to 20 or less we have the option to select the print-start trigger type:

Keep printing up to count=N prints, as long as the sensor signal remains active.

with a falling edge on the sensor signal, start printing and keep until count=N prints are complete.

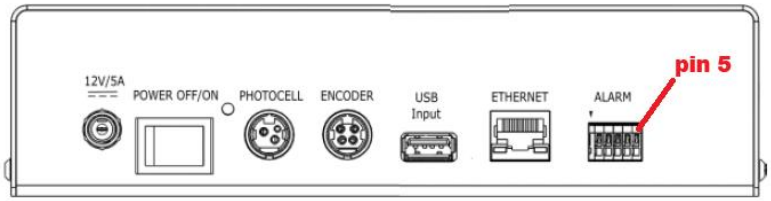
6.3.2 Operation mode:

It is recommended to set this option to **Auto**. This option is available only when print is OFF. If set to fix-Mode, dynamic objects will not be updated in between prints. If set to Update-Mode, printer will re-process every print image, even if there is no change. When set to Auto, the printer controller decides when to process the print image based on the type of objects used in the print layout.

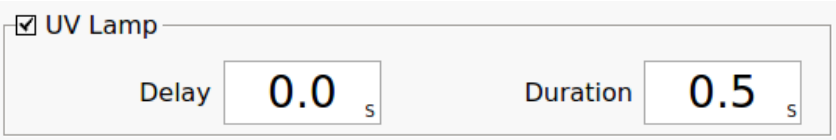
6.3.3 UV Lamp

This option is only for use with UV-curable ink and is hidden by default. to enable this feature go to section 6.4.2 More options P#67.

This feature generates a logical output signal (as a command) to operate the UV LED lamp. This output is available on the pin#5 of 'Alarm' terminal on the RNJet controller. This signal is optically isolated, active high, 12v, max 20mA. (This is NOT a power output for UV-LED source)



- Delay: how long to wait after sensor is triggered to ON signal.
- Duration: how long to keep the UV source light ON.



6.3.4 Batch Limit

Defines the number of prints allowed since the print-start button is pressed. After this number of prints, the printer automatically stops the print process.

This option is rarely used for special applications and is hidden by default. to enable this feature go to section 6.4.2 More options P#67.

6.3.5 Print-Once Mode

This option is used for special applications and is hidden by default. to enable this feature go to section 6.4.2 More options P#67.

By enabling this option, the printer will enter a special mode for unique data printing with COM-Text object. When print-start button is pressed, following steps will follow:

- The printer will show an alarm and wait for external data to arrive. Operator can also click into the blue frame on screen to manually enter the data.
- Once external data is received by the printer, alarm disappears; the printer is ready for one print.
- After print start signal is received, the printer will perform one print.
- When print is finished, printer will pause printing and go to step 1.

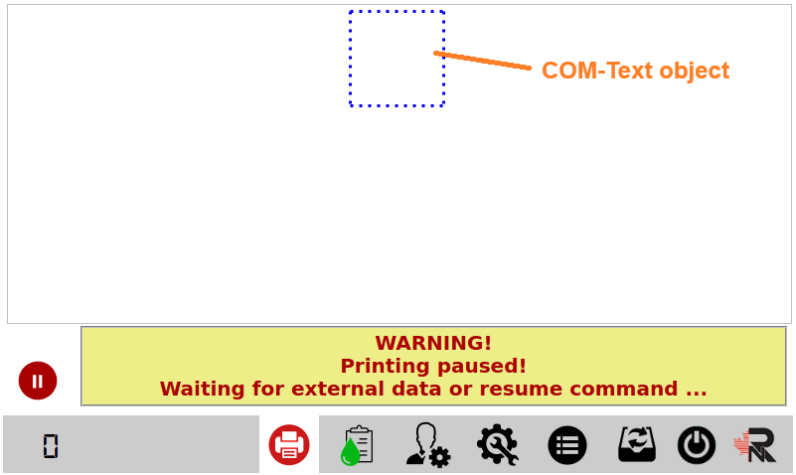


Figure 46: print-once mode, Paused

Enabling this option needs certain criteria: the print layout must include **COM-Text** object, should not have any **DB-Text** object. This option cannot be mixed with continues mode printing, because the results will be confusing. When using this mode, you must select EXT-Text mode for serial port of your choice (see section 6.7 Serial port settings P#75)

There is a dedicated external command available to pause/resume the print operation in this mode. Please see commands **0x6607** and **0x6610** in document '**048-0501-007 RNJetPlus Network Communication Protocol**' for more information.

6.3.6 Shear print image

This option is used to compensate for the effect of print-head being installed with an angle. If the print-head is installed 90 deg (perpendicular) to the direction of movement, this option must be set to 0.

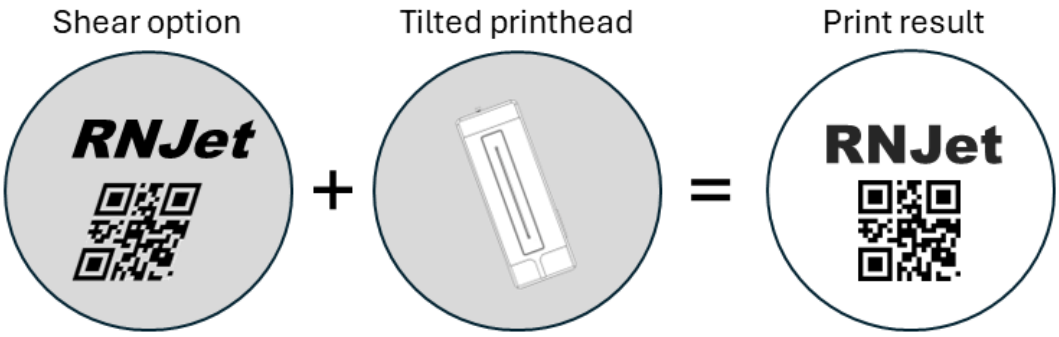
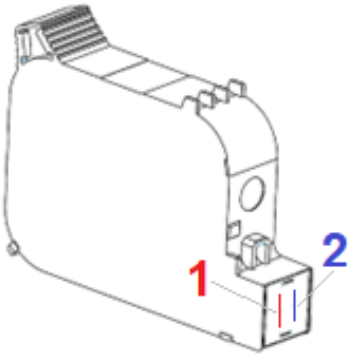


Figure 47: Shearing explained

This option is used for very special applications such as egg-printer. In most applications it must be left "un-checked"

6.3.7 TIJ 600DPI

This option enables firing on both nozzles 1,2 on the hp-2.5 cartridge at the same time. This option is hidden by default. To enable this option, see section 6.4.3 on page 69.



- Using a rotary encoder is mandatory for this option
- Timing parameters Orientation ↓ Direction → must be selected correctly in accordance with printhead orientation and direction of product movement. When orientation changes, direction must also be changed. The best way to achieve this is to use the downward arrow for orientation and play with left/right arrows to get the correct direction.
- When enabled, the channel# option (see section 6.1.3 on page 53) is not available anymore.

6.4. General settings

This section is only accessible while the print power is OFF.

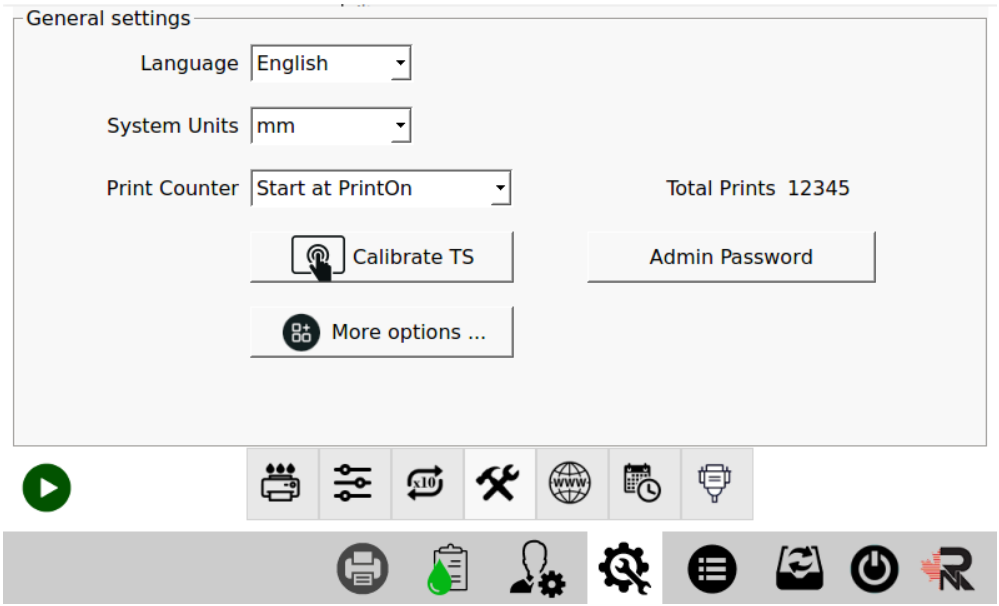


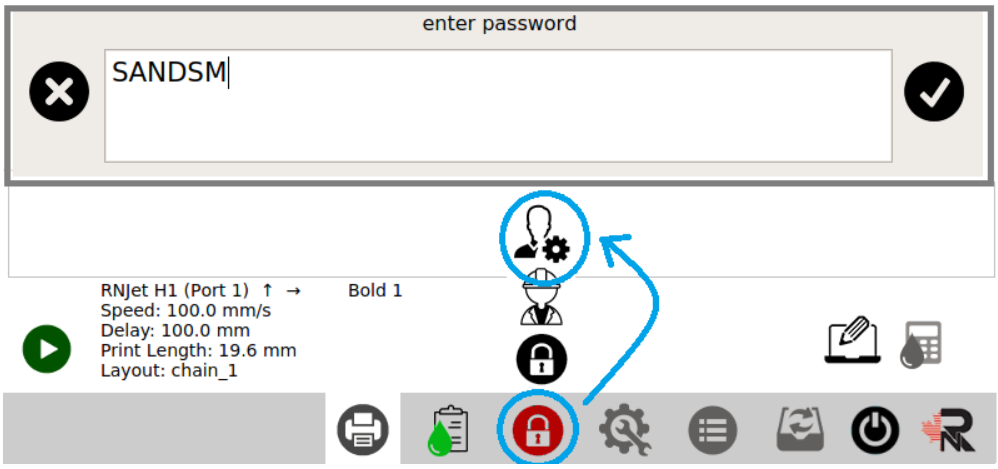
Figure 48: General Settings

- There are a variety of languages to select from the list, which translates the interface of the printer controller.
- System units option selects the display unit of labels (millimeters, inches, or dots).
- 'Print Counter' selects how the printer counter (bottom left of the screen) is cleared. The option 'Current Layout' means the counter is cleared when a new layout is selected to print. 'Start at Print-On' option means the print counter clears when the print start button is pressed.
- 'Total Prints' is the global print counter started from the manufacturing date.
- 'Calibrate TS' is for calibrating the touch-screen panel. After pressing Calibrate TS button the machine will ask you to restart the printer to go to Calibration Mode. Please do not forget to use the safe power off before restart.

> Note: If the touchscreen does not respond properly, connect a wired USB mouse to the RNJet printer to navigate the pointer and initiate the calibration process.

6.4.1 Admin/Operator Password

- 'Admin Password' and 'Operator Password' are used for access level (see section 2.2.6 Access Level P#11). Operator password button appears only if admin password is already set. To clear both passwords, clear only the admin password. Admin Password is also used for remote access from a PC (RNSoft for Windows).
- If you forget the admin password and the screen is locked, you can use the master password to unlock and clear passwords:



After entering the master password, all passwords will be automatically cleared.

6.4.2 More options

Press this button to access extended settings: A new page will open:

- The option '**Ignore first record of DB-File**' is the option to bypass the header record in a database file.
- When '**Realtime Screen Update**' is checked, the screen will refresh for the preview of next print label. This is useful for dynamic objects. However, this option also affects the performance of the printer controller. For very high-speed printing it is recommended to uncheck this option.

- With the option '**Auto Print-ON at startup**' checked, printer will automatically start the print operation after power up. This option is not recommended nor available for the RNJet H1/H2 series.

- **Show Trigger Simulator**: will display two additional buttons in the Print preview tab, while Print ON. This option allows the operator to simulate the print-start signal. See section 3.5 Product-detect Simulator P#16.

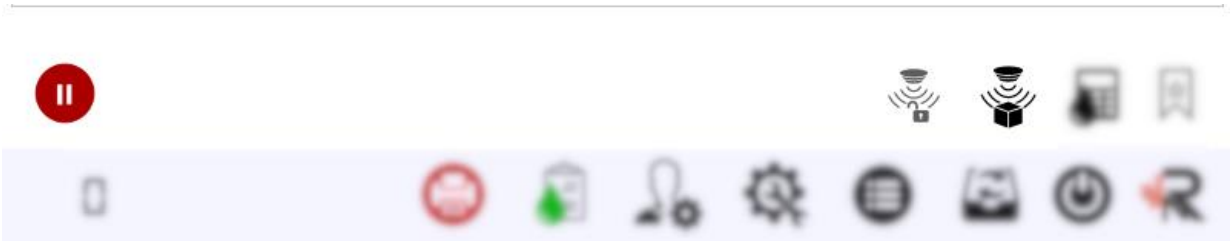


Figure 49: sensor simulator

- **Show quick edit links**: will display a frame (dotted blue border) on the external text/counter objects. See section 3.6 Quick Edit P#17

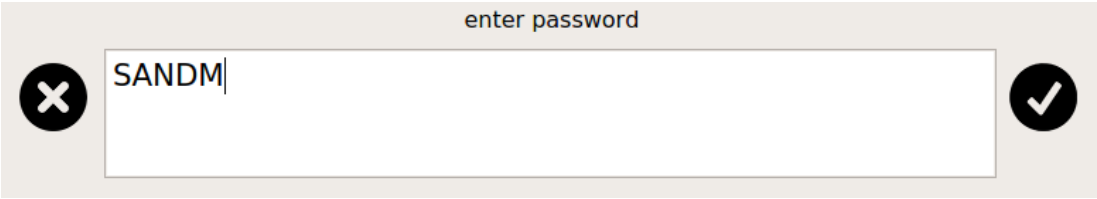
- **Show layouts for all printhead types**: It is recommended to keep this option **unchecked**. When this option is enabled, the message management console displays all templates (including templates made for other printhead types) in the layout list: see section 4.1 Layout list P#22. We may open and modify incompatible templates, but we cannot select them for printing.

- **Show parameter bookmark**: will display the bookmark button on the main screen (Print Preview). See section 3.3 Bookmarks P#15.

- **Show object geometry warning**: with this option enabled, in layout design section when an object overlaps outside of print area, it gets a red dotted border to indicate an alarm (Instead of grey or blue border).

6.4.3 More options: Administrative section

Certain features in this software are hidden and disabled by default. These features are used in special applications and are recommended to remain unused for most scenarios. To show additional features press button on top of this page and enter the password as shown (password is case-sensitive):



- **show sensor options**: this check will show the additional section in Print Setting page (see section 6.1.9 Sensor Options P#57)

- **show print-once option**: this check will show the additional section in Extra Printer Setting page (see section 6.3.5 Print-Once Mode P#64)

- **show UV-Lamp option**: this check will show the additional section in Extra Printer Setting page (see section 6.3.3 UV Lamp P#63)

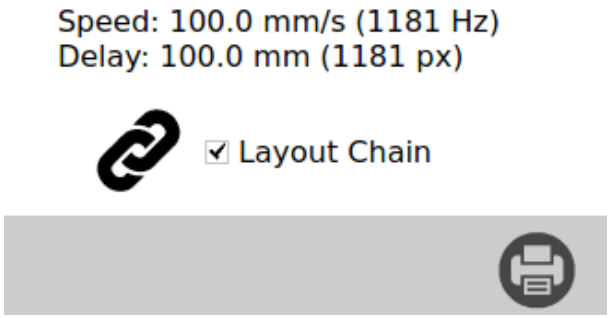
- **show Batch-Limit option**: this check will show the additional section in Extra Print Setting page (see section 6.3.46.3.5 Batch Limit P#63)

- **show Extended Database**: this check will show an additional type of database only for COM-Text objects. See section 3.8 Extended Database P#21. Also see section 4.3.7 Dynamic COM-Text Object P#35 for details about Com-Text objects.

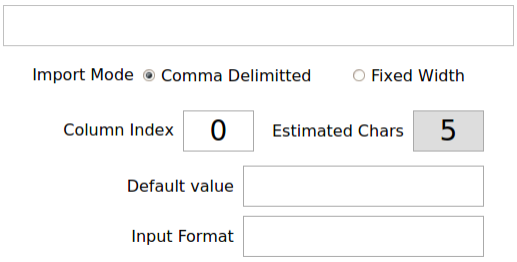
- **Show Quad-Head option**: this check will show additional printhead type in Printer Setting section. This option requires special hardware with 4 printhead outputs. For standard models of RNJet it is strongly recommended to leave this option **un-checked**.

- **Allow Rich-Text editing on controller**: this check allows modifying the content of a Rich-Text object on the controller. By design, this type of object is intent to be created and modified only from the RNSoft windows app.
  It is recommended to leave this option **un-checked**.
  See section 4.3.11 Rich text Object P#44 for details.

- **Show Layout-Chain option**: this check will show the layout-chain feature in Layout Manage page. This option is rarely used only for special applications.
  See section 4.4 Layout Chain P#45 for details.
  It is recommended to leave this option **unchecked**, unless you really need it.



- **Default value for dynamic text:** it is recommended to leave this option **unchecked**, unless you really need this; With this option unchecked, the dynamic text object will keep the last printed value for the next time printer is turned on (which is the normal and expected behavior). With this option enabled, the dynamic fields will reset to a default value every time the printer is turned on, or a new template is loaded.



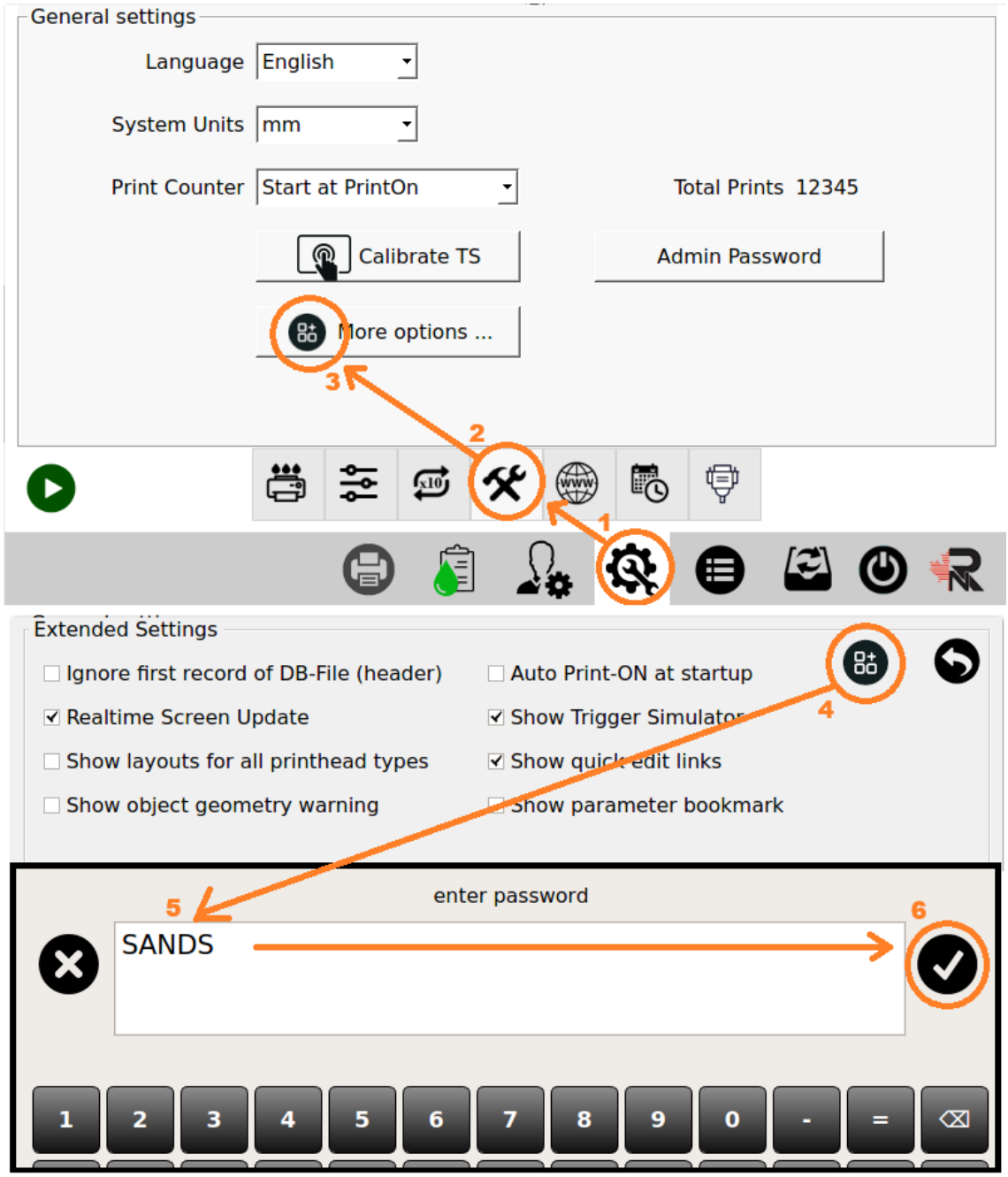
- **GS1 date filter for dynamic text:** it is recommended to leave this option **unchecked**, unless you really need this; The function of this feature is to convert a date field from external text data into a gs1-complinet expiry-date: for example, convert 'Apr 1, 2026' into '260401' which is suitable for gs1 barcodes. It is strongly recommended that the input data for gs1 barcodes are properly formatted to the well formed gs1-complient data before they are sent to the printer.

- **Show TIJ 600DPI option:** it is recommended to leave this option **unchecked**. To enable 600DPI printing you must also use a rotary encoder (see section 6.1.5 on page 54). Without encoder, it is impossible to adjust the even/odd nozzle offset on the TIJ cartridges.

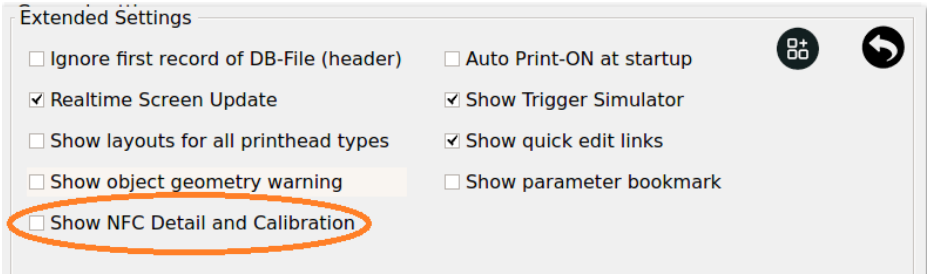
6.4.4 More options: NFC Details

This option does is not available for RNJet H1/H2 series. It is only for RNJet models with NFC Tag. It is strongly recommended to keep this option disabled, so the default calibration is used. That will produce the most accurate results.

This option will allow users to re-calibrate the estimated ink usage and also monitor detailed information from the NFC tag. This option is hidden by default; to show this option, please follow steps 1-6 below (password is case-sensitive):



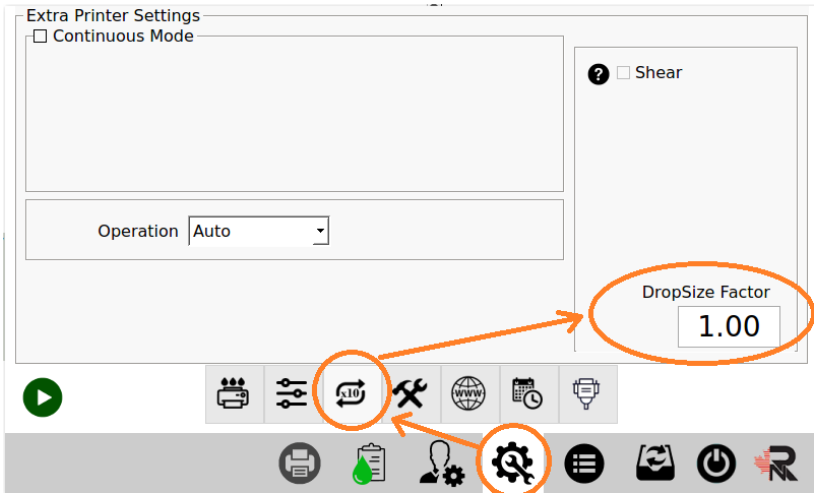
At this point the new option must appear:



When this option is checked, two new features are added to the RNJet controller:

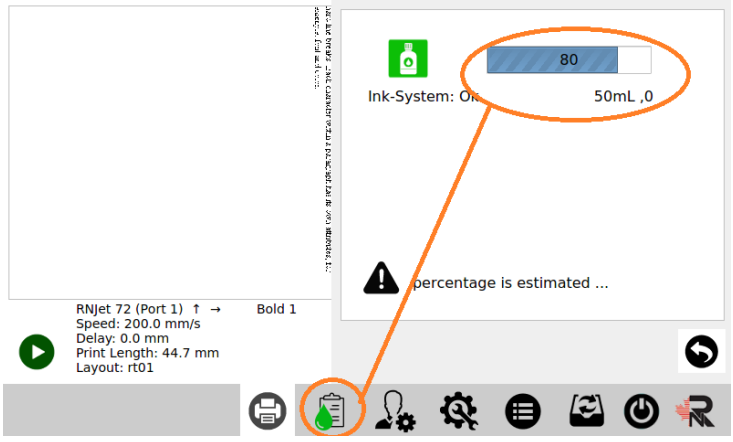
6.4.4.1 Drop Size Factor

A new parameter appears in Extra Printer Settings. we can use a multiplication factor to calibrate the ink consumption information.



6.4.4.2 Ink usage estimates

In print preview when user click on the ink status icon, estimated ink amount and percentage are also displayed.



6.5. Network settings

- In network settings section the IP Address/Mask of the printer is set. This address is used for remote access through RNSoft for Windows. The default network address of the RNJet printer is 192.168.90.90/255.255.255.0

> **Note:** proper IP addresses must be set on both the printer and PC. If you are not sure what IP address you must use, consult your network administrator.

- The Gateway is required if your computer is in a different network vs. the printer. Consult your network administrator if you need to set up a gateway.
- Comm TCP port is for the TCP/IP communication protocol for PLC. The default value is 2021.

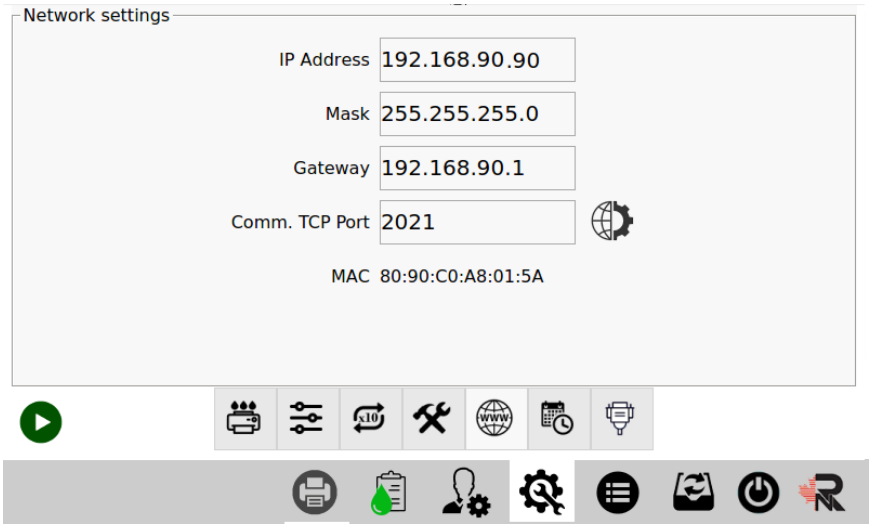


Figure 50: Network settings

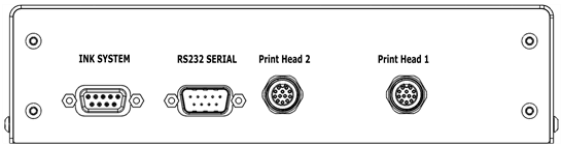
6.6. Internal clock

This option allows users to adjust the internal clock of the printer. This clock is used to generate dynamic 'Date-Time' objects.

6.7. Serial port settings

The RNJet printer supports two types of serial port:

- **Serial RS232**: Is a DB9 standard physical port on the controller.



- **USB virtual COM port**: Is a converter software installed on the RNJet printer. When a CDC mode barcode scanner or similar USB-to-Serial device is connected to the USB port on the printer, a new icon will appear on the main navigator ribbon at the bottom of the screen.

Both serial ports have the following configuration:

- The default 'Baud-rate' is 115200 bps. The following configuration is fixed on the serial port: data-bits=8, no parity, stop-bit=1; please follow 8N1 configuration on the other end of the serial communication device.
- **Ext-Text Mode**: Reads incoming data as plain 'text' (using utf-8 encoding) and applies to any COM-Text object in current layout which is loaded for print.
- **DB-Text Mode**: will forward all incoming data from serial port to the database in memory. Only DB-Text objects are updated using this serial port. See section 3.7 Database console P#18.
- **MSG-Select Mode**: reads a filename from serial port (usually connected to a barcode scanner) and will try to load a layout with the matching filename. The filename is case-sensitive.
- **EXT-Command**: this mode converts the serial port to a fully bidirectional communication port that works based on the 'Network communication protocol for RNJet series' (exactly like the ethernet port comm. protocol)

  Please **do not use this mode** unless you know exactly you want this. With this mode the standard text-based communication for the serial port will not work anymore (such as barcode scanner, weight scale, …)

7. RNSoft for windows

The RNSoft windows app is a remote-control application for RNJet printers. Everything that is accessible from the printer controller LCD, is also accessible from 'RNSoftWin' application with a few exceptions. For safety and stability reasons, the following settings are read-only on the windows application and must be changed from the printer controller:

- Printer Type
- Ink-System Type
- Admin and Operator passwords
- Network Settings
- Touch-Screen Calibration

The selected language on the controller and RNSoftWin application are independent, so the RNJet controller display language is also shown as read-only.

7.1. Offline tab

Figure 51 shows the offline tab for the RNSoftWin application. In this section, we can create or modify print-layouts without connecting to an actual printer. To create a new offline layout, users must select the proper printer type before designing the new layout. The printhead type of the layout cannot be changed later.

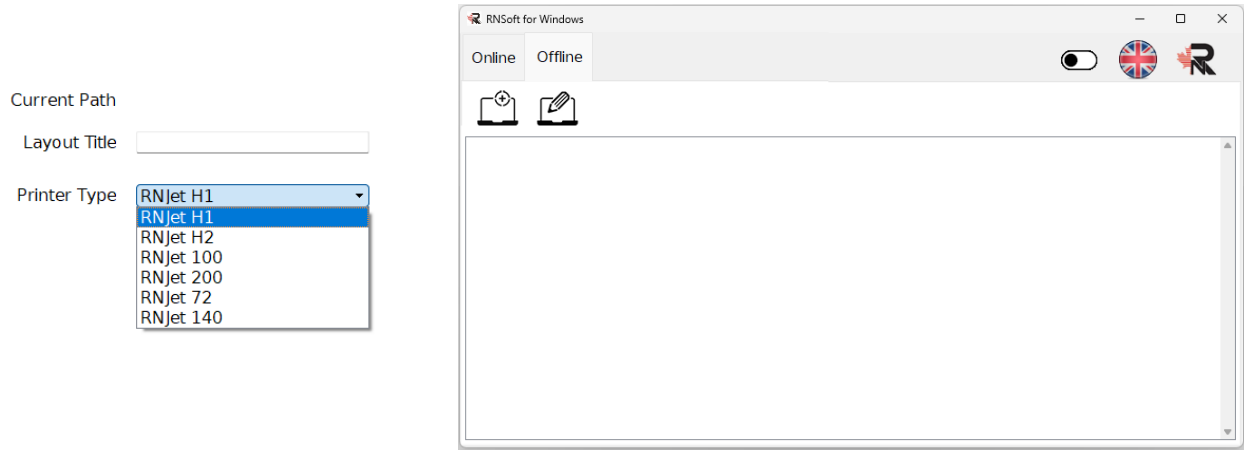


Figure 51: RNSoftWin, offline tab

7.2. Online tab

Figure 52 shows the online tab for the RNSoftWin application. In this section, we create a list of RNJet printers to manage and operate.

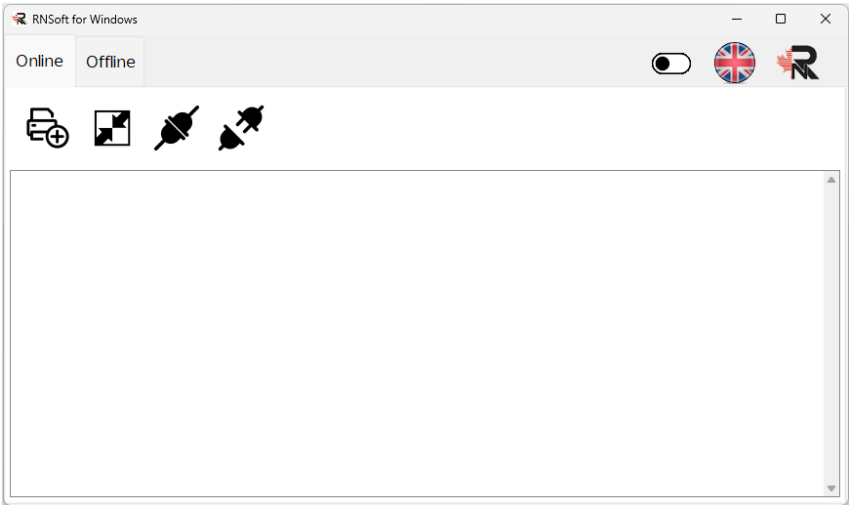


Figure 52: RNSoftWin online tab

To add a printer, enter the IP Address of the printer. If there is an Admin Password set on the RNJet printer controller, it must be set in this dialog. We may select an optional name for each printer.

The default IP address of the printer is 192.168.90.90; you may set an IP address in the same subnet (example: 192.168.90.80) on your computer or change the IP address of the printer (section 6.5 Network settings P#74) so the printer is reachable from your computers network.

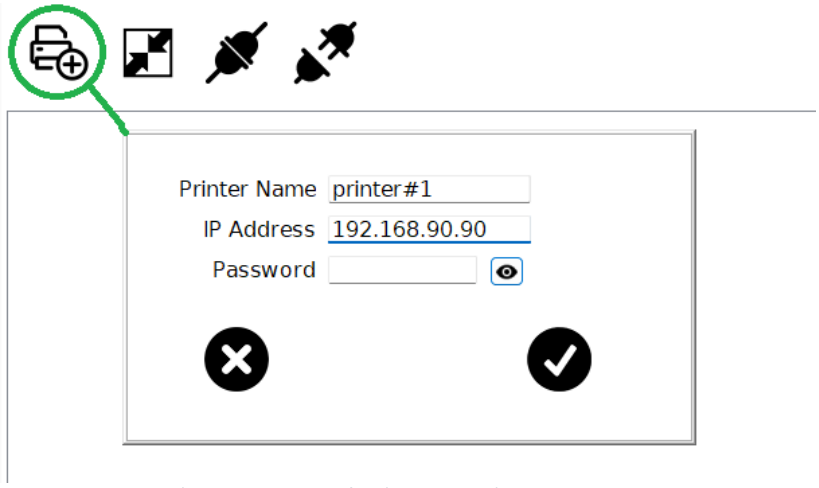


Figure 53: RNSoftWin New printer

In Figure 54 the new printer is added to the printer list. Click on the connection button to connect to the printer.

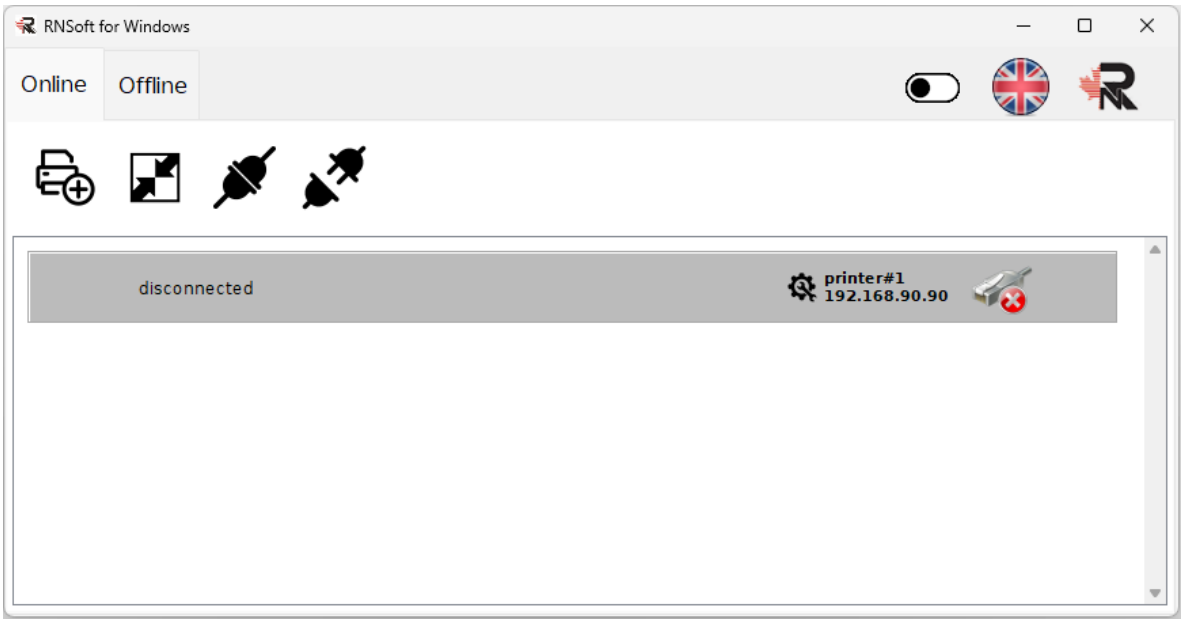


Figure 54: printer list

This list may contain multiple printers. The following buttons will interact with a single or multiple printer(s):

Minimize all printers

Connect to all printers

Disconnect from all printers

Change the IP address / Password (only when printer is disconnected)

Printer is Disconnected; Click to Connect

Printer is Connected; Click to Disconnect

Figure 55 shows the two types of viewing for RNJet printer from RNSoftWin. Use the icons to switch between expanded/collapsed view.

Figure 55: RNSoftWin Printer view

When creating or modifying a new layout, a larger window is available with RNSoftWin which makes it easier to create templates with more details.

Important Note: The RNSoftWin will try to synchronize its font collection with the printer, however two different font files with slightly different glyphs, one on the printer controller and one on the remote computer might share a similar font-name. If the layout print preview on the RNJet controller, is different than designed template on windows, please upload the required fonts into the printer controller (use storage management)

The rest of the buttons and tabs are identical to the RNJet controller screen, except the printer storage section:

On the printer storage tab in RNSoftWin (Figure 56), the USB-Disk content is not available (compare with Figure 34 for the printer controller). Instead, we can upload and download files from the computer to the printer controller.

The font import and firmware update buttons are also available from RNSoftWin.

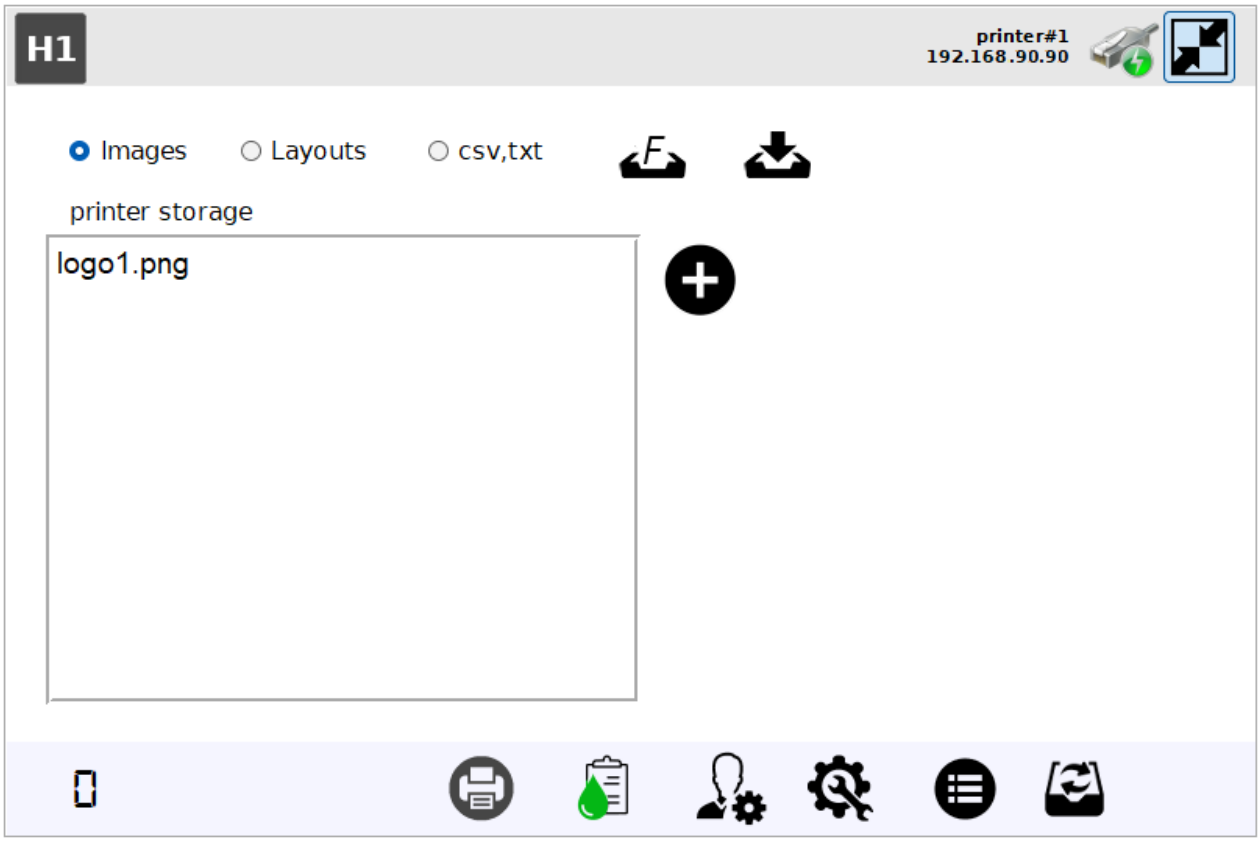


Figure 56: RNSoftWin: Printer Storage

Appendix 1: List of icons

Shows version and copyright information about this software (page 12)

Safe Power Off (page 12)

Print preview (page 10)

Start the print (Print is OFF) page 8

Stop the print (Print is ON) page 8

Message Management (page 10)

Storage (page 10)

Settings (page 10)

TIJ Ink Information (page 10)

Ink Ok (page 10)

Ink Low (page 10)

Ink Error / Tag lost (page 10)

Access Level: Admin (page 11)

Access Level: Operator (page 11)

Access Level: Locked (page 11)

Ink Usage Estimate (page 15)

Bookmarks (page15)

Apply changes (page 13)

Simulate print start: Edge trigger (page 16)

Simulate print start: Active level (page 16)

Select layout for print (page 22)

Create new (layout) (page 22)

Modify (layout) (page 22)

Create a copy (page 22)

Rename (page 22)

Delete (page 22)

Ok

Cancel

Modify object (page 26)

Move object (page 26)

Bring to front / Send to back (page 26)

Layers/List of objects (page 26)

View options / Zoom (page 26)

Dual-head view: Overlay / Stacked (page 25)

On-screen keyboard

Save (page 24)

Save As… (page 24)

Refresh / Eject USB-Disk (page 46)

USB-Serial barcode scanner connected (page 75)

Network remote client connected (RNSoft for windows or PLC)

Update Firmware (page 48)

Import True Type Font (page 47)

Static text object (page 27)

Counter text object (page 29)

Date/Time text object (page 30)

Shift-code text object (page 31)

Database-Text object (page 32)

External-Text object (page 35)

Barcode object (page 41)

Logo object (page 39)

Shape objects (page 43)

Rich text object (page 44)

General settings (page 51)

Printer settings (page 51)

Timing parameters (page 58)

Continuous print settings (page 62)

Network settings (page 74)

Internal clock (page 74)

Serial port settings (page 75)

Emergency service (only for RN Mark Technical Support, page 74)