

FX ONE Remote

Coding and Marking Made Easy

Plug-and-play Industrial Inkjet Printer
for all types of production lines



PRINTER & SOFTWARE MANUAL

Printer for all your product coding application

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Getting Started

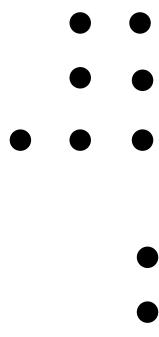
Printer Functions

FX APP

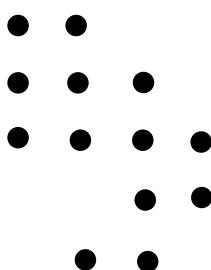
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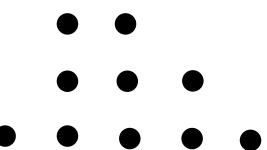
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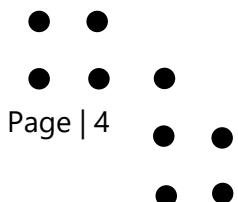


01.

PACKING CONTENTS

The FX ONE Remote printer package should contain the following components.
Please contact your distributor if any of these items are missing.

- Printer
- Power supply
- Power cable
- Mounting bracket
- Quick start guide
- USB stick
- Print head mounting bracket
- Extension rod
- Plastic X joint



02.

GETTING STARTED

2.1 LOOKING AT THE PRINTER

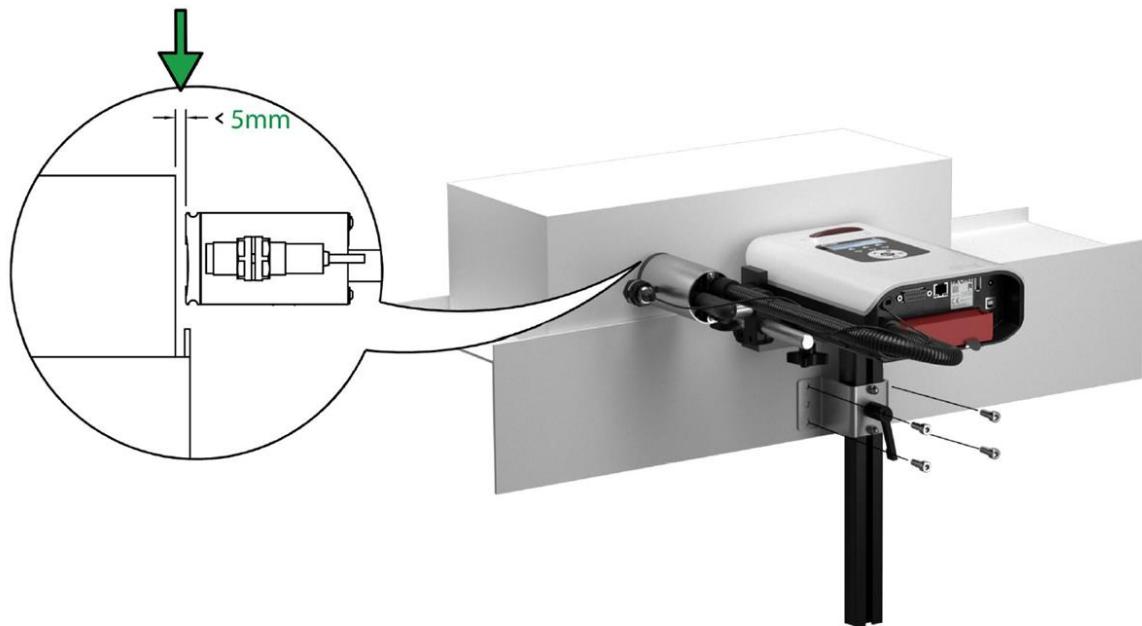
The FX ONE Remote is a stand alone printer that contains everything needed for reliable production coding in a compact and rugged unit. The features of the printer are indicated below.

- Print head in an external protected housing
- Product triggers for printing and shutter control (motorised model only)
- Built in rail mounting system
- Alarm indicator
- Backlit display
- Keypad
- Power socket
- USB flash drive socket
- USB socket for PC connectivity
- Optional Ethernet socket
- External Input/Output 15 way socket



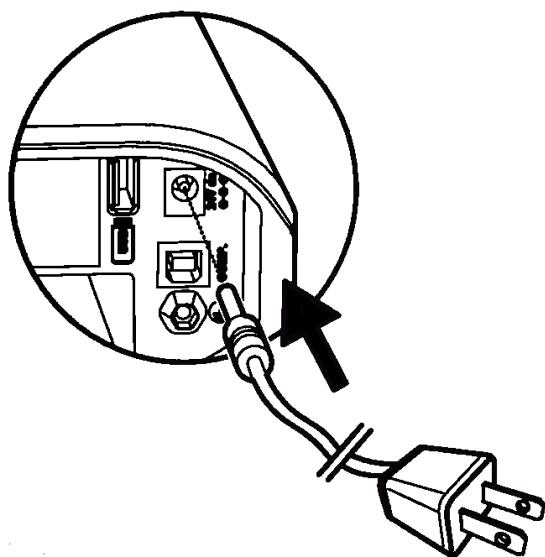
2.2 FIXING PRINTER TO CONVEYOR

The printer has a built in mounting rail system that allows for a variety of connection options to the conveyor.



2.3 POWER REQUIREMENTS

The printer requires 24V DC. A mains power supply is enclosed however it is possible to wire the unit directly into a suitable DC supply.



2.4 INSERTING THE INK CARTRIDGE

The printer uses a cartridge system for ink supply. This cartridge can only be inserted one way into the unit.



The printer when shipped may contain small quantities of test fluid. This can be removed during the initial purging process.

The printer can be used with either an oil based ink cartridge or a solvent based ink cartridge depending on the surface that you wish to print onto.

Oil ink is used for absorbent surfaces.

Solvent ink is used for non-absorbent surfaces.

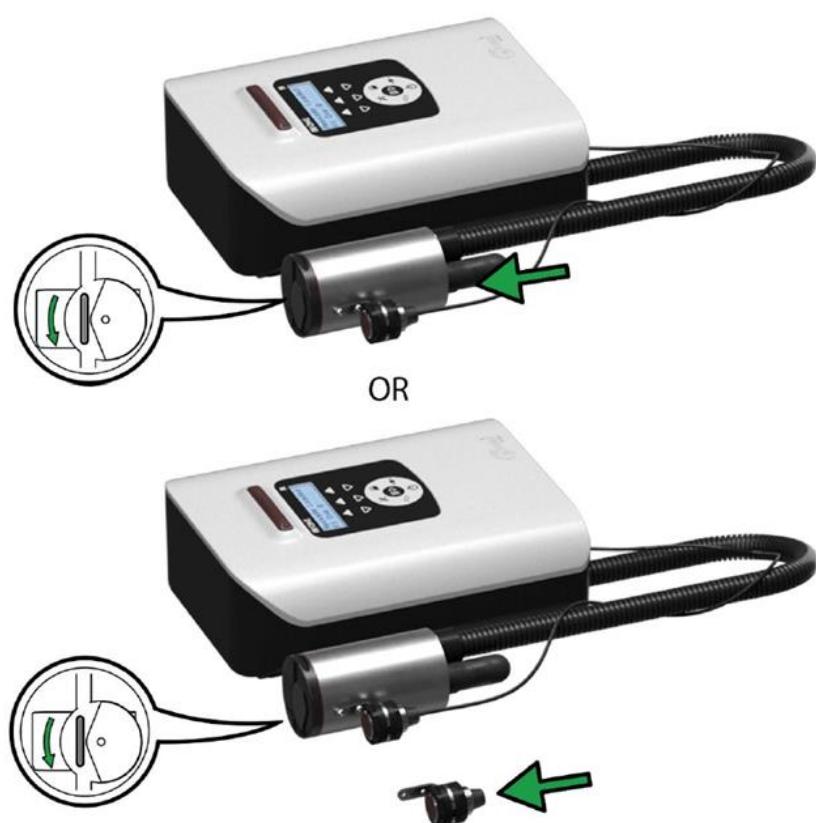
WARNING:

NEVER MIX DIFFERENT INK TYPES IN THE SAME PRINTER

2.5 PURGING THE PRINTER

See page 69 for more details.

Open the shutter either manually or using the photocell for auto shutter models (see print head shutter type on page 52).



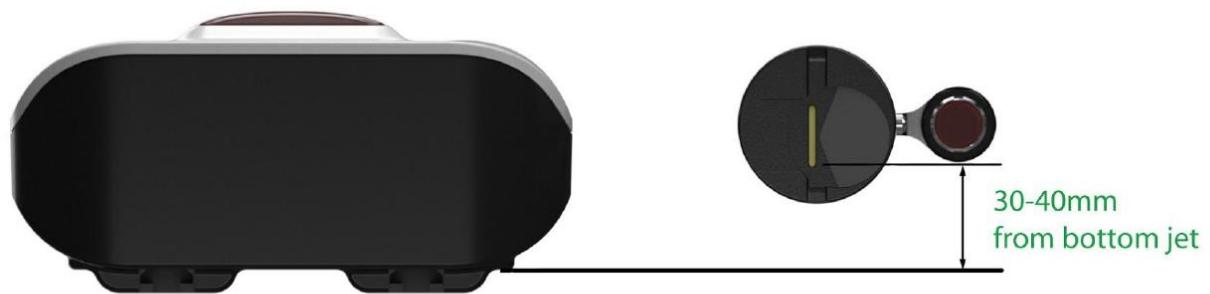
- When using solvent inks spray the jet plate with the correct cleaner solution to wet the jet plate.
- Take a piece of rag and hold underneath the front of the printer.
- With your other hand, locate the purge hole underneath the printer; insert a finger to feel a flexible plate.
- Push the plate upwards. Ink should begin to flow down the print head and onto the rag. Continue pushing the plate until all the test fluid has been replaced by ink.
- Remove and dispose of the rag.
- Do not wipe the jet plate.



2.6 PRINT HEAD HEIGHT

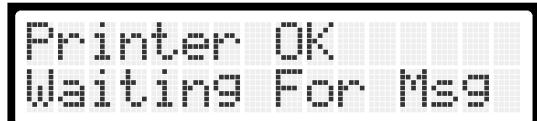
See page 68 for more details.

The print head bracket is designed to maintain the correct height of the print head to the ink cartridge.

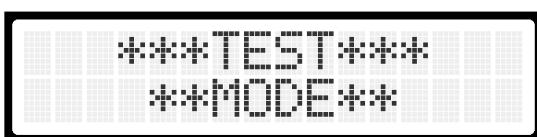


2.7 PRINT A TEST MESSAGE FOR THE FIRST TIME

The printer has a built in test pattern to allow the user to start printing straight away and to become familiar with the functions of the unit. This pattern is available the first time the printer is used or after a reset. To use this pattern, switch the printer on. When the printer displays:



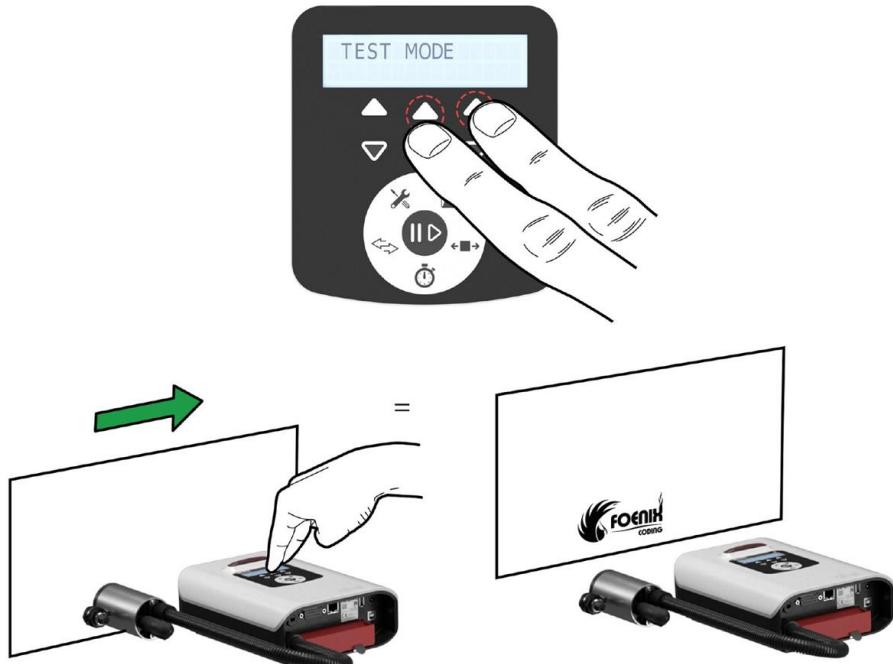
Press and hold any of the up arrow buttons on the keypad. The printer will then display:



To produce a test print, move a piece of paper past the print head. Printing will begin when the photocell is covered and will automatically stop when the photocell is uncovered. To cancel the test mode, release the arrow keys.

If the print is faint or has degraded quality, try a purge as described in the 'Inking The Printer' section and perform another print. It may take one or two prints to restore the quality.

If the print is not present at all, please ensure the cartridge is fully inserted and the printer has been purged with ink.



03.

PRINTER FUNCTIONS

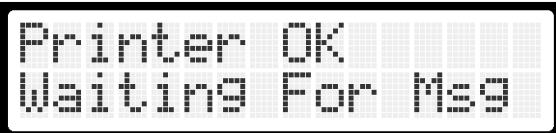
3.1 SCREEN LAYOUT

A simple 2 line alphanumeric display allows the user to view options currently configured for the printer and also shows the status of the printer:

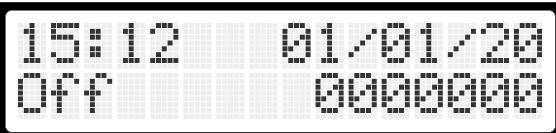
- whether a message has been loaded,
- the name of the message,
- how many messages have been printed,
- whether the printing is turned on/off,
- whether the printer is currently printing a message,
- error messages.

The display is backlit for easy viewing in a wide range of lighting conditions.

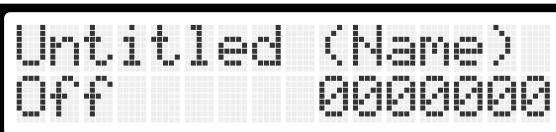
If no message is loaded and no errors are detected, the printer displays:



Once a message has been loaded either via USB stick, or direct USB/Ethernet connection to a computer, the printer displays:



Or:



This is the default screen that is displayed during normal operation. The current time and date are displayed on the top line. This toggles with the currently selected message name. The bottom line displays the current printer status which can be:

Off	The printer will not print a message when a product passes the trigger.
On	The printer will print a message when a product passes the trigger.
Printing	The printer is currently printing a message

Next to it is the number of prints that have been produced since the message has been loaded. This value is automatically reset every time a message is replaced.

Printer errors are displayed on the screen and are automatically removed when they are resolved.

3.2 PRINT ON/OFF



This button toggles printing off and on. If printing is turned off, no product will be printed when it passes the unit.

The print state will be shown similar to:

15:12	01/01/20
Off	00000000

15:12	01/01/20
On	00000000

Pressing and holding this button will send the printer to sleep and close the optional motorised shutter. Press any key to wake the printer up.

In addition, when changing any settings, delay, width or direction this button is used to revert back to the normal printing screen without waiting several seconds.

The shutter can also be opened and closed using the Hundreds Down key when printing is on or off.

3.3 DELAY



This button is used to adjust the time between a product triggering the printer and the print being produced. When pressed a screen similar to that below will be shown:

After several seconds with no key being pressed, the display will revert back to the normal printing screen or immediately after pressing the Print ON/OFF button **II ▶**. The three digit value is adjusted by the decade up/down keys.

If printing has been turned on, the value can be tested immediately by moving product past the printer. The value can be quickly adjusted to obtain the desired position of the message on the product.

If an encoder is fitted, the delay will be specified in mm.

3.4 WIDTH



This button is used to adjust the printed length of the message on the product. When pressed a screen similar to that below will be shown:

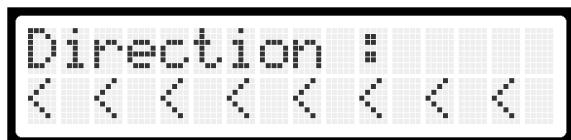
After several seconds with no key being pressed, the display will revert back to the normal printing screen or immediately after pressing the Print ON/OFF button **II ▶**. The five digit value is adjusted by the decade up/down keys. The width can be changed from 1-22000% of the default 100% value.

If printing has been turned on, the value can be tested immediately by moving product past the printer. The value can be quickly adjusted to stretch or shrink the message on the product.

3.5 DIRECTION



This button is used to tell the printer the direction of travel for the products to be printed. When pressed a screen similar to that below will be shown:



The < symbol shows the direction of travel as described below:

- < < < product is travelling from right to left looking from the top of the printer.
- > > > product is travelling from left to right looking from the top of the printer.

Pressing the direction or up/down keys in this screen will toggle the direction.

After several seconds with no key being pressed, the display will revert back to the normal printing screen or immediately after pressing the Print ON/OFF button and the last direction shown will be selected.

If printing has been turned on, the direction can be tested immediately by moving product past the printer.

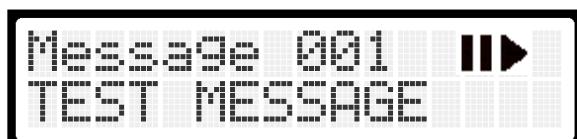
In addition, this button is used to open and close the optional motorised shutter in the shutter settings.

3.6 LOAD/VIEW MESSAGE

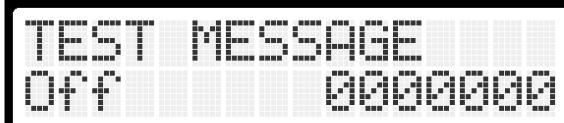


This button is used to view the name of the currently loaded message or, if the USB stick is inserted and multiple messages are on the stick, allows a new message to be selected.

Use the up/down buttons (hundreds/tens/units) to scroll through the message slots until the name of the desired message is found.

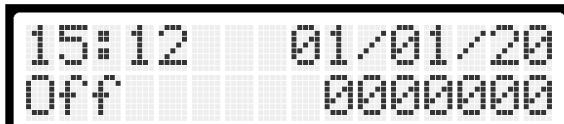


Press the  button to select the chosen new message.



TEST MESSAGE
Off 0000000

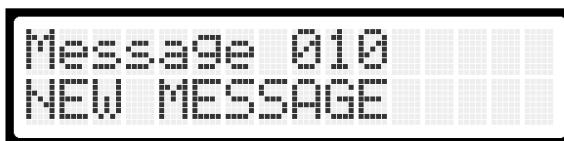
The message name toggles with the date and time:



15:12 01/01/20
Off 0000000

3.7 SELECT MESSAGE FOR PRINTING

This button can also be used to select a new message if the USB stick is inserted.



Message 010
NEW MESSAGE

Use the up/down buttons (hundreds, tens, units) to change the slot number.

Press the  button to select the desired message.

Message selection from the USB stick can also be done using the  key if a USB stick containing messages is inserted in the printer.

04.

FX APP

4.1 Installing the FX APP - PC software



The PC software is compatible with the following versions of Windows: XP, Vista, 7, 8 and 10.

Insert the USB stick into the PC, double click the FxAppV1.11Installer.exe file and follow the onscreen instructions to install the software.

4.2 Using FX APP

The main aim of the software is to allow message creation. The PC can be connected to the printer directly by USB cable (or optional Ethernet), or can be operated separately using a USB memory stick. If a direct connection is used, it is also possible to view and configure the printer using this software.

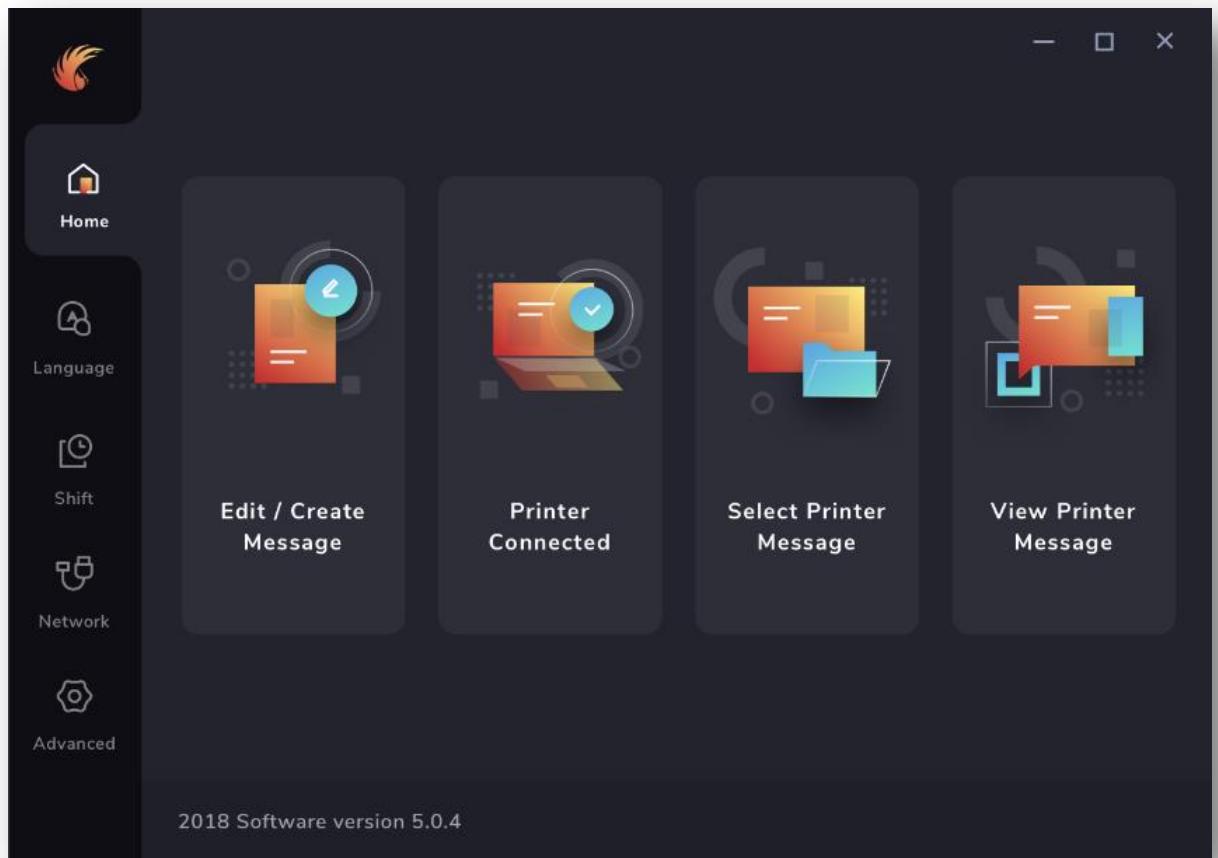
4.3 Starting the software



Double click on the FX APP icon to launch the software. The startup screen will be displayed that shows the software name and version. In addition, if a printer is directly connected and has been located, the firmware version of the printer will also be shown.



After a few seconds, the home screen will be displayed.



This is the Home screen and can be returned to by pressing the  button.

From this screen, it is possible to:

- Configure the language used by the application
- Configure the shift pattern used in the factory
- Edit or create a message
- Configure a connected printer
- Select a message for printing on a connected printer
- View the message currently printing on a connected printer
- Create a local network of printers

In addition, Advanced options are provided for Calendar Type and Ink Cost configuration.

4.4 Language

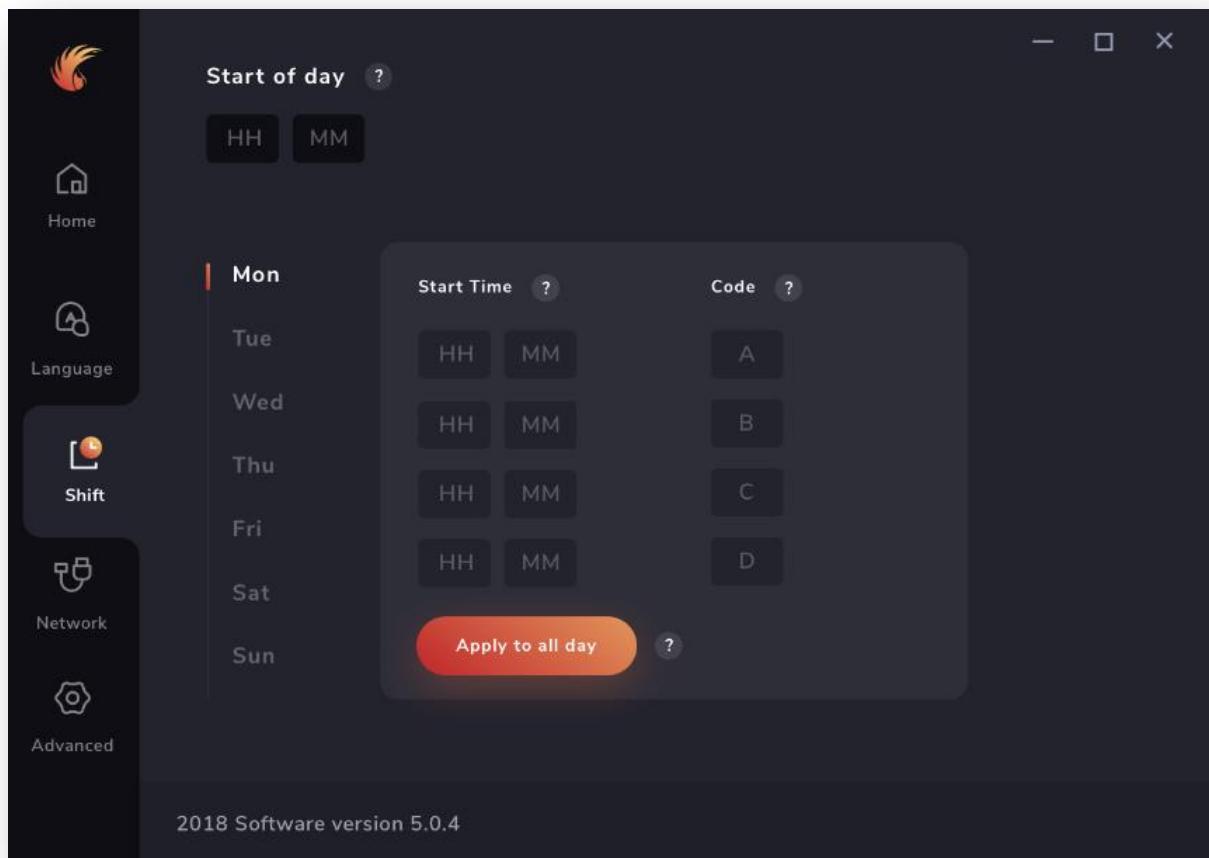
This tab allows the text phrases within the program to be changed to a suitable regional variant. Pressing the 'Home' tab will go back to the main screen keeping the selections made.



Press the **Next** button to move to the second page of supported languages.

4.5 Shift

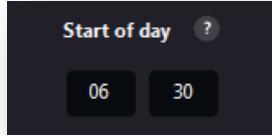
This tab allows the start of day and shift pattern to be defined. Pressing the 'Home' tab will go back to the main screen keeping the selections made.



Start Of Day : This setting determines at what time a new day is to begin. For example, a factory may define production for a new day starting at 06:00. Production up to that point is part of the previous day. The printer can take account of this by delaying when the date forwarding is applied. In most cases, this setting is 00:00.

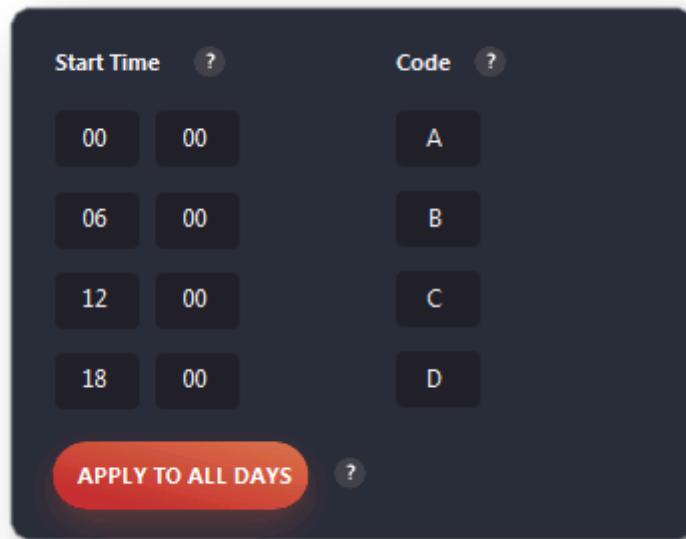
Shift Day : Each day has its own tab. The currently selected day is indicated in blue. The start times and shift codes for that day are displayed within the tab box. To view each day, click on the desired tab.

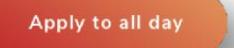
Start Time : This is the time at which the shift starts. Up to four shifts can be defined per day. Enter the time in 24 hour format. For example, a shift code starting at 06:30 would display:



Shift Code : This is the single symbol that is displayed for the duration of the shift. Permitted symbols are numbers and uppercase letters.

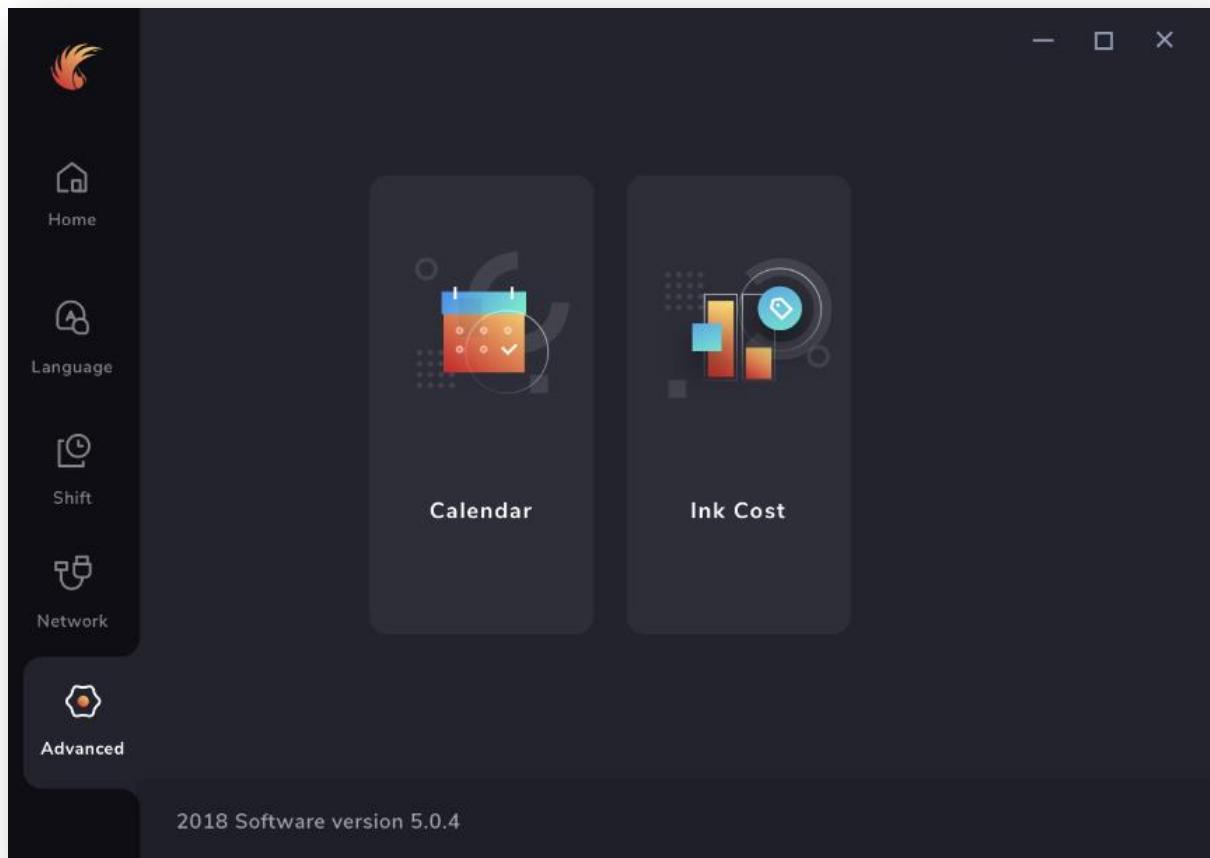
An example setup is shown below for shifts starting at midnight, 6am, noon and 6pm:



To copy these settings to the other days of the week, press the  button.

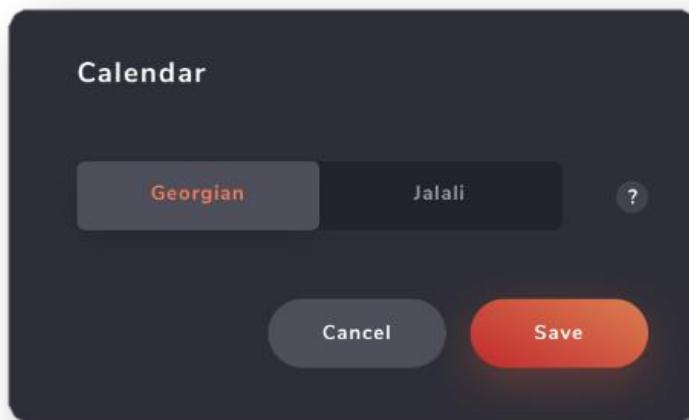
Apply to all day

4.6 Advanced



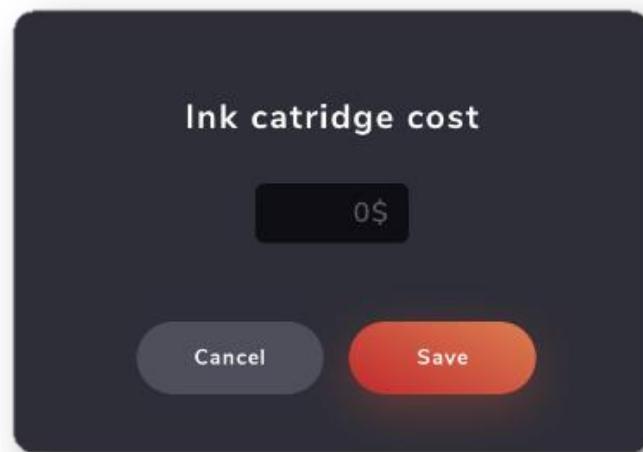
This tab allows the Calendar and Ink Cost to be configured.

Calendar



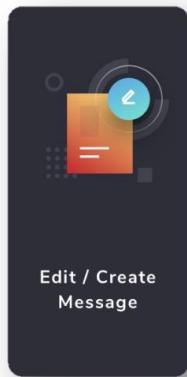
This tab allows the calendar scheme used for date calculations to be selected between Gregorian and Jalali. Pressing **Save** will store the calendar choice.

Ink Cost



Enter the cost of the ink cartridge in local currency units. This is used to determine the cost per print of messages.

4.7 Editing/creating a message



Press the Edit button to move to the main editing window.
This is shown below:



The eleven highlighted areas of the screen are explained further.

There are 11 areas of the screen described below:

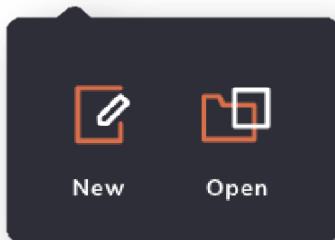
- 1** Returns back to the main screen.
- 2** File control buttons.
- 3** Editing options allows for text, logo bitmaps, time, date, shift, counters and barcodes to be inserted into the message. Pressing the small circular right arrow will toggle the options.
- 4** Selection and undo/redo control buttons.
- 5** Printer connected status/transfer buttons. These show if a printer or USB stick has been located. Pressing the corresponding button transfers the current message contents.
- 6** Cost per print and prints per cartridge. See page 60.
- 7** Font, size and style controls. A drop down list showing the options available for text. Logo and barcode text size can also be changed.
- 8** Zoom buttons allow for the message editing area to be zoomed in or out. In addition, a mousewheel can also change the zoom level.
- 9** The main message editing window shows the message contents. Horizontal and vertical rulers indicates the size of the message. A horizontal slider control allows the view to be moved along the message.
- 10** Status information. This area shows either that a USB stick or directly connected printer has been detected. The message name is shown on the right hand side. If a directly connected printer has been detected, the message name will alternate with the printer name.
- 11** Minimize / Closes the App.

4.8 Button reference guide

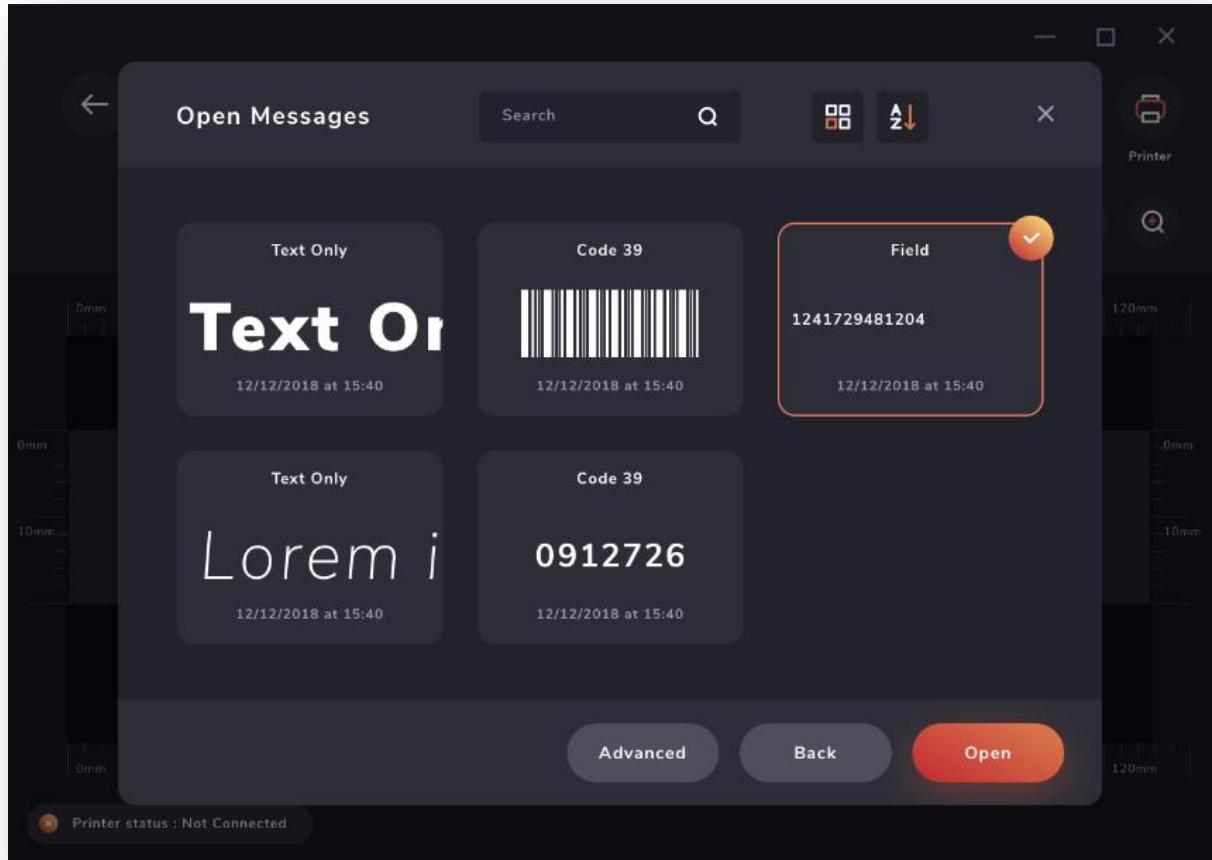
FILE



Opens an existing message file for editing or copying to a printer or allows a new message to be created.



Select New for a blank message or Open to select one from a thumbnail list.



A thumbnail view of the current messages is shown. The thumbnails can be scrolled by clicking and dragging. To open a message, select it and press

Open



A search tool enables the message list to be restricted. As characters are typed, only those messages that match the entered characters are displayed.

There are three views available:



Thumbnail view



Details view (message name and date/time created)



Message Name view

In addition, it is possible to change the ordering of the view:



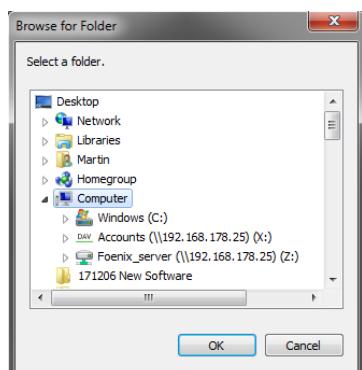
Alphabetical order list



Date order list (most recent first)

The default location where messages are stored is 'C:\My Documents'. This can be changed by pressing

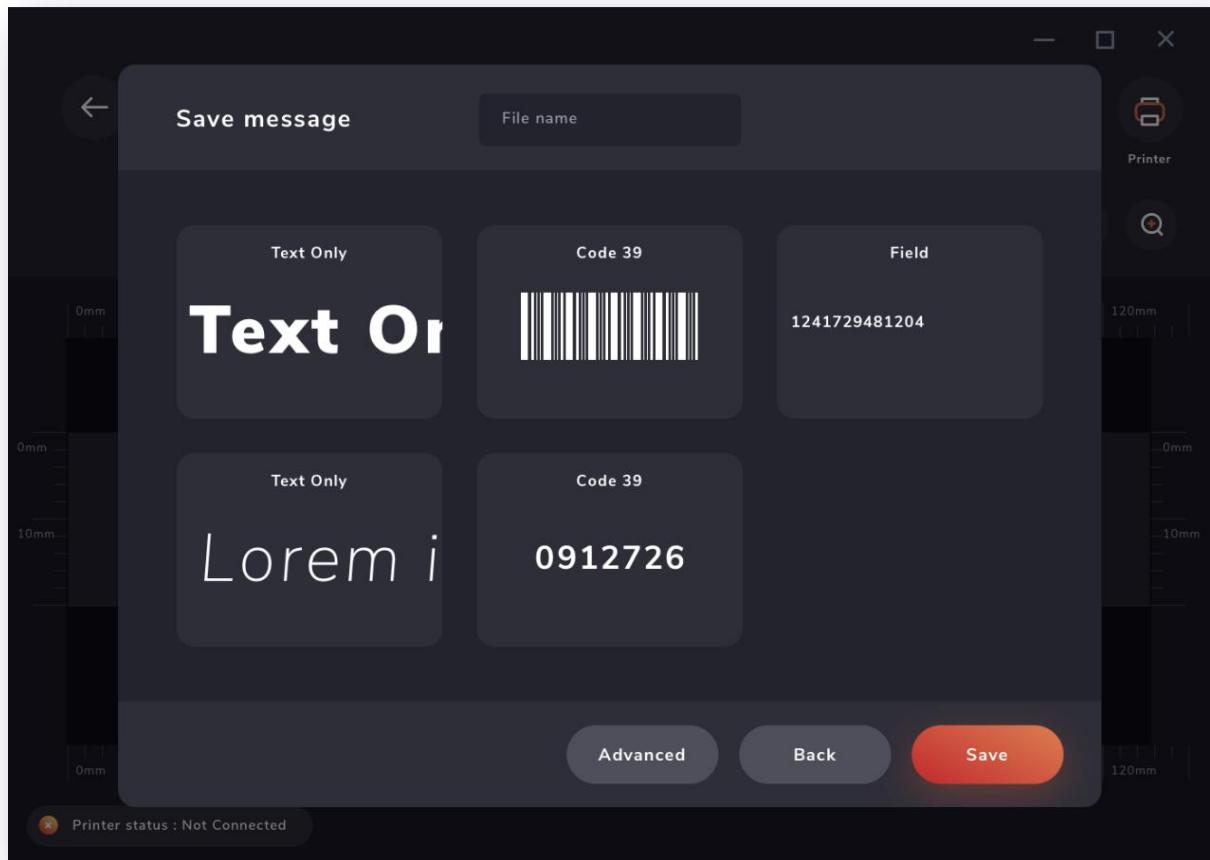
Advanced



SAVE



Saves the current message. Pressing this button goes to the message save area to allow a name to be specified.



A thumbnail view of the current messages is shown. The thumbnails can be scrolled by clicking and dragging. To replace a message, select it and press **Save**.

To save under a new name, type the name in the top text area before pressing **Save**.

File name

The default location where messages are stored is 'C:\My Documents'. This can be changed by pressing **Advanced**.

UNDO - REDO



Undo the last change to the message.
This works in reverse to the Redo command.



No more changes can be undone



Redo the last change to the message.
This works in reverse to the Undo command.



No more changes can be redone

SELECT



Chooses the Select tool. This allows items within the message to be highlighted. Multiple selections can be made by dragging a box using the left mouse button. Alternatively, holding the CTRL key whilst clicking on items will add them to the list. When items have been selected, they can be resized, font and bold changed from the drop down boxes. Selected items can be moved as a group around the message area.



In addition, selected items can be deleted by pressing the Delete key or pressing the Delete symbol at the bottom of the screen.

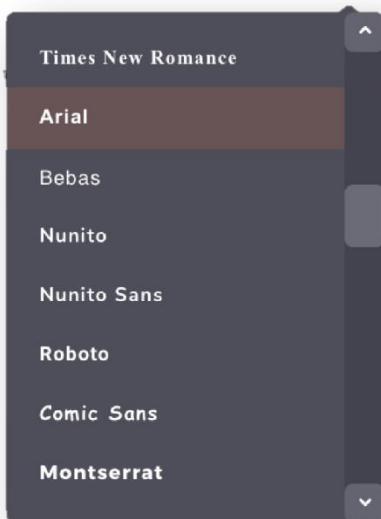
When items are moved, a series of horizontal and vertical dashed lines indicate where the selection lines up with the centre, top and bottom of other elements in the message. This allows items to be aligned accurately.

TEXT

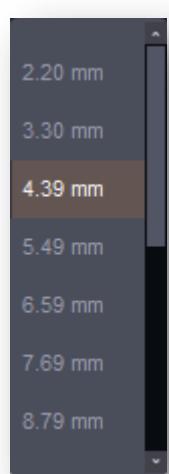


Chooses the Text tool. This allows text to be inserted into the message area. Clicking within this area draws a blue box at the currently selected height. Begin typing text within this area. The box will grow to accommodate the text. Pressing the Enter key will begin a new line if there is sufficient space. The cursor keys can be used to move the flashing cursor within the text. Changes to the font, size and style will change all the text within the box. In addition, it is possible to resize the box and scale the text inside by grabbing the box corners.

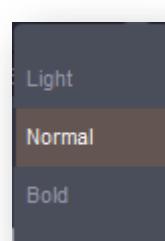
Font Selection



Size Selection



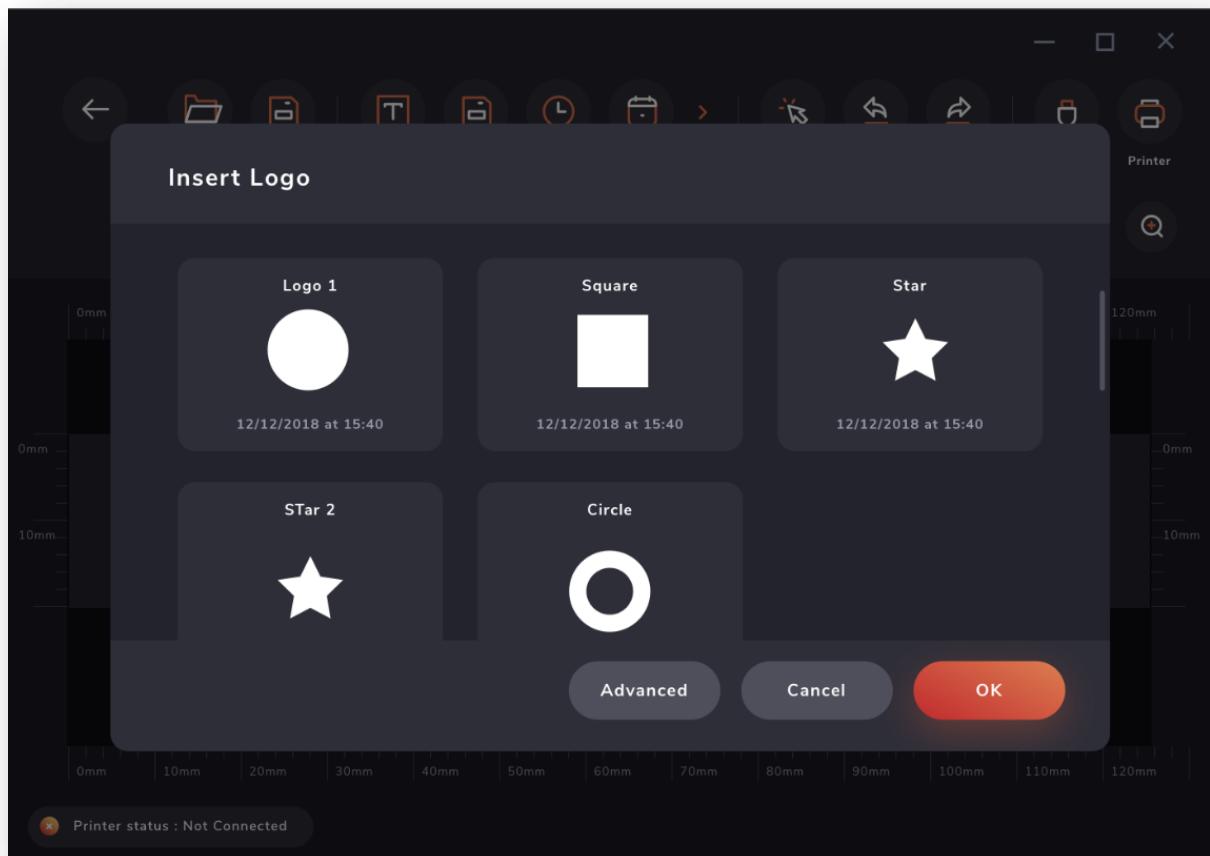
Style Selection



LOGO



Allows a logo bitmap to be inserted into the message area. Click on any part of the message area. A thumbnail window will open displaying all the graphic files in the default folder.



The program can read any image file type and convert it automatically to a form suitable for printing i.e. black and white. For best quality printing, convert the bitmap prior to loading into the software.

The default location where logos are stored is 'C:\My Documents'.

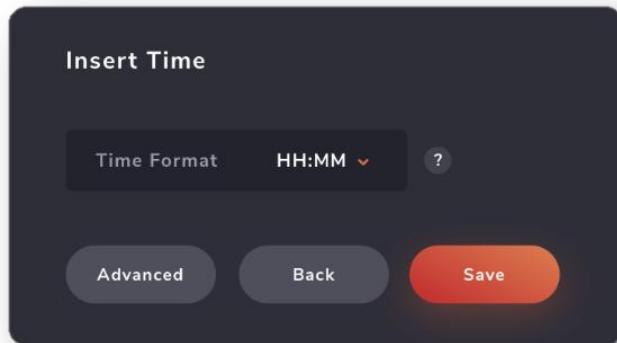
This can be changed by pressing

Advanced

TIME



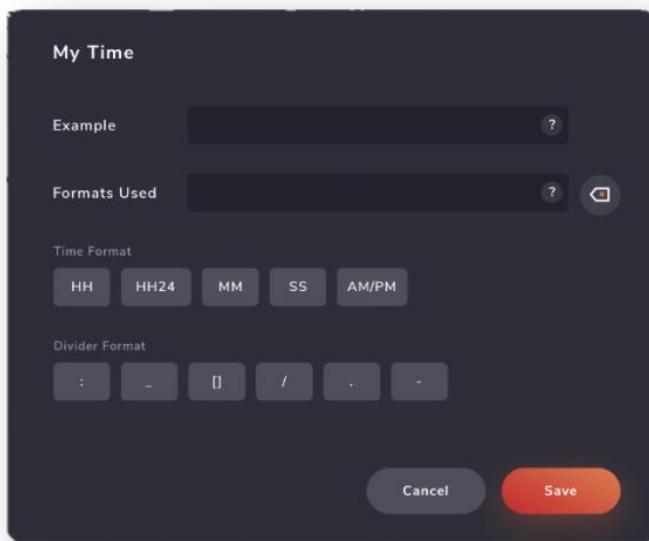
Allows the current time to be inserted into a message. A blue border shows the area occupied by the time element. The dynamic data can be positioned vertically in 2mm steps within the message although there is no restriction horizontally. The program will update the time shown on the screen. The font, size and style can be adjusted using the drop down options.



There is a choice of time formats that can be selected as shown below:

Format	Example
HH:MM	24 hour and minutes e.g. 13:26
HH	24 hour only e.g. 13
MM	Minutes only e.g. 26

In addition, it is possible to create your own custom format. Pressing  goes to an editing screen where the time format can be constructed.



Within this screen, a range of components are presented to allow the time to be built.

Format	Example
HH	12 hour e.g. 01
HH24	24 hour e.g. 13
MM	Minutes e.g. 26
SS	Seconds e.g. 10
AM/PM	Morning/Afternoon e.g PM

Simply press each format you require to add it to your custom format using separators as required. Both the format and an example of the time using the format is displayed.

An example format is shown below:

Example

05:02-02 PM



Formats Used

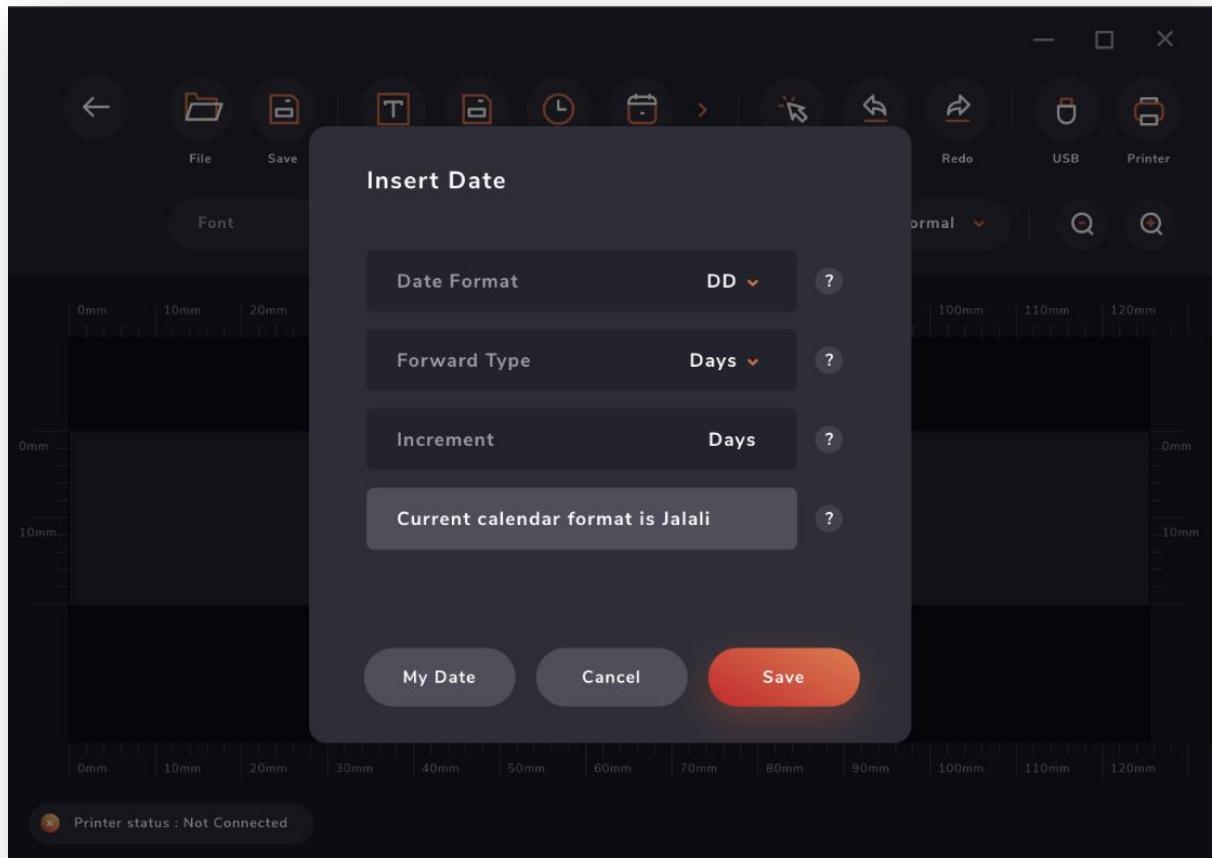
HH12:MM-SS AMPM



DATE



Allows a date to be inserted into a message in a selection of formats. A blue border shows the area occupied by the date element. The dynamic data can be positioned vertically in 2mm steps within the message although there is no restriction horizontally. The program will update the date shown on the screen. The font, size and style can be adjusted using the drop down options.



Date Format: How the date is to be presented. The following standard formats are available from a drop down box.

Format	Example
DD	Day e.g 02
MM	Month e.g. 01
YY	Year e.g. 10
YYYY	Year e.g. 2010
DD/MM/YY	Day/Month/Year e.g. 02/01/10
MM/DD/YY	Month/Day/Year e.g. 01/02/10
YY/MM/DD	Year/Month/Day e.g. 10/01/02
Julian	Day of the year e.g. 02

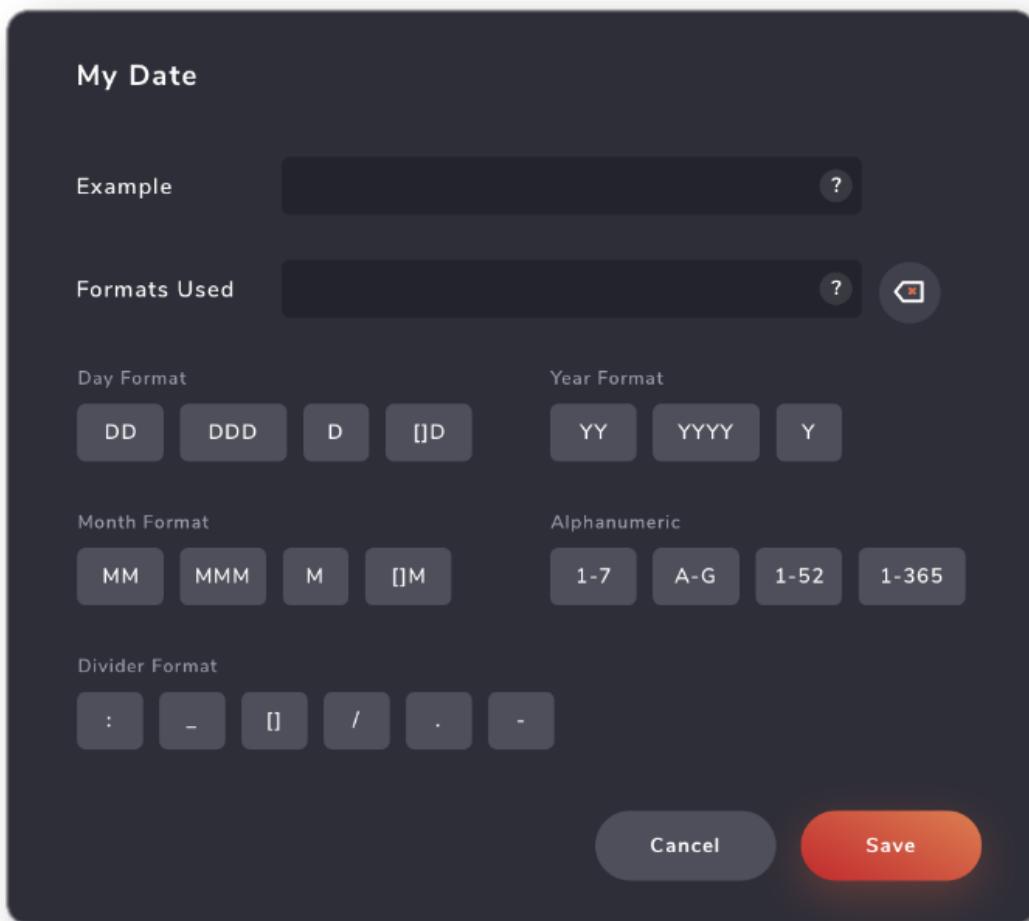
Forward Type: Allows a future date to be specified from a drop down box so many Days, Weeks or Months into the future. Specific customer types are also available.

Increment: A numerical entry box that determines how many Days, Weeks or Months are to be applied.

The screen also displays the current calendar used for date forwarding. This can be changed from within the Settings option on the main menu bar.

In addition, it is possible to create your own custom format.

Pressing  goes to an editing screen where the date format can be constructed.



Within this screen, a range of components are presented to allow the time to be built.

Day Format	Example
DD	Day of the month e.g 11
DDD	Three letter day of the month e.g. WED
D	Day of the month without leading space
D	Day of the month with leading space

Month Format	Example
MM	Month of the year e.g. 04
MMM	Three letter month of the year e.g. APR
M	Month of the year without leading space
M	Month of the year with leading space

Year Format	Example
YY	Year e.g. 12
YYYY	Four digit year e.g. 2012
Y	Last year digit e.g. 2

Alphanumeric Format	Example
1-7	Day of the week (number)
A-G	Day of the week (letter)
1-52	Week of the year
1-365	Day of the year

Simply press each format you require to add it to your custom format using separators as required. Both the format and an example of the date using the format is displayed.

Example

18 NOV 2019 ?

Formats Used

DD MMM YYYY ?

In this example, the date is represented as days with a space separator, three letter months with a space separator and four digit year.

Pressing Save will add the custom format to the list.

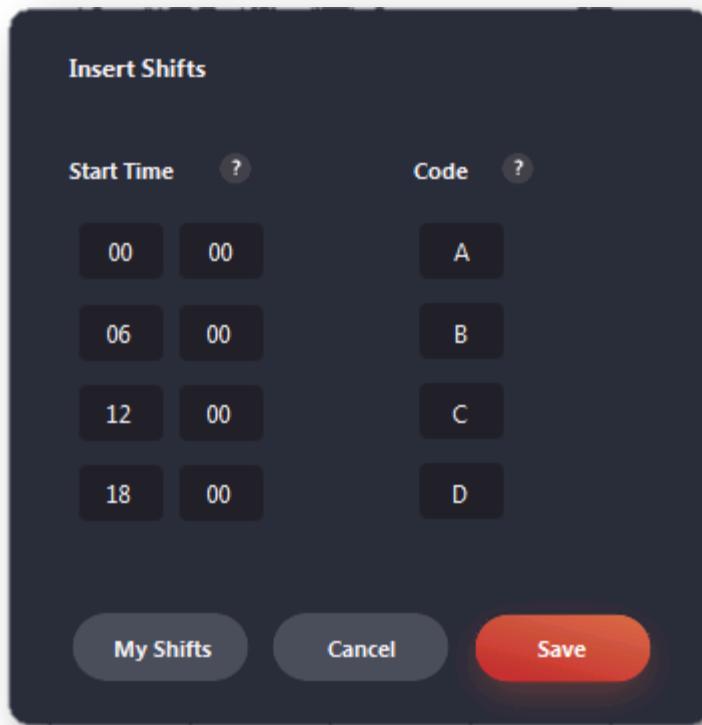


SHIFT

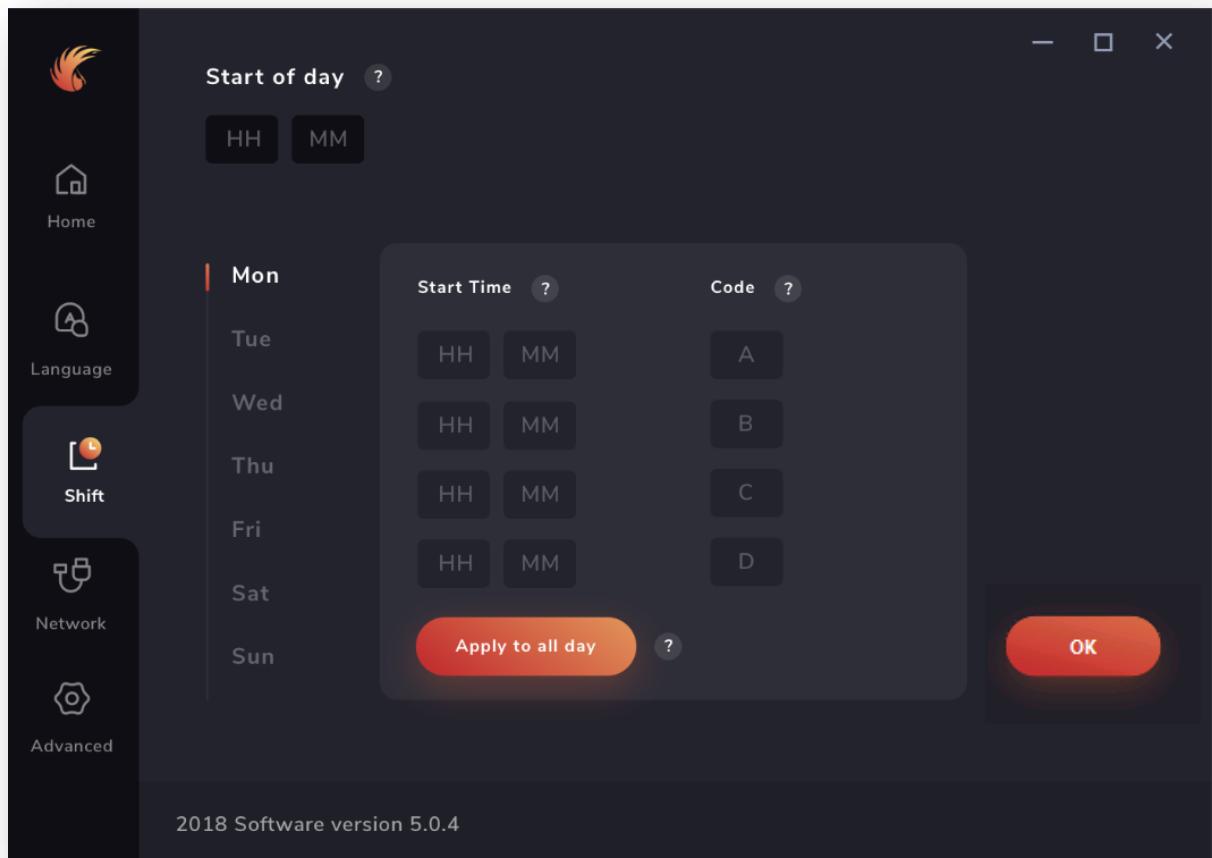


This option allows a shift code to be inserted into the message. A preview of the shift settings for the current day is displayed. To add the shift, press the **Save** button.

The font, size and style can be adjusted using the drop down options.



To edit the shift settings, press the **My Shifts** button.



Start Of Day: The time at which a new production day starts. The time is entered in 24 hour format.

Start Time: The time at which the shift is due to start is entered in 24 hour format. Up to four shifts can be defined per day.

Code: This is the single alphanumeric character that is printed for the current shift.

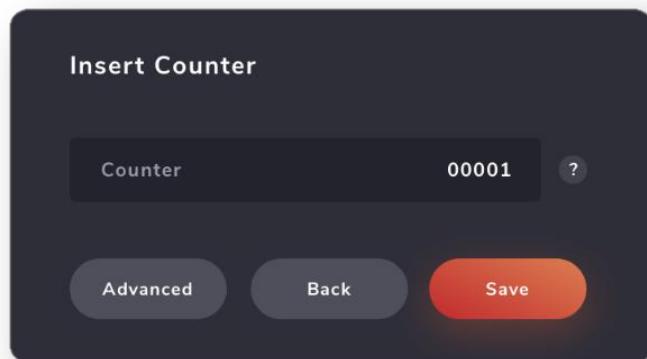
Each shift for each day can be different. Click on the day tab and enter the start time and alphanumeric code to be printed. If however the shifts are the same every day, pressing the **Apply to all day** button will copy the currently displayed shift settings to all the days of the week.

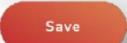
Press the **OK** button to store the changes.

COUNTER - BATCH

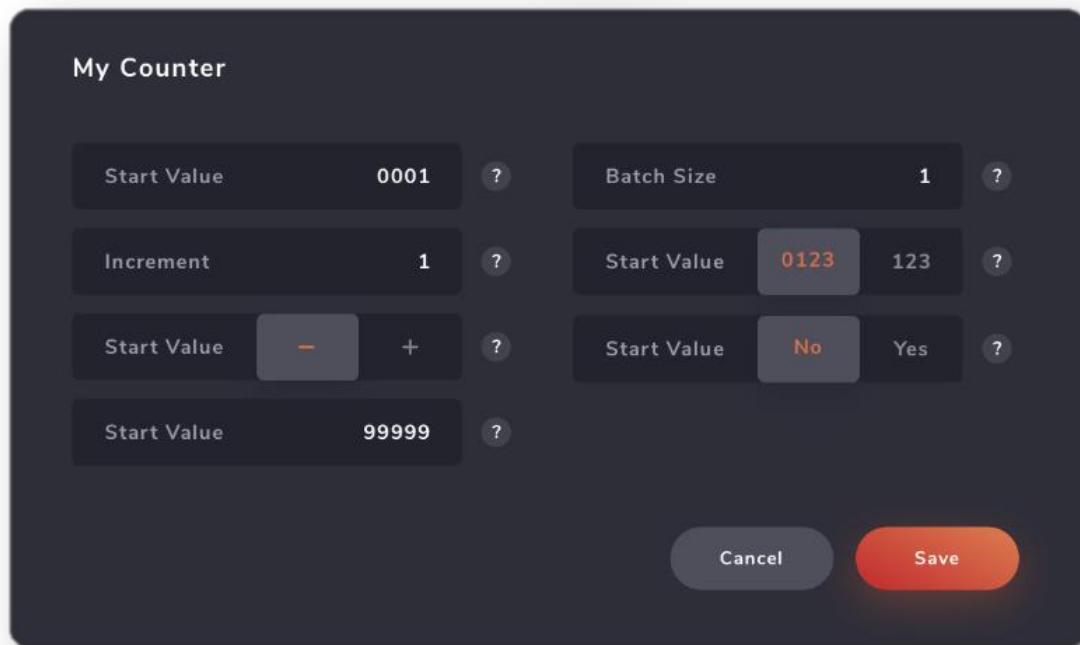
123

This option allows a counter or batch to be inserted into the message. To create a simple counter, type the start value including the number of digits for the counter. The following example, creates a four digit counter starting from 1.



Press the  button to insert the counter into the message.

To change the properties of the counter, select .



Start Value: The value the counter begins from and also resets to.

Increment: How much the counter value changes after each print.

Counter Type: Can specify whether the counter increments (+) or decrements (-).

Rollover Value: This is limited to the number of digits for the counter but can be altered for a smaller range. For example, a three digit counter may need to roll over at 100 rather than 999.

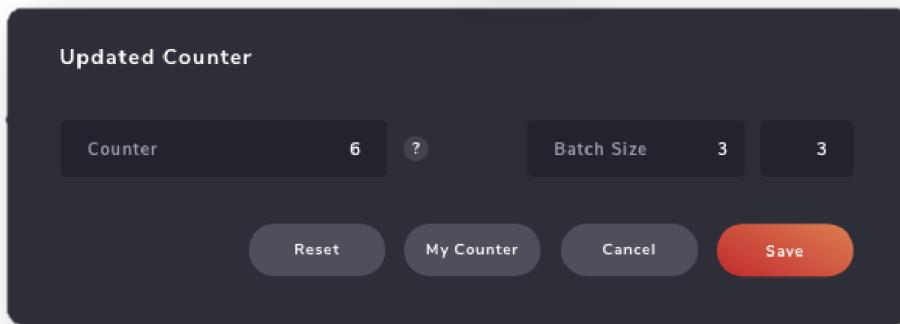
Batch Size: For a standard counter that applies the increment after every print, this value should be 1. However for batch counting, this value indicates the size of the batch. For example if you have a product that is palletised in groups of 100, the batch size will be set to 100. In this case, groups of 100 products will have the same counter value.

SUPPRESS ZEROS: Select whether the leading zeroes are printed or hidden. For a four digit counter example this would be 0001 or 1 respectively.

Edit Out Of Message: This option allows the operator to confirm the counter value just before the message is transferred to the USB stick or directly to the printer.

Press the  button to update the counter properties.

To update the counter/batch, right click and enter the new current value. The other counter properties can be edited by pressing  button

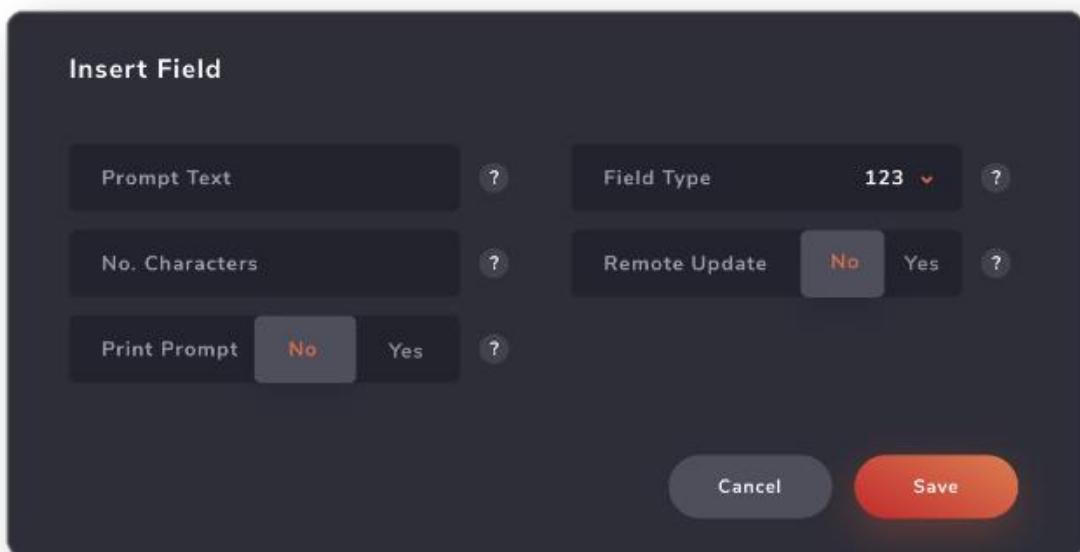


FIELD



This option allows for parts of the message to be updated immediately before it is transferred to the USB or directly to the printer. Every time the message is resent, the application will ask to confirm the field content. The field has basic error checking in the number of characters that need to be entered and also the type of characters (e.g. numbers only) that are permitted.

The field configuration screen is shown below:



Prompt Text : this is the text that is presented to the operator to remind them of the data that needs to be entered. The prompt text can also be printed before the field data.

No. Characters : this is the number of characters to be entered for the field. A maximum of 99 is permitted. When the operator enters the field data, all the characters need to be filled.

Print Prompt : determines whether the prompt text is printed before the field data.

Field Type : determines the type of data for the field. This can be restricted to numbers only, letters only or full alphanumeric symbols.

Remote Update : for future expansion whereby an external device e.g. barcode scanner, checkweigher or PLC is used to automatically insert the field data.

Press the  button to insert the field into the message. The first time the field is created, the data will be represented by '?'.

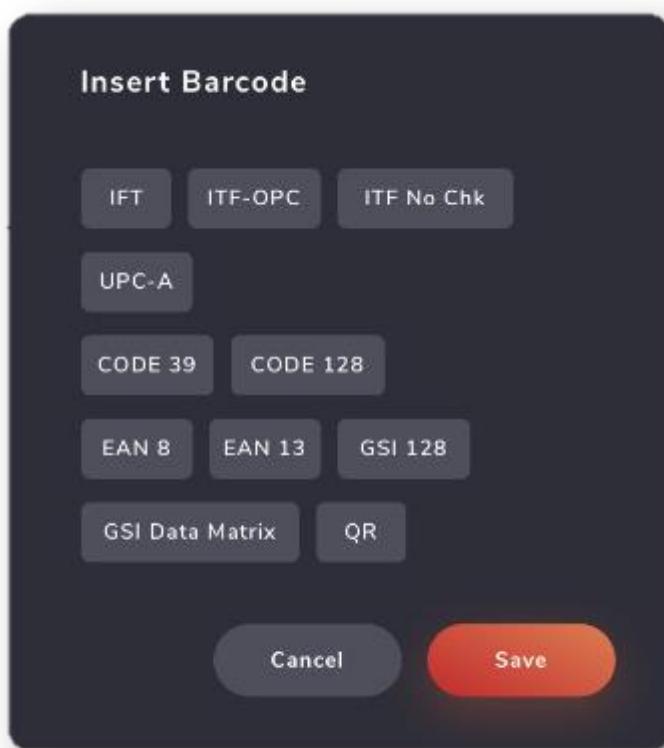
BARCODE



This option inserts a barcode into the product message. Eleven types of barcode are available which can contain a static and dynamic data such as date, time, counters and fields.

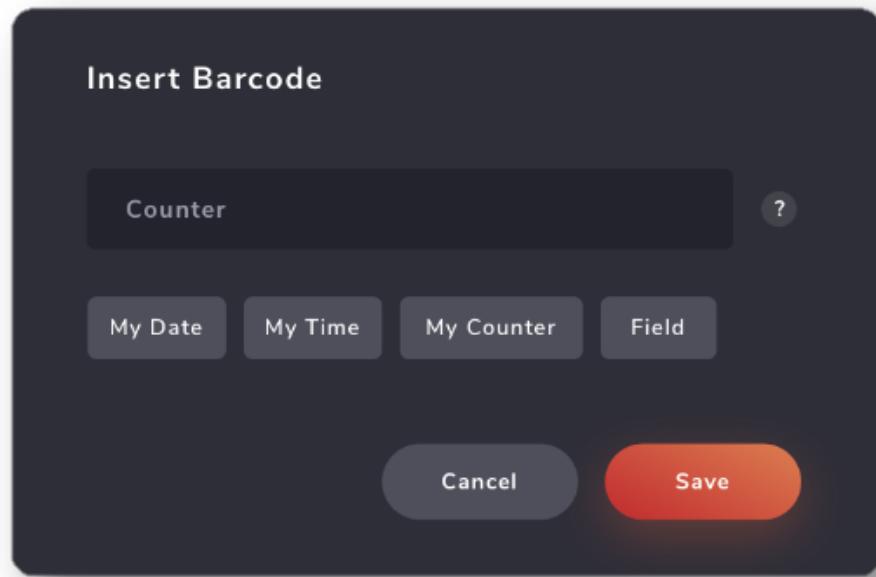
Choose the barcode you wish to use and press

Save



Each barcode type has certain restrictions listed below. The maximum number of symbols that can be encoded for each barcode is 100 depending on type.

Barcode	Type	Max Length
ITF	Numeric only	100
ITF-OPC	Numeric only	10
ITF No Checksum	Numeric only	100
UPC-A	Numeric only	12
Code 39	Numeric and Uppercase	100
Code 128	Numeric and Uppercase	100
EAN 8	Numeric only	8
EAN 13	Numeric only	13
EAN/GS1 128	Numeric and Uppercase	100
GS1 ECC 200 Data Matrix	Numeric and Uppercase	100
QR Code	Numeric and Uppercase	100

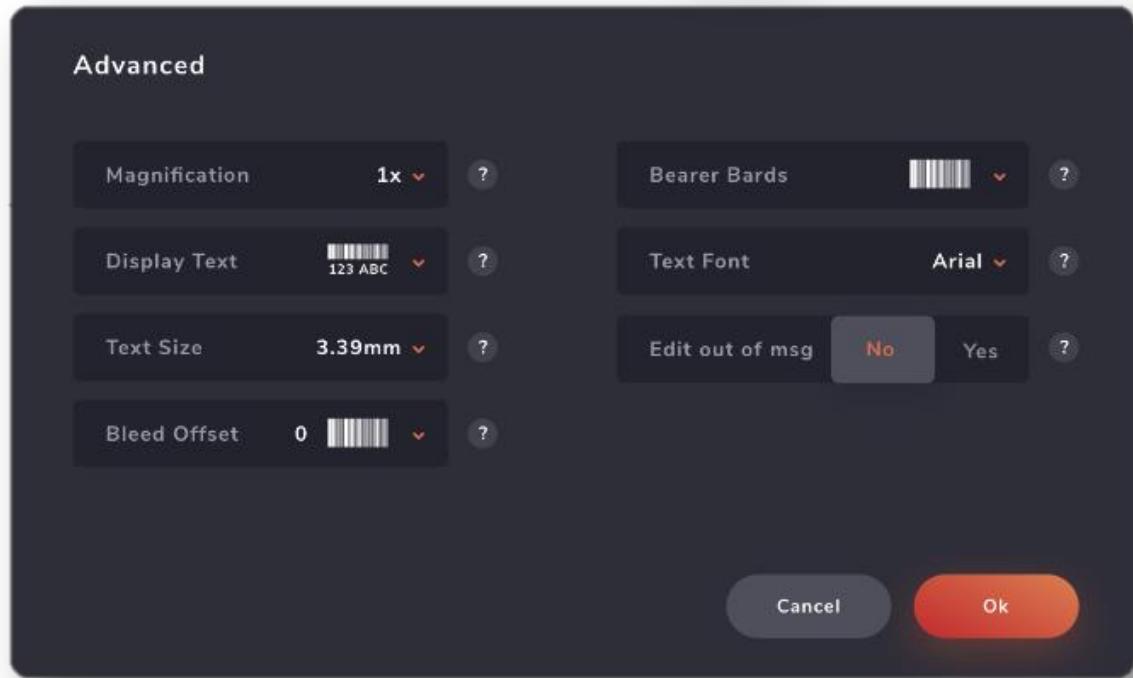


Enter the data for the barcode. To insert dynamic data, press:



The dynamic data can be created in the same way as creating a custom element. The dynamic data is restricted according to the barcode type. For example, it is not possible to create a date format containing letters for a numeric only barcode.

To modify properties for the barcode, press the **Advanced** button.



Magnification: allows the barcode width to be scaled. Options available are: 0.5, 1, 2, 3, 4, 5 times nominal width.

Display Text: determines whether human readable text is displayed below the barcode. If enabled , the text size and font can be modified.

Text Size: change the size of font that is used to display the human readable characters. The size will be restricted so that only those sizes that will fit into the available barcode width will be permitted.

Bleed Offset: this options adds additional white space between the black bar patterns to allow the ink to bleed as it dries in the material. Permitted values are: 0 (none) to 5 (maximum). Individual bleed values can be assigned for each barcode. Experiment to determine the value that gives the best performance from the barcode scanner.

Bearer Bars: allows the barcode to be partially or fully enclosed by a border. These are typically used to make sure a valid code is read as the scanner detects if the beam overlaps part of the border and rejects the scanned result.

Text Font: changes the font style used to represent the human readable characters.

Edit Out Of Msg: for static barcodes only, allows the content to be modified prior to the message being copied to the USB stick or transmitted to the printer.

Press the  button to use the new options.

HOME



This option returns back to the main startup screen to allow printer options to be configured. Pressing  will return back to the current message.

ZOOM +



Zooms in to the message editing area to allow for smaller message elements to be viewed more easily. There are three levels of zoom.

ZOOM -

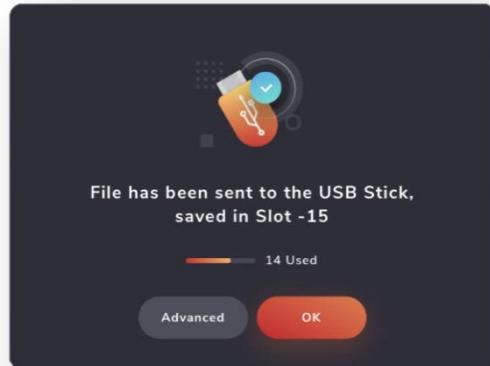
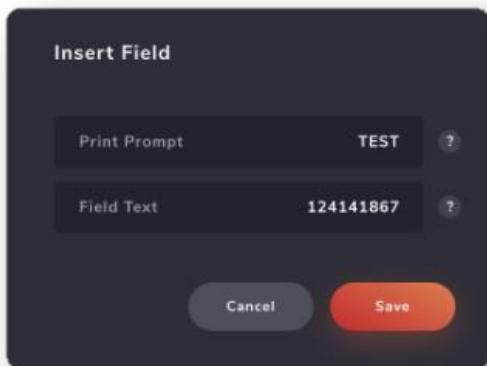


Zooms out the message editing area to increase the amount of message area that is displayed on the screen. There are three levels of zoom.

USB MESSAGE TRANSFER - ENABLED



Indicates a USB stick is connected to the PC. If pressed, the current message is transferred to the stick. If there is any editable data e.g. fields, the system will ask to confirm these values before copying the message.



Once the confirmation screen has appeared, press the button and the stick can be removed and inserted into the printer.

The confirmation screen can also be used to manage multiple messages on the USB stick.

Up to 100 messages can be stored on a single stick and when this is inserted into a printer (and left inserted), the chosen message can be selected.

USB MESSAGE TRANSFER - DISABLED

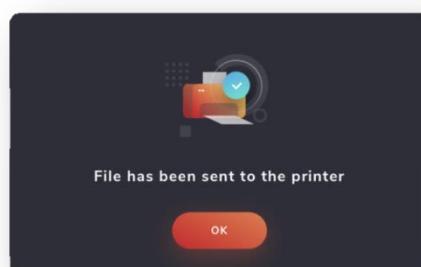
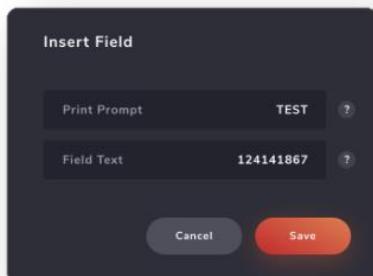


Indicates a USB stick is not connected to the PC. This button is disabled.

PC DIRECT MESSAGE TRANSFER – ENABLED



Indicates a printer is directly connected to the PC. If pressed, the current message is transferred to the printer. If there is any editable data e.g. fields, the system will ask to confirm these values before sending the message.



PC DIRECT MESSAGE TRANSFER - DISABLED



Indicates a printer is not directly connected to the PC. This button is disabled.

4.9 Creating example message : USB stick

This section describes how to create an example message, transfer it to a USB stick and load it into a printer. It is a straightforward process consisting of several steps to create a message for printing.

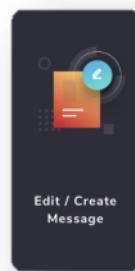
Step 1: Switching On

Switch on the printer.

Insert USB memory stick into PC.

Start the Pro 6 PC program.

Go to the message editor by selecting Edit/Create Message.

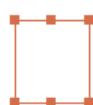


Step 2: Create The Message

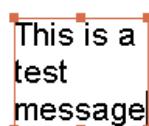
An example message consisting of text, time and current date will be created.



Press the Text button.



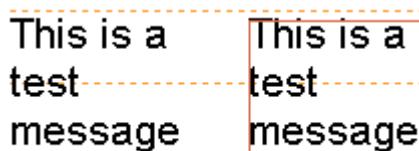
Left click inside the message editing area to draw a small blue box.



Type the text 'This is a test message' pressing return for new lines.
Note : return will only work if there is sufficient room for another text line at the selected character height.

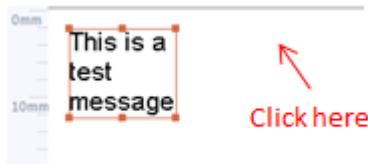


Click on the Select button to allow the text box to be moved around and resized as required.





Press the Time button.



Left click inside the message editing area to open the time entry box.



Choose the HH:MM time



Press the Save button to add the time format.



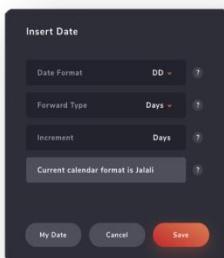
To show the time is automatically updated by the printer, it has a blue background.



Press the Date Button



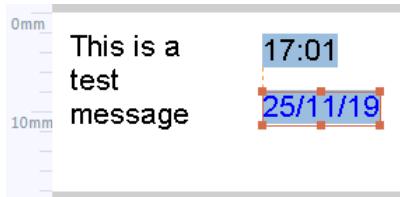
Left click inside the message editing area to open the date entry box.



Use the current date options for this example.



Press the Save button to add the time format.



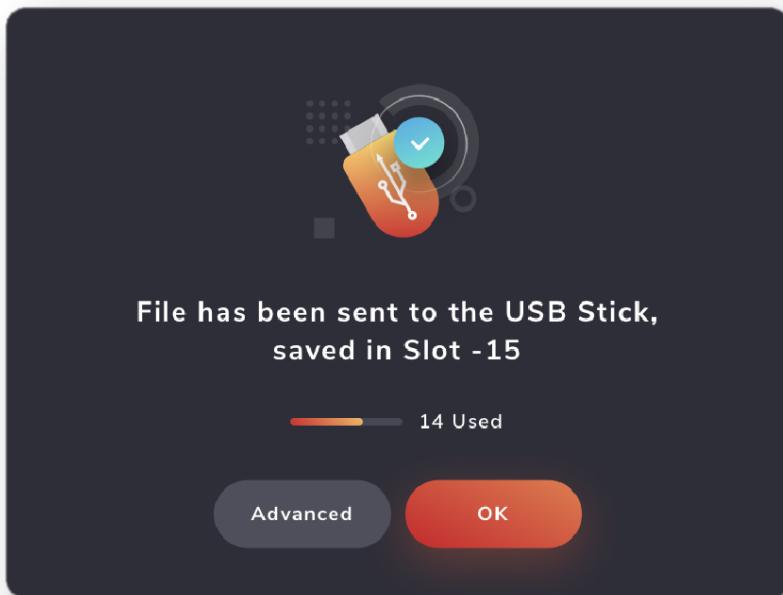
To show the date is automatically updated by the printer, it has a blue background.

Any of these elements can be moved around by clicking the button clicking on an item and dragging it to a new location. The message can be saved on the PC by clicking the button and giving the message a suitable name.

Step 3: Transfer The Message

Press the Transfer button to begin to copy the message to the memory stick.

Multiple messages can be stored on the memory stick (up to 100). The message is given the same name as the current filename shortened to 16 characters as required. If this is a new unsaved message, the name will be 'Untitled'.



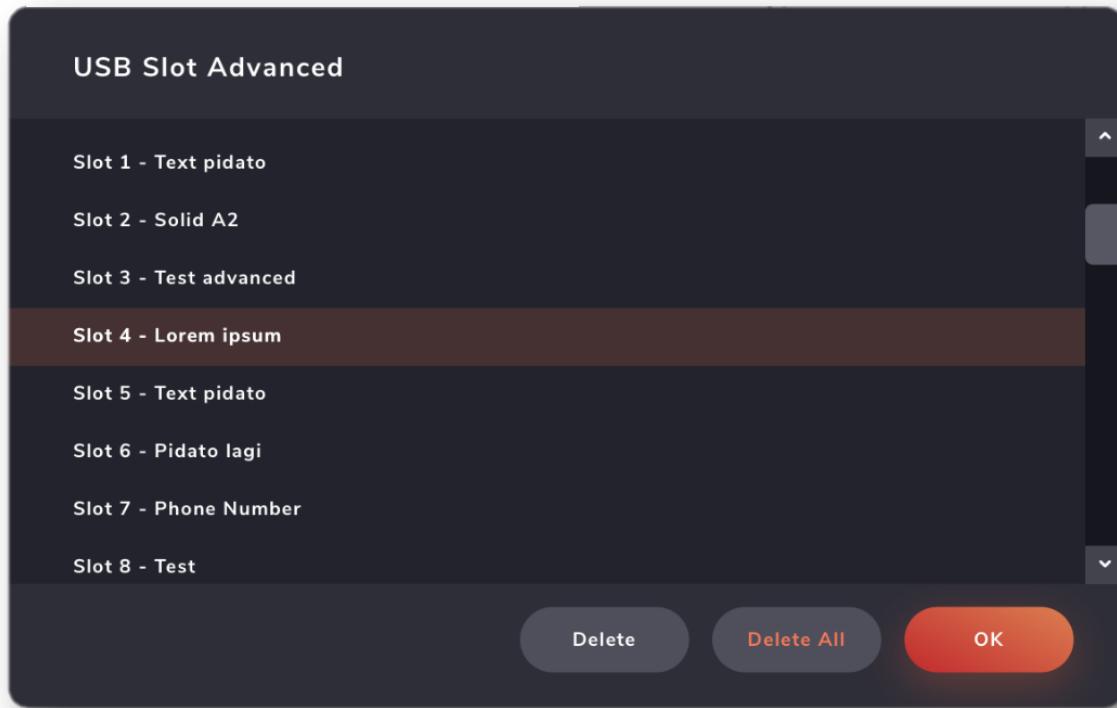
This dialog box shows the slot number that the new message was copied to. This gives the operator an easy reference when scrolling through the message list on the printer. If a message with the same name already exists, it is automatically overwritten.

A capacity indicator is provided that shows how many messages have been stored on the stick (up to 100).

For single message use, simply press to transfer the file and then the USB stick can be removed and inserted into the printer.

The user can choose to manage the messages on the USB stick. Pressing the button presents a list of messages on the stick along with its slot number. One or all messages can be deleted from the stick to free up slots.

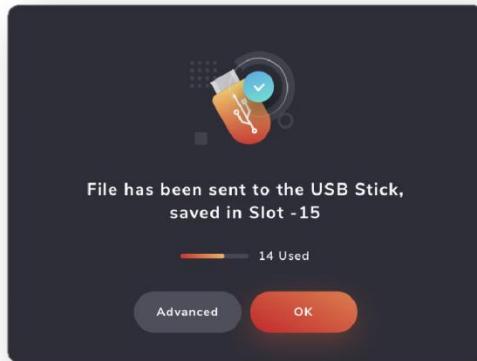
Advanced



The current slot to be used will be highlighted. The selection will either be an empty one or one that matches the filename of the new message.

Pressing **Delete** with a slot selected will remove the corresponding message from the USB stick and allow the slot to be reused. Further, pressing **Delete All** will remove all the messages from the USB stick. A confirmation screen will be shown before deleting.

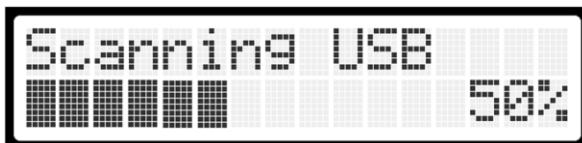
Select a new slot or continue with the current choice and press **OK** to store the message.



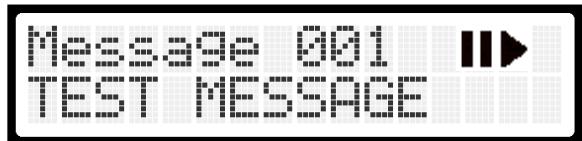
A message will be displayed indicating the transfer was completed. At this point the stick can be removed and inserted into the printer.

Step 4: Printing

Insert the memory stick into the printer. The printer will scan the USB stick looking for messages.



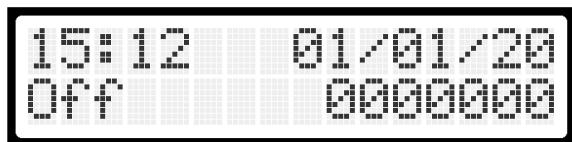
Once the scan is complete, a message selection will be provided. The current message slot number and the total number of messages found on the stick is shown along with the message name for the currently selected slot.



Use the up/down buttons (hundreds, tens, units) to choose a different message number.

Press the **||>** button to select the desired message.

The unit will read and automatically load the contents replacing any existing message. The print count will be reset back to zero and printing turned off.



To print with the new message, turn printing on **||>** and pass a product past the printer. The delay and width can be adjusted to suit required location of the print.

The memory stick does not have to be kept in the printer during printing of the selected message.

If the USB stick is left in the printer, it will automatically be rescanned the next time the power is applied.

Step 5: Selecting Another Message

To select a new message for printing, press the Settings button or (if the key is available) press the Folder button and scroll through the list as before.

To choose another message from the 100 message store, the USB stick storing the messages must be left inserted in the printer.

4.10 Creating example message: direct connection

This section describes how to create an example message, and load it using a direct connection into a printer. It is a straightforward process consisting of several steps to create a message for printing.

Step 1: Switching On

Connect the printer to the PC.

Switch on the printer.

Start the Pro 6 PC program.

Go to the message editor by selecting Edit/Create Message.



Step 2: Create The Message

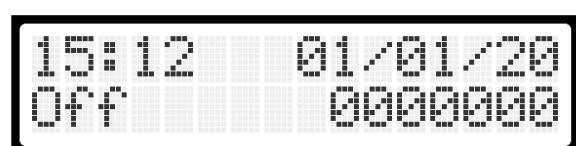
Follow the same steps as described for the USB stick to create an example message.

Step 3: Transfer The Message

With the printer connected, press the Transfer button to copy the message to the printer. A message will be displayed indicating the transfer was completed.

Step 4: Printing

The unit will automatically replace any existing message with the new content. The print count will be reset back to zero and printing turned off.



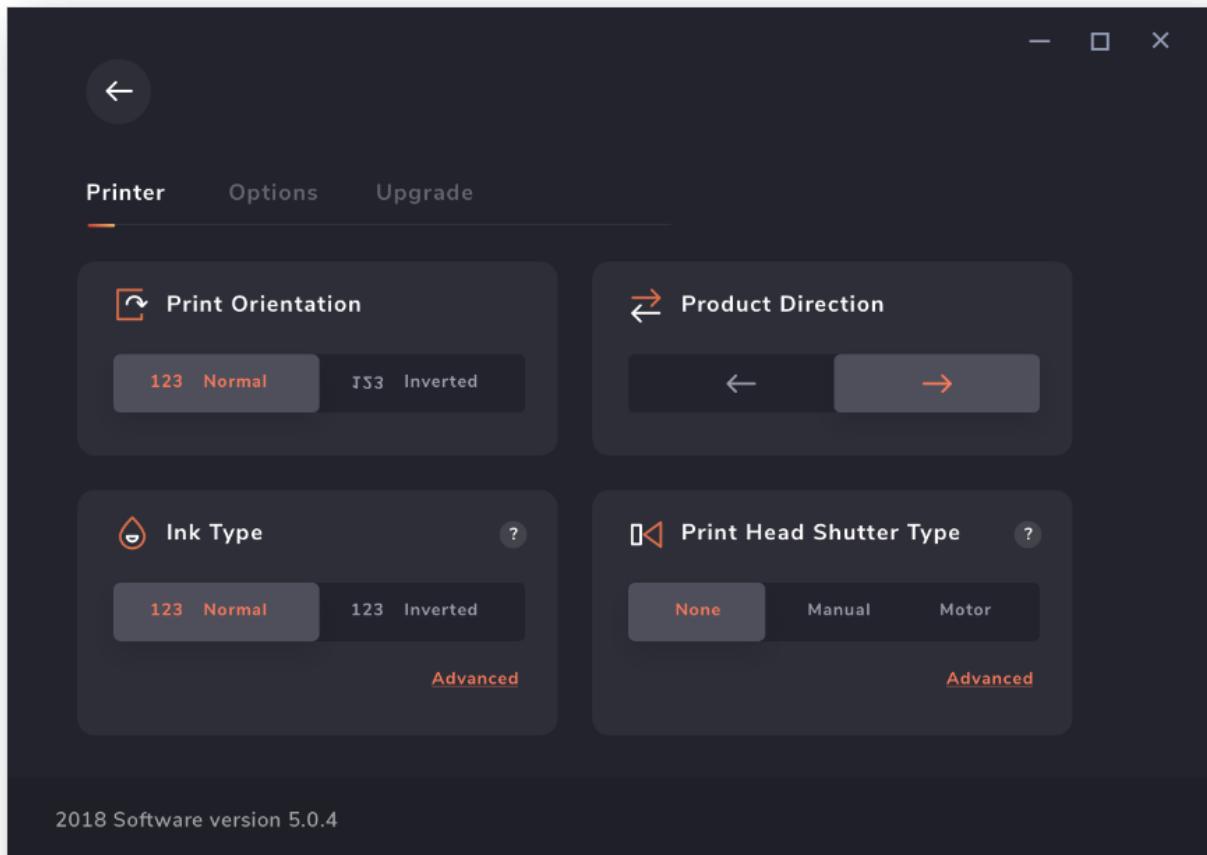
To print with the new message, turn printing on and pass a product past the printer. The delay and width can be adjusted to suit required location of the print.

4.11 Printer configuration : direct connection



The printer has a range of options that can be configured from a direct connection to a PC. These can be located by selecting the "Set Up Your Printer" button after the program has been started.

Printer



Print Orientation

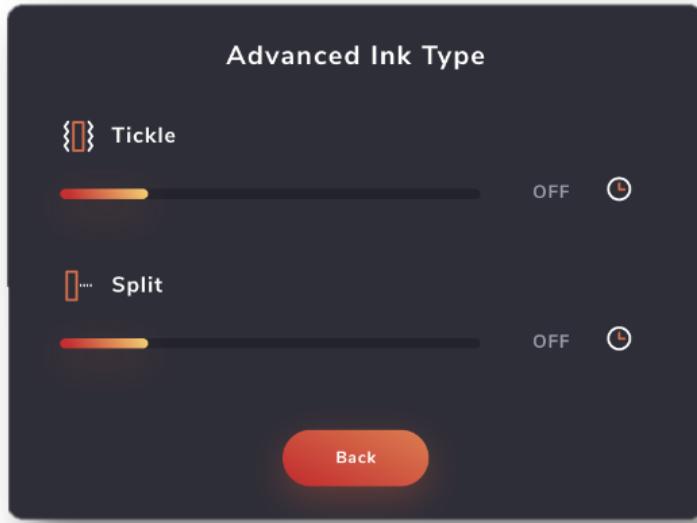
Determines whether the print is to be printed normally or upside down. This is used if the product has been filled from the base and so is inverted.

Product Direction

Specifies which the direction of travel of the conveyor looking from the top of the printer. If an internal print trigger has been selected, the printer will automatically use the most appropriate sensor.

Ink Type

Specifies whether Oil (Black cartridge) or Solvent (Red cartridge) ink is installed in the printer. If solvent ink is selected, a further option is available to allow Spit and Tickle functions to be set:



Tickle

Vibrates the ink within the print head to help prevent ink drying at the jet orifice. This helps preserve the print quality. 5-10 seconds is a recommended setting for tickle.

Spit

Fires all the print head nozzles (single drop) at a timed interval to help keep the jet orifice free of dried ink. As this ejects ink, set this value to the largest time interval that preserves print quality for the particular factory installation. Values are typically 20-30 seconds.

Print Head Shutter Type

Specifies the type of remote print head fitted to the printer:

None

The print head is mounted within the printer body as per the FX ONE Standard.

Manual

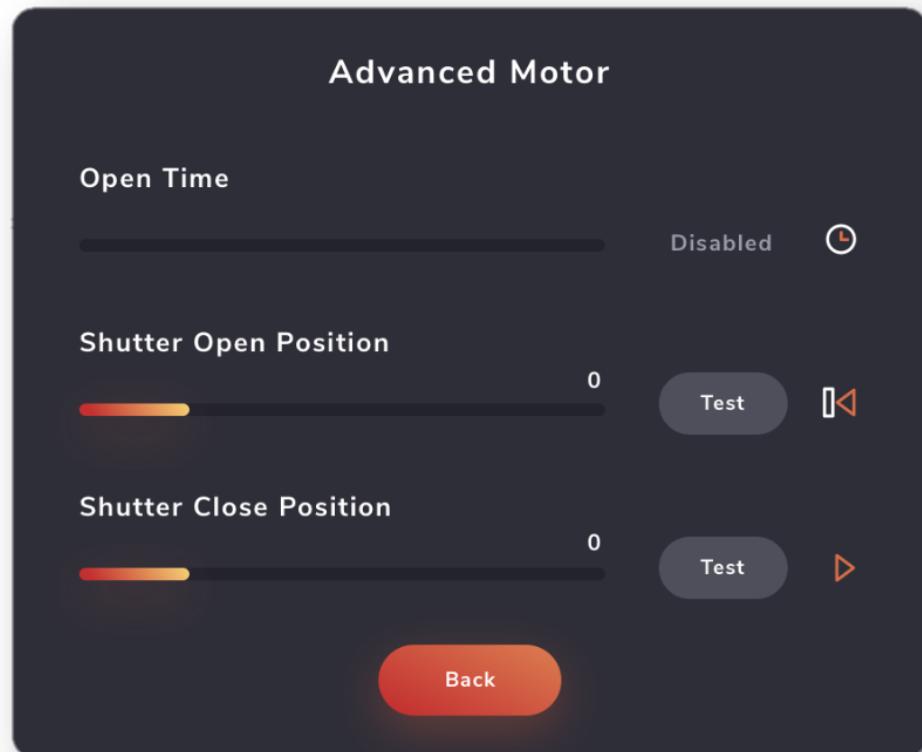
The print head is mounted in a remote housing but the shutter is opened manually prior to printing and closed for periods of inactivity.

Motor

The print head is mounted in a remote housing and the printer can operate the shutter automatically.



Further options are provided to specify the time for which the shutter remains open and also allows the shutter mechanism to be calibrated.



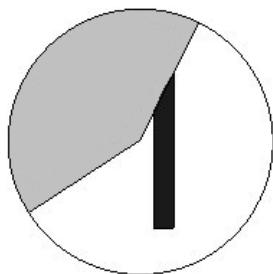
Open Time

Move the slider to adjust the time for which the shutter remains open after printing. Setting to disabled will turn off the motorised shutter option.

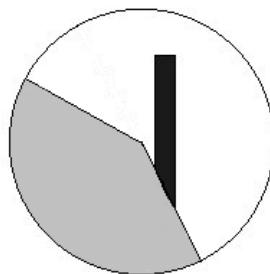
Shutter Open Position

Move the slider to adjust open position for the shutter. Use the Test button to move the shutter using the new calibration value and to see if further adjustment is required.

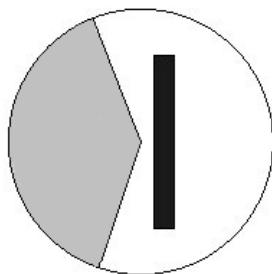
Shutter not open enough - increase calibration value



Shutter open too far - decrease calibration value



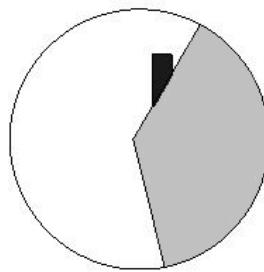
Shutter open - ideal position



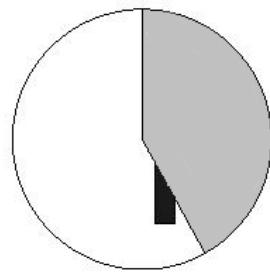
Shutter Close Position

Move the slider to adjust close position for the shutter. Use the Test button to move the shutter using the new calibration value and to see if further adjustment is required.

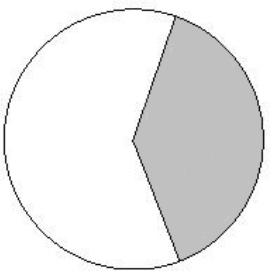
Shutter not closed enough - increase calibration value



Shutter closed too far - decrease calibration value



Shutter closed - ideal position

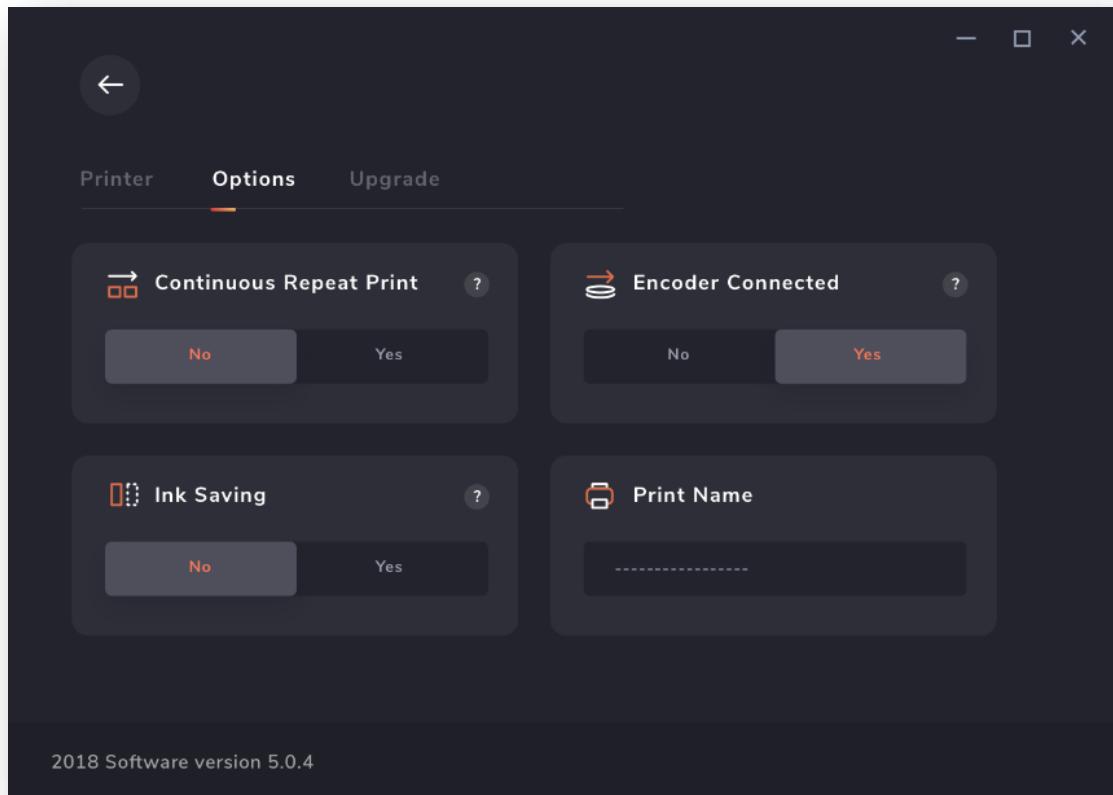


Press the Back button to go back to the previous screen keeping the last values set.

Note: Please see page 76 for details about setting shutter pretrigger.

Options

This tab provides additional choices as shown below:



Continuous Repeat Print

For applications such as web printing, the same message content is often printed at regular intervals along the material. In this case, if set to Yes, continuous repeat printing will automatically restart printing so long as the ***product sensor is blocked and printing is turned on.***

Encoder Connected

For applications which need precise print registration, an encoder can be used to measure variations in conveyor speed. Please note, setting this option to Yes without using an encoder will prevent any printing from being produced.

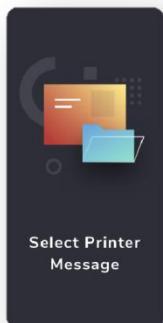
Ink Saving

Setting this option to Yes allows for less ink to be used in the product message. This results in a lower cost per print but the print will be lighter with less contrast.

Printer Name

This option displays the name of the printer and is reserved for future networking applications.

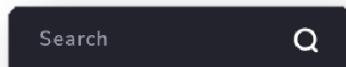
4.12 Select printer message : direct connection



This option allows messages to be selected and transferred to the printer without opening them in the Message Editor.

A screenshot of a mobile application interface titled "Open Messages". At the top, there is a search bar with a magnifying glass icon and a sorting icon (A-Z). On the right side of the header are a "Search" button and a close "X" button. The main area displays a grid of message thumbnails. The first row contains three thumbnails: "Text Only" (containing "Text Or" and the date "12/12/2018 at 15:40"), "Code 39" (containing a barcode and the date "12/12/2018 at 15:40"), and "Field" (containing "1241729481204" and the date "12/12/2018 at 15:40"). The "Field" thumbnail is highlighted with an orange rounded rectangle and has a small orange circle with a checkmark icon in the top right corner. The second row contains two thumbnails: "Text Only" (containing "Lorem i" and the date "12/12/2018 at 15:40") and "Code 39" (containing "0912726" and the date "12/12/2018 at 15:40"). At the bottom of the screen are three buttons: "Advanced", "Back", and a large orange "Open" button.

A thumbnail view of the current messages is shown. The thumbnails can be scrolled by clicking and dragging. To open a message, select it and press .



A search tool enables the message list to be restricted. As characters are typed, only those messages that match the entered characters are displayed.

There are three views available:



Thumbnail view



Details view (message name and date/time created)



Message Name view

In addition, it is possible to change the ordering of the view:



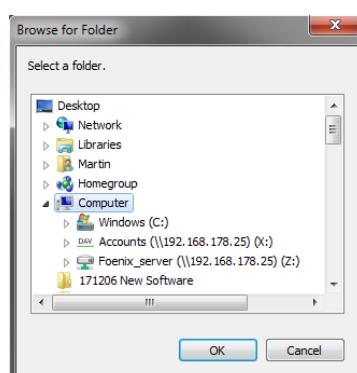
Alphabetical order list



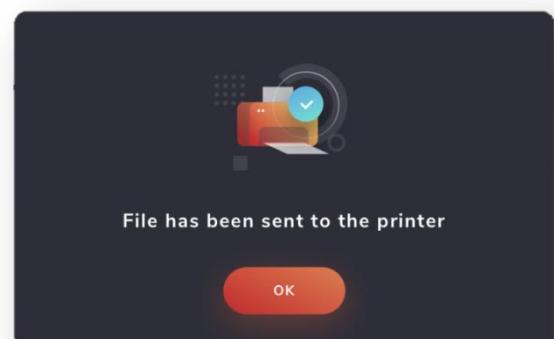
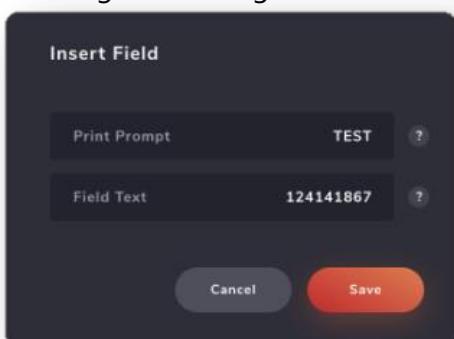
Date order list (most recent first)

The default location where messages are stored is 'C:\My Documents'. This can be changed by pressing

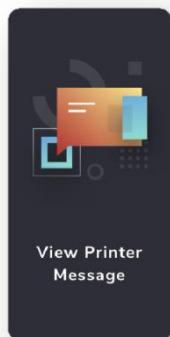
Advanced



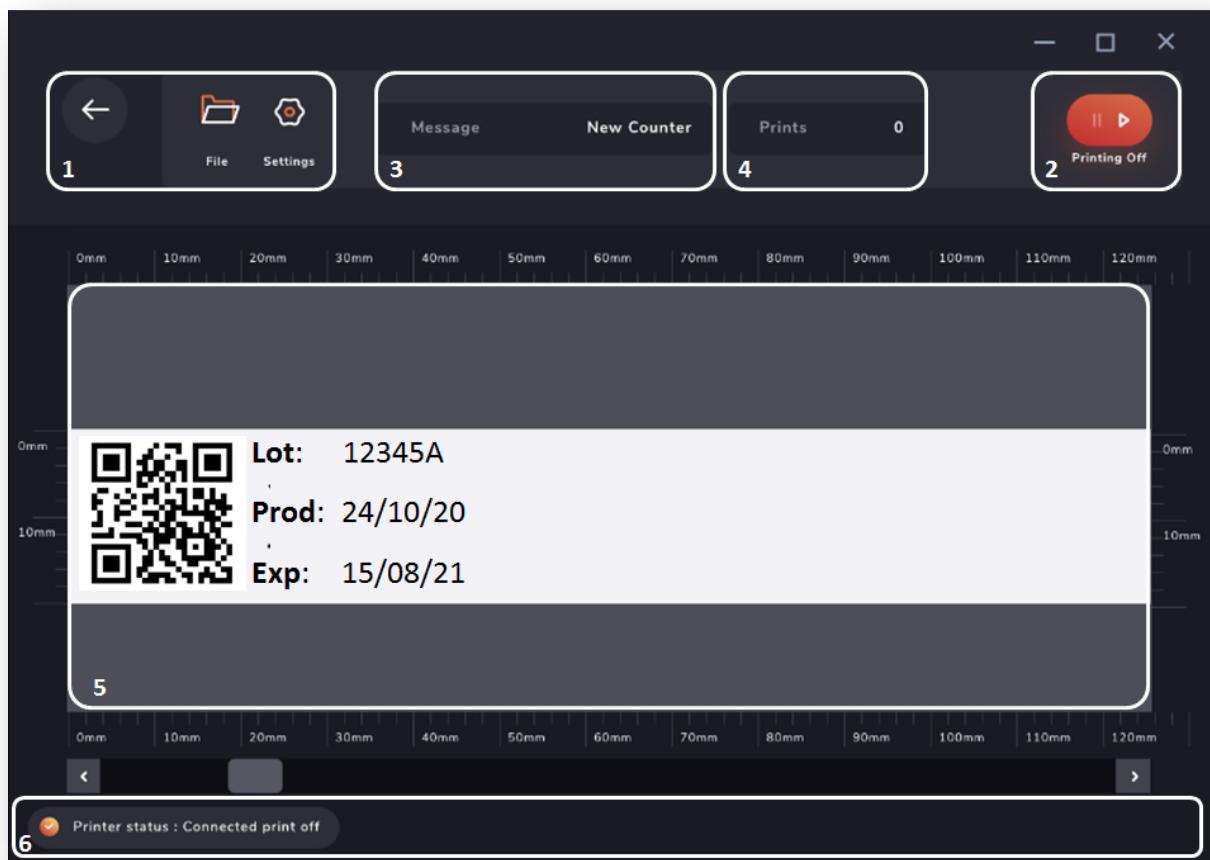
If there is any editable data e.g. fields, the system will ask to confirm these values before sending the message.



4.13 View printer message : direct connection



This option allows the currently selected message on the connected printer to be viewed.



There are 6 main areas to this screen which are described overleaf.

In addition, printer error messages are displayed within this screen.

1 Home/File/Settings

These buttons are:



Return to the Home screen.



Open the 'Select Printer Message' window to allow a new message to be loaded.



Goes to the 'Message Settings' screen (described below).

2 Print On/Off

This button allows printing to be turned on or off. In addition, the colour of this button indicates the current printer state.



Printing Off

Printing is currently off. Press to turn printing on.



Printing On

Printing is currently on. Press to turn printing off.

3 Message Name

The name of the message loaded in the printer.

4 Print Count

The total number of prints made of this message. This value can be reset from within the Message Settings  window.

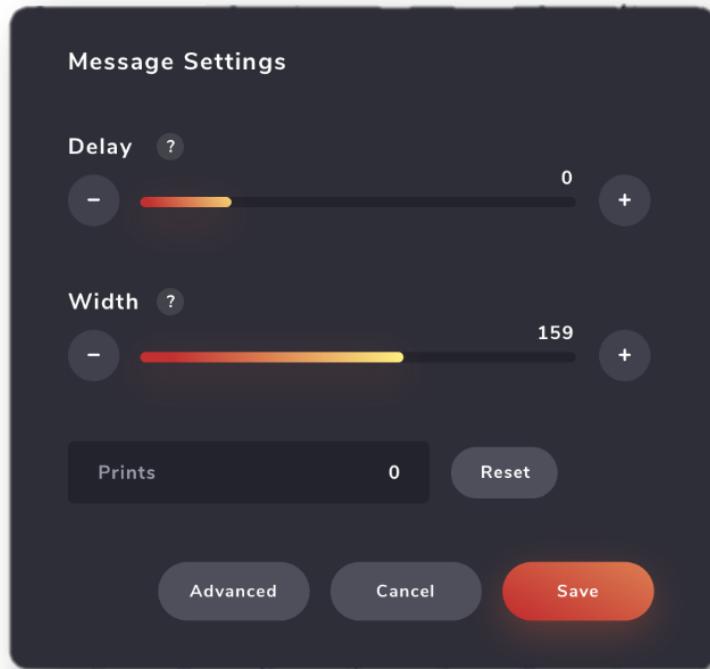
5 Message View Area

A representation of the message loaded in the printer. This is updated periodically as the printer prints. Dynamic information such as date/time/counters/barcodes show what the printer has printed. Editable dynamic elements can be adjusted by clicking on them.

6 Status Information

The status and name of the connected printer is shown in the area.

Message Settings



Delay and Width parameters can be adjusted in this screen using the sliders or directly on the printer. The initial settings will correspond with those on the printer. Any changes made on the printer will adjust the sliders automatically.

Delay This option is used to adjust the time between a product triggering the printer and the print being produced. If an encoder is fitted, the delay will be specified in mm. The delay can be changed from 0 to 99999.

Width This option is used to adjust the printed length of the message on the product. The width can be changed from 1-999%.

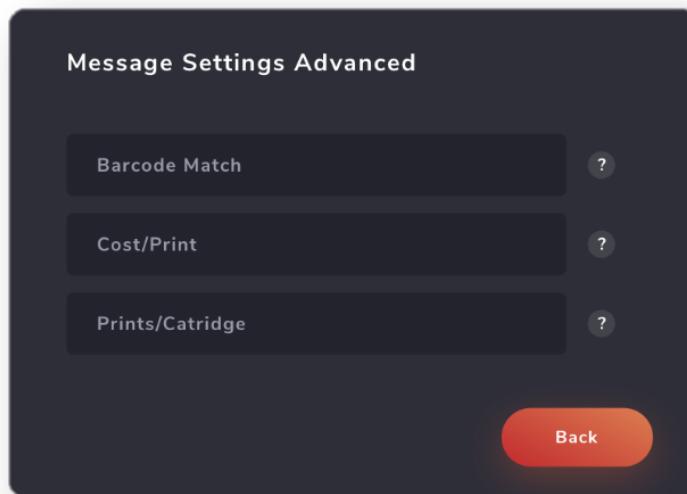
If printing has been turned on, the value can be tested immediately by moving product past the printer. The value can be quickly adjusted to stretch or shrink the message on the product.

The print count for this product can be reset back to zero. Press the **Reset** button. The print count is retrieved live from the printer. The new value will be displayed after a short delay.

Press **Save** to keep the delay/width settings.

Press **Cancel** to ignore any changes to the delay/width settings.

Message Settings - Advanced



This screen contains less common features.

- | | |
|------------------|--|
| Barcode Match | This option is for future expansion. |
| Cost/Print | This option displays the cost per print in the same currency units entered for the ink cartridge cost. |
| Prints/Cartridge | This option displays the number of prints expected from the standard cartridge. Note, this does not take into account ink consumption through purging. |

Press to go back to the Message Settings screen.

Error Messages

The printer is monitored for any errors during printing. There are five main errors that can occur:

Low Ink



The ink cartridge is running low. The number of prints remaining in the cartridge is determined by the message that is being printed. A number is provided (described below) that indicates how many prints have been made since the error occurred. The operator can use this for a particular message, to estimate the remaining prints.

Shutter Fault



This is due to a jammed or faulty motorised shutter (if fitted). Go to the printer keypad and press **||>** so the printer attempts to restart the shutter. This operation is performed at the printer so the operator can either spray the head or look to see if there is a physical fault.

Power Fault



This is due to a faulty accessory or wiring connected to the printer. These accessories include: external photocells, encoder and powered beacon. If a wiring or accessory fault causes a short circuit or increased current draw (> 0.5A), the printer will detect this and shut down the accessory power. Check the wiring and accessory and switch the printer off/on to restart.

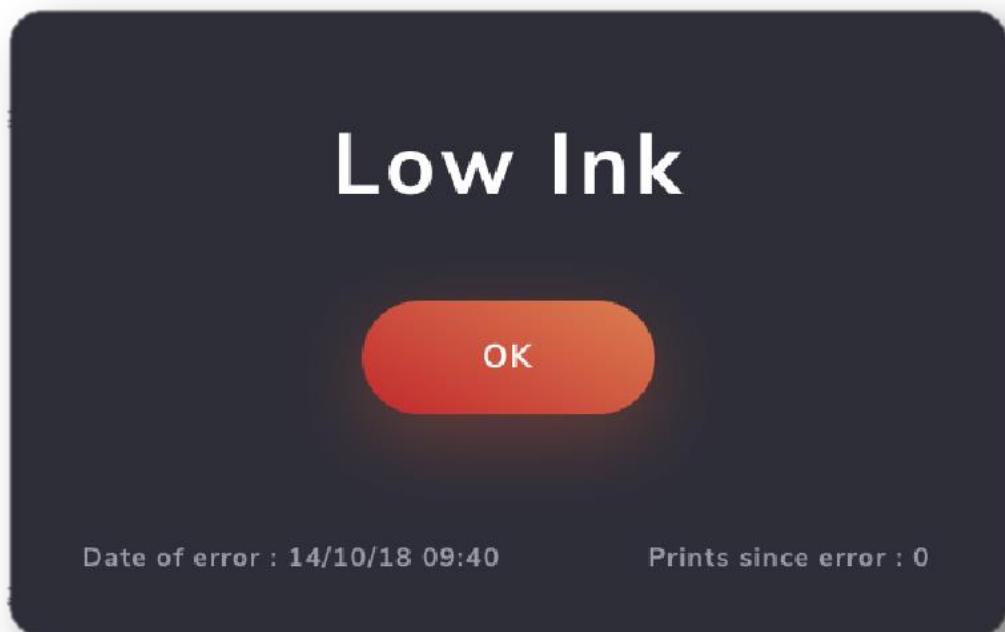
Communications Error

This is a system error and is produced if a problem with the communications has occurred e.g. a packet of data was corrupted during transfer. The printer will automatically attempt to clear them. There may be a pause of 5-10 seconds whilst communications is being re-established. If this happens regularly, check the cable connection.

Message Error

This indicates a feature of the message packet being sent to the printer is not compatible with the printer. This is often due to an incompatible software version. Confirm the software versions of the printer and pc/controller and upgrade as required.

Errors are displayed on the screen as they occur. An example is shown below:



- 1 The error message
- 2 Acknowledge button
- 3 The date and time the error occurred
- 4 The number of prints since the error occurred

When the **OK** button is pressed, the above screen is cleared but the error itself is not cancelled. It is merely an acknowledgment by the operator that the error has occurred and has been understood. The screen reverts back to the main View screen but a red balloon will toggle at the bottom right hand side of the screen.

The error type is displayed and also the number of prints since the error first occurred. Clicking on the balloon will bring up the main error window above.



Once the error is cleared on the printer, the balloon will automatically disappear after a few seconds.

Upgrade Using A PC

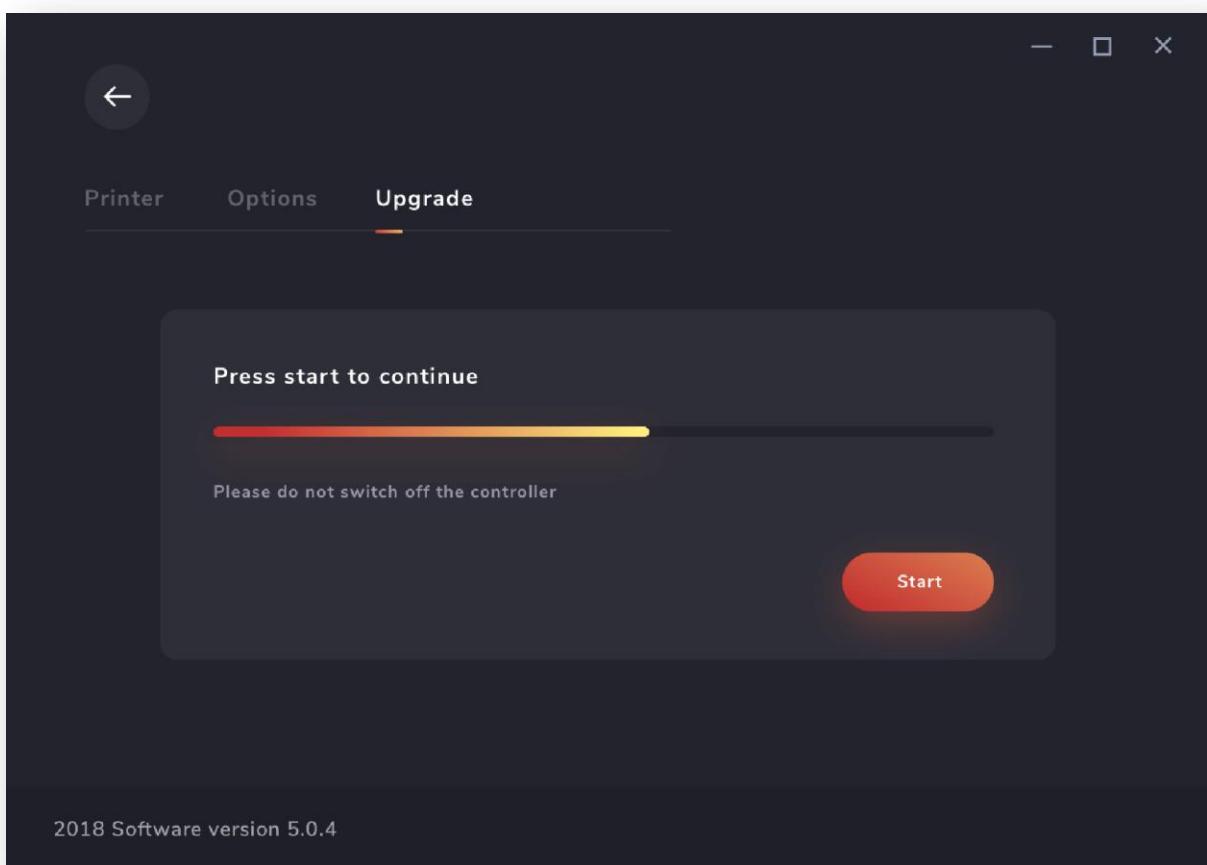


It is possible to upgrade the firmware in a printer directly from the PC.

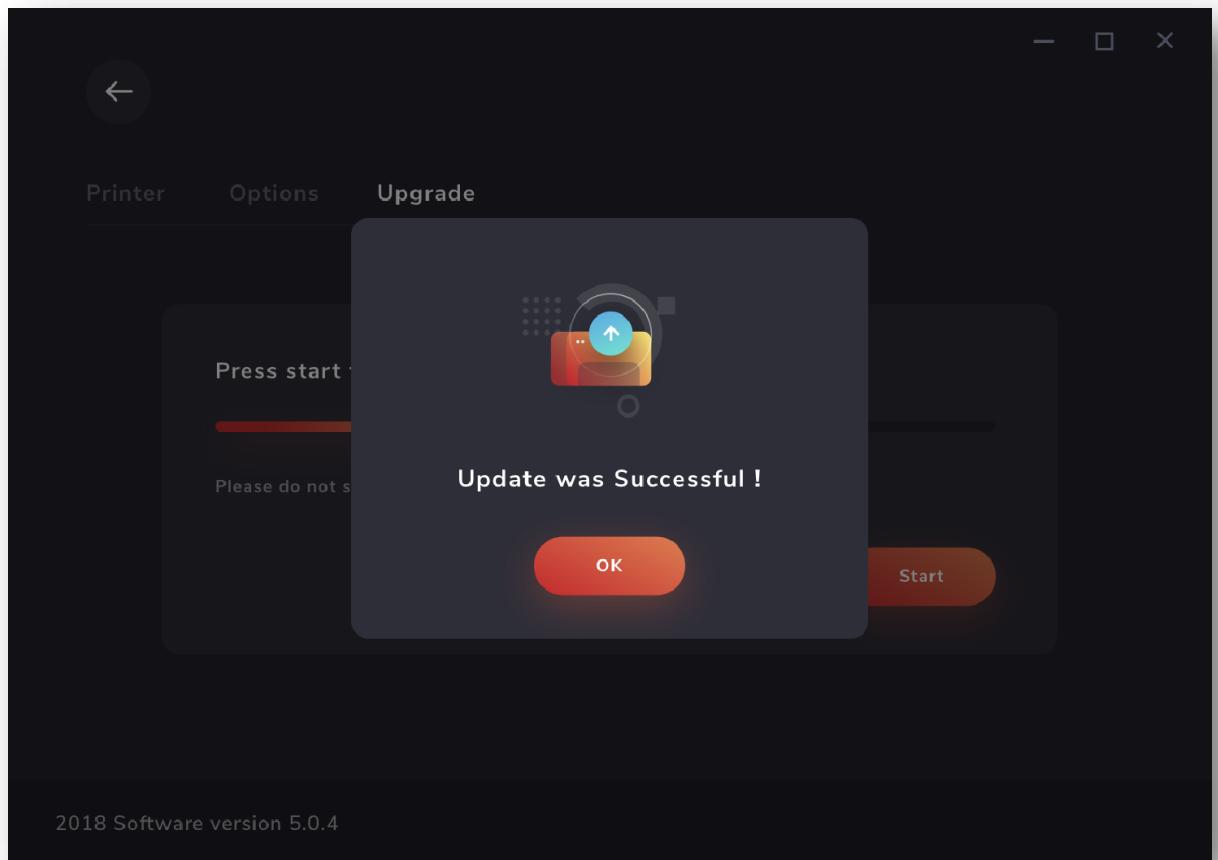
Connect a printer to the PC using the USB cable.

Copy the new printer firmware file e.g. 'FxOne R_v1.01.hex' to a USB stick. The application looks for the firmware file on the USB stick rather than on the hard disk.

When the printer has been located, click on the 'Upgrade' tab from within the 'Set Up Your Printer' option to display the following screen.



The PC will prepare the firmware file and begin to transmit it to the printer. The progress bar will show how far the upgrade process has proceeded. Once complete, the following message will be displayed.



Press to close the update result and then the button to return to the main screen.

The printer will automatically restart and the application will attempt to reconnect.

05.

APPENDIX

Appendix : Reset the printer

Soft reset

To clear the current message from the printer but keep all the settings, press and hold the Print On/Off  and Delay  buttons and switch on the power. After the screen displays the following, the keys can be released.

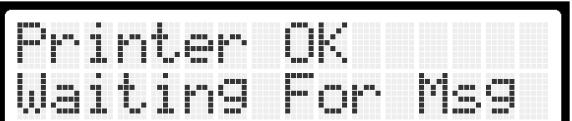


Printer OK
Waiting For Msg

After a soft reset, the test message will active as described in the Quick Start Guide.

Hard reset

To completely clear the printer of its current message, settings and reset back to defaults with the printer switched off, press and hold the Print On/Off  and Settings  buttons and switch on the power. After the screen displays the following, the keys can be released.



Printer OK
Waiting For Msg

After a hard reset, the test message will active as described in the Quick Start Guide however the auto shutter settings may need to be adjusted.

Appendix : Error messages

The printer can display a variety of error messages. The top line of the display indicates an error has occurred.

PRINTER ERROR

The bottom line indicates the nature of the error and is listed below:

Low Ink

The cartridge is running low on ink. The time before the remaining ink will be completely exhausted will depend on the type and number of messages being printed.

Shutter Fault

The shutter is jammed or non-functional. Press the  button to attempt to restart the shutter.

Power : 14V/24V/36V

A fault has been detected with one of the on board power supplies. Remove any accessories and restart the printer to see if that clears the fault. Otherwise, consult your distributor.

USB-No File

A USB stick has been inserted into the printer but does not contain a message file. Reinsert the stick back into the PC and reload the file.

USB-Too Much

A file on the USB stick contains too much data to be stored within the printer. This error is usually generated by a corrupted file. Reinsert the stick back into the PC and regenerate the file.

USB-Inval Check

The file on the USB stick is corrupted and has failed an internal checksum. Reinsert the stick back into the PC and regenerate the file.

USB-No STX

The header within the file on the USB stick is corrupted. Reinsert the stick back into the PC and regenerate the file.

USB_No ETX

The footer within the file on the USB stick is corrupted. Reinsert the stick back into the PC and regenerate the file.

USB-Inval Size

The size stored within the file on the USB stick does not match its actual size so the file is corrupted. Reinsert the stick back into the PC and regenerate the file.

USB-Inval Type

The type stored within the file on the USB stick is incorrect so the file is corrupted. Reinsert the stick back into the PC and regenerate the file.

LINK-Too Much

A transmitted packet contains too much data to be stored within the printer. Try sending the command from the PC again.

LINK-Inval Check

The transmitted packet is corrupted and has failed an internal checksum. Try sending the command from the PC again.

LINK-No STX

The header within the transmitted packet is corrupted. Try sending the command from the PC again.

LINK-No ETX

The footer within the transmitted packet is corrupted. Try sending the command from the PC again.

LINK-Inval Size

The size stored within the transmitted packet does not match its actual size so the packet is corrupted. Try sending the command from the PC again.

LINK-Inval Type

The type stored within the transmitted packet is incorrect so the packet is corrupted. Try sending the command from the PC again.

Invalid Date

The command to set the current date on the printer is corrupted. Try sending the command from the PC again.

Invalid Time

The command to set the current time on the printer is corrupted. Try sending the command from the PC again.

Invalid Spit

The command to set the spit value on the printer is corrupted. Try sending the command from the PC again.

Invalid Tickle

The command to set the tickle value on the printer is corrupted. Try sending the command from the PC again.

Invalid Params

The command to set the printer configuration is corrupted. Try sending the command from the PC again.

Invalid Backgnd

The background data component of the message packet is corrupted. Try sending the command from the PC again.

Invalid Dyn Els

The dynamic data component of the message packet is corrupted. Try sending the command from the PC again.

Too Many Fonts

There are too many fonts used for dynamic data in the current message. Reduce the number by sharing fonts and try sending the command from the PC again.

Invalid Symbol

The dynamic font data component of the message packet is corrupted. Try sending the command from the PC again.

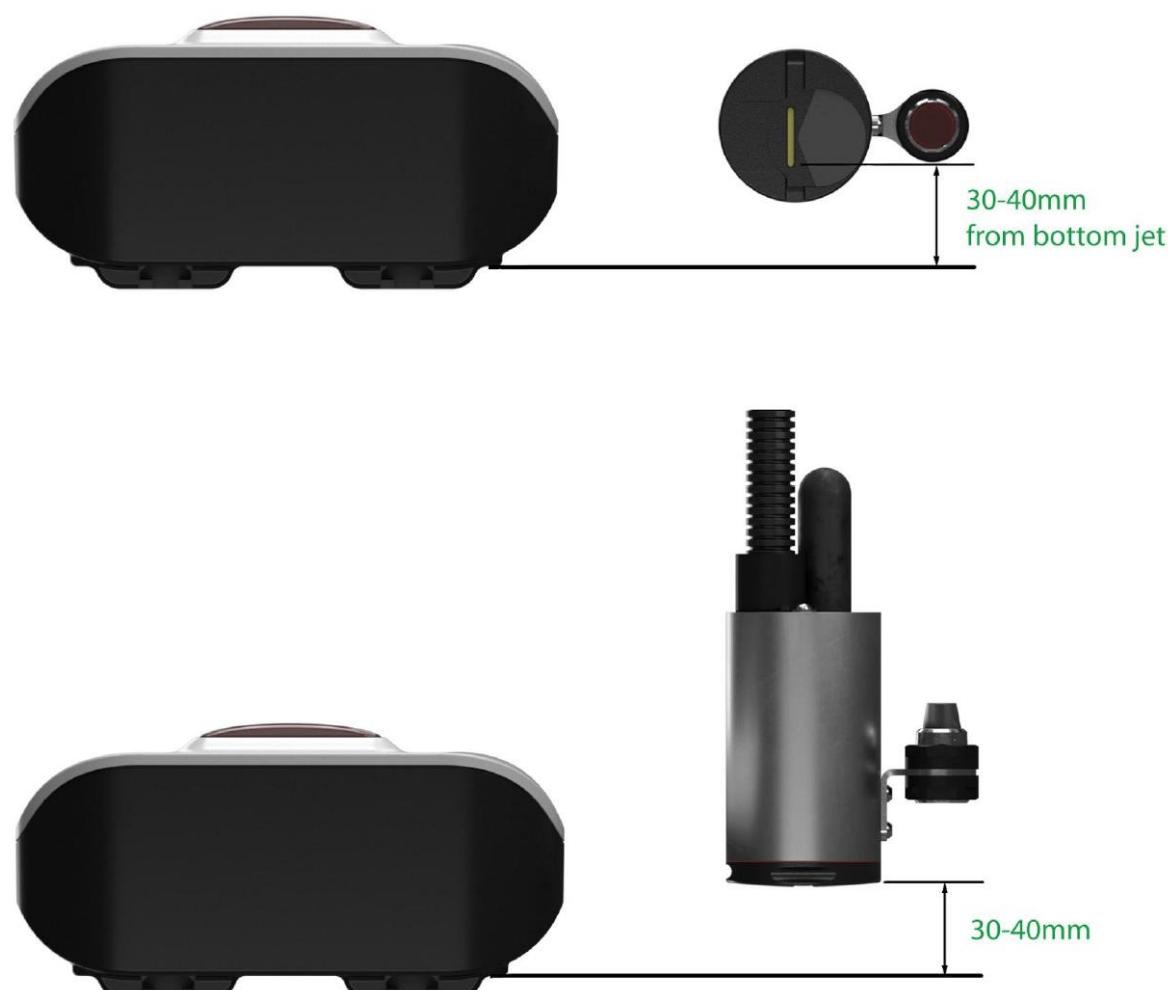
Appendix : Print head preparation for printing

The printer requires very little effort to maintain high quality printing.

Print Head To Cartridge Distance

When installing the FX ONE Remote, it is very important to match the height of the head to the height of the ink cartridge, as:

- If the print head is higher than the recommended distance, the head will starve of ink – this leads to lines dropping out of the print, normally at the top.
- If the head is lower than the recommended distance, the head will weep – ink will flow out of the head and can lead to lines dropping out of the print, normally at the bottom.



The difference in height between the lowest jet orifice and the base of the machine **must** be between 30mm and 50mm. Over 50mm will starve the head, less than 30mm will cause the machine to weep.

Initial Filling

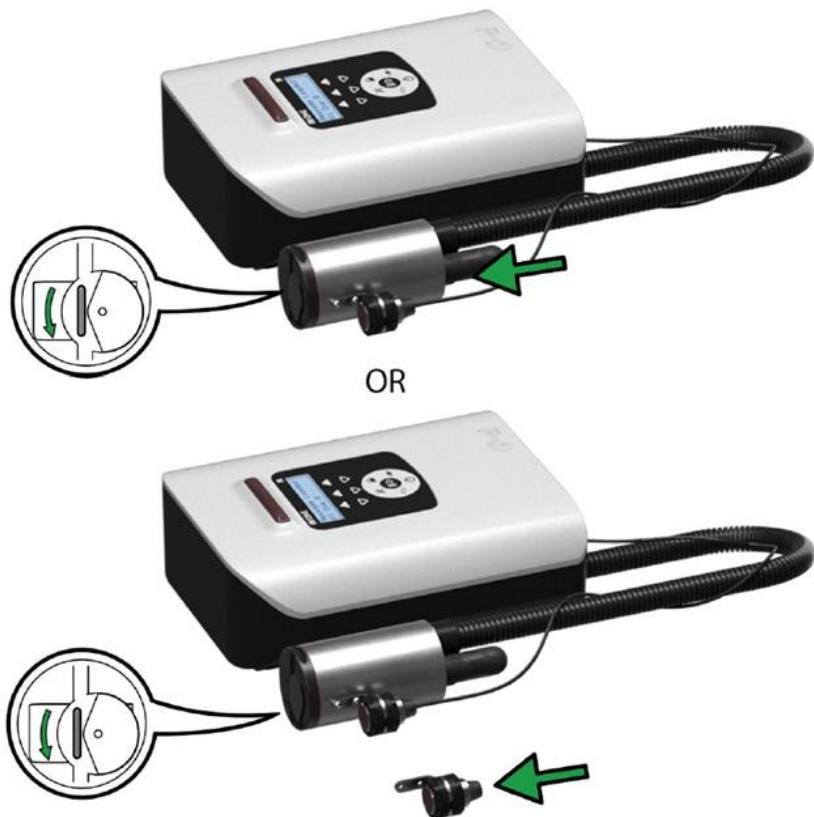
When the unit is shipped from the factory, it has been purged and tested with ink. To prevent ink weeping during transit, the cartridge penetration needle is plugged by a styrene block which hangs out of the back of the unit. Remove the plug from the machine.

The ink supply is contained in a convenient cartridge system which slots into the rear of the machine. To insert a new cartridge, orientate it so that the purge hole is downward with the label facing away from the machine and push it into the cartridge slot. There will be some resistance as the cartridge seal is penetrated but it should not be necessary to use force. If the cartridge is not fitting easily, check that the purge hole is downward as the locating lugs at the front of the cartridge will only fit into the machine when this is correct.



Purging

Purging is when you apply finger pressure to the ink cartridge to push ink through the filter, pipes and print head to prime or exhaust unwanted air or cleaner in the system prior to printer. This should be done when one or more of the ink jets is not ejecting ink or there is surface debris on the jet plate.



Place an absorbent tissue below the print head to collect any expelled fluid. Under the FX ONE Remote is a 25mm hole which leads to the purge plate on the cartridge. Open the shutter either manually or with the motorised shutter photocell, spray the jet plate with the correct cleaning solution, watch the print nozzles and press gently upwards on the purge plate. You will see ink or cleaner flow from the nozzles. Within the fluid will be very small air bubbles – keep pressing gently until no more air is coming through. Keep the tissue in position for a few seconds longer to collect all the residue.

Print Quality Degrades

If in the course of normal day to day printing the print quality degrades, spraying and purging the print head by pressing on purge plate through the hole underneath the printer by the cartridge can be used to restore the print quality. This will wash any debris off the front of the print head and expel small quantities of air which may have been ingested. Be sure to have a small piece of absorbent material to collect waste fluid.

Appendix : Changing ink cartridge

When the ink cartridge needs to be replaced, push down on the spring tab at the back of the printer and grab the back of the cartridge. Slide the cartridge out of the printer and dispose of accordingly.

To replace with a new cartridge, ensure the large hole in the centre of the cartridge is on the bottom with the label on the cartridge towards you. Push the cartridge firmly into the printer until the spring clip grips the cartridge completely.

Please note, the cartridge can only be inserted one way into the printer.

Note:

Never leave the printer without a cartridge installed as this may introduce contaminants to the ink system. Never insert fingers into the cartridge slot as there is a sharp spike inside which may cause injury.



WARNING : NEVER MIX DIFFERENT INK TYPES IN THE SAME PRINTER

Appendix : Settings button



This button accesses a range of options that are not commonly used. These options are listed below and can be cycled through by pressing the Settings button.

Message Selection (USB Stick Present Only)

This allows a new message to be selected from the 100 message store in the USB stick when it is connected to the printer. Use the up/down buttons (hundreds/tens/units) to scroll through the message slots until the desired message is found. Press the  button to select the new message or press the  button to move on.

This function is the same as  on more recent keypad versions.

Time

Allows the user to set the current time in the printer. The clock is in a 24 hour format with the hours and minutes being set using the keys.

The hours range from 00 to 23 and the minutes from 00 to 59. They can be set by increasing or decreasing to the correct value.

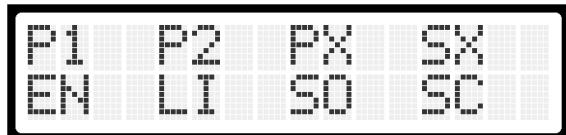
Date

Allows the user to set the current date in the printer. The date is in DD/MM/YY format with the days, months and years being set using the keys.

The days range from 01 to 31, months from 01 to 12 and the years from 00 to 99. They can be set by increasing or decreasing to the correct value.

Diagnostics

This screen allows the user to check various aspects of the printer. An example is shown below:



These items correspond to:

Item	Description	State Shown On Screen
P1	Not Applicable	Not Applicable
P2	Not Applicable	Not Applicable
PX	External print trigger	‘ ‘ Sensor clear ‘ *’ Sensor blocked
SX	Shutter trigger	‘ ‘ Sensor clear ‘ *’ Sensor blocked
EN	Encoder input	‘ ‘ Encoder input low ‘ *’ Encoder input high
LI	Low ink sensor	‘ ‘ Ink sensor closed ‘ *’ Ink sensor open
SO	Shutter Open Microswitch	‘ ‘ Switch open ‘ *’ Switch closed
SC	Shutter Closed Microswitch	‘ ‘ Switch open ‘ *’ Switch closed

The diagnostics can be used to confirm correct operation of the print trigger, that it is seeing the product to be printed and is not being confused by anything else on the conveyor or other influence.

The encoder can be rotated using the conveyor to confirm the pulses are being received by the printer.

The low ink sensor can be manually activated by removing the cartridge and lifting the spring contact.

Print Count

The total number of prints made by the printer.

Low Ink Count

The total number of low ink events that have occurred.

Orientation

This option determines whether the message is printed upside down or not. Use the up/down keys to toggle between 'Normal' and 'Inverted'.

Trigger

The printer has two product trigger modes available: one external available from the 15way connector on the back of the unit and a manual button trigger. The screen allows the internal or external type to be toggled using any of the up/down keys.

- | | |
|----------|---|
| External | The printer is compatible with 10-30V NPN sensors and also can respond to a zero volt contact. |
| Button | The printer will start a print cycle when the  button is pressed. If autoprint is enabled, the print will automatically restart until the button is pressed again. |

Encoder

An encoder is used to allow the printer to measure the speed of the conveyor. It provides a series of pulses that correspond to a fixed distance travelled. As the speed varies, for example stops and starts, the printer will automatically adjust the printing to ensure the result is not distorted.

The printer is designed to operate with the standard Foenix encoder. Use any of the up/down keys to toggle this option.

With the option set to 'Yes', the printer will begin to measure the conveyor speed and display the results as shown below.



Encoder : Yes
Speed : 25 m/min

The encoder can be plugged into the printer at any time.

Mount the encoder to the conveyor in a position that allows the encoder wheel to rotate as the conveyor belt moves.

Calibration

It is possible to use a different encoder system to the regular Foenix device. Ensure the device is electrically compatible with a 24V supply, NPN input.

The encoder can be calibrated by pressing the  button. Perform a test print using the encoder with a print message previously loaded e.g. a line of known length. Enter the length of the print sample in mm and press the  button. Measure the length of the line using a ruler and enter this in mm.

The printer will recalibrate to take account of the new encoder system.

Subsequent prints should be the correct length.

Auto Print

This feature allows the unit to repeat printing the message continuously as long as the print trigger is activated. It is ideal for web applications or continuous products such as extrusions. Use any of the up/down keys to toggle this option.

If set to No, every time the printer is idle and the trigger is activated, a new print is started.

If set to Yes, every time the printer finishes a print and the trigger is still activated, a new print is started.

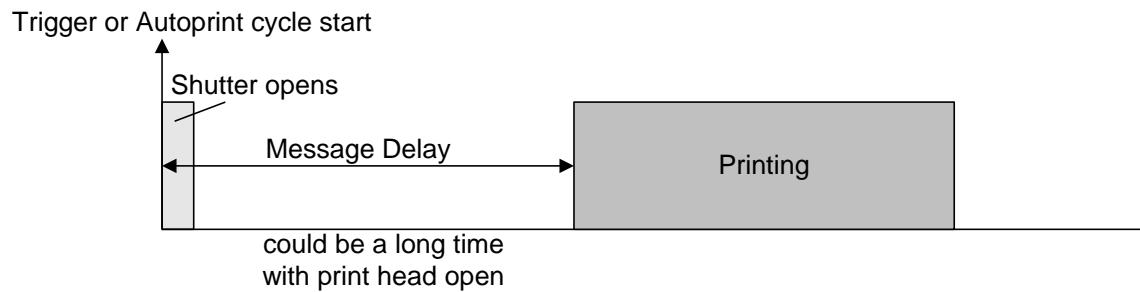
In both cases, any delay that is set is reused on each print.

Ink Saver

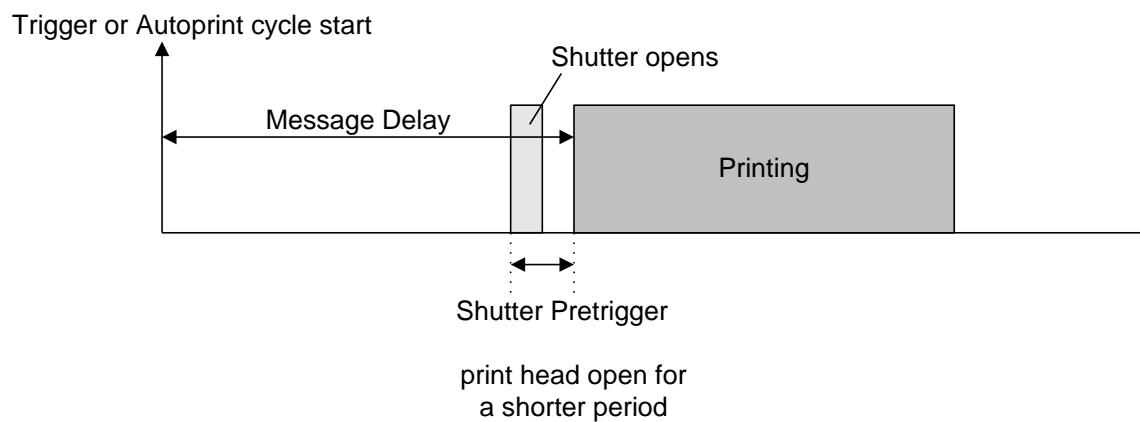
This feature alternates the print head nozzles that are used for printing. In this way, only up to half the jets are firing at any one time. This has the benefit of reducing the amount of ink that is put onto the product. As well as cost savings due to lower ink consumption, it also can have a benefit on products which require a slightly shorter dry time. The disadvantage of the feature is that the resulting print is lighter in appearance with lower contrast to the product background. Use any of the up/down keys to toggle this option.

Shutter Pretrigger

In normal operation, the motorised shutter opens immediately a print trigger is received or a new autoprint cycle is started. If there is a large delay in the message or the product is moving particularly slowly e.g. an extrusion, the shutter will be opened potentially for a long time before printing actually begins. The print quality may then suffer as a result.



This feature allows a time or distance (if using an encoder) *before* printing is due to start to be specified. At this point the shutter is then opened. For example with an encoder, a customer message has a delay of 350mm, the shutter pretrigger point could be 100mm for a particular conveyor speed. This means 100mm before printing is due to start, the shutter will open.

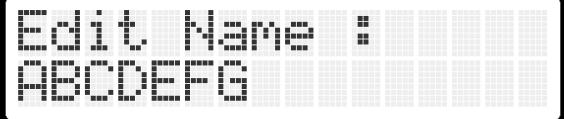


Note: It is the responsibility of the operator to ensure enough time is available for the shutter to fully open before printing begins. The operator needs to experiment with the settings to confirm the correct value taking into account the desired delay and conveyor speed.

If no delay is specified for the message or the pretrigger time is larger than the delay, the shutter will open as soon as the trigger is received or the autoprint cycle restarts.

Printer Name

It is possible to give the printer a name to associate it for example, with a particular process or production line. The printer name is primarily to be used for a future networking application and so has limited use with single printer applications.



Edit Name : ABCDEFG

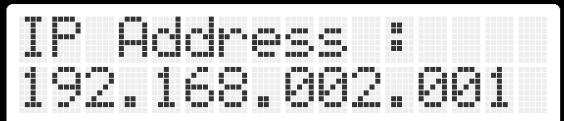
The printer name is displayed on the bottom line of the display along with a flashing cursor.

The cursor can be moved along the text and the symbol displayed can be changed to display 0-9, A-Z, a-z and keyboard symbols.

If a printer name has been entered, this will be shown the next time the printer is switched on.

IP Address (Ethernet Module Fitted)

With the optional Ethernet Module fitted, it is possible to change the IP Address of the unit. The currently assigned address is shown on the screen.

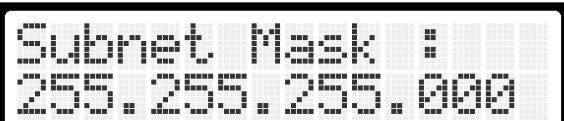


IP Address : 192.168.002.001

The first byte (e.g. 192) will flash. Use the up/down hundreds, tens and units keys to adjust the value. Press the  button to move to the next byte. Repeat until all the bytes have been adjusted.

Subnet Mask (Ethernet Module Fitted)

With the optional Ethernet Module fitted, it is possible to change the Subnet Mask of the unit. The currently assigned mask is shown on the screen.

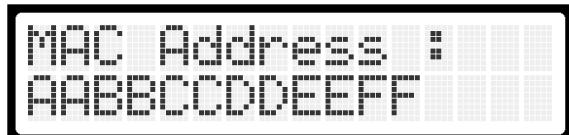


Subnet Mask : 255.255.255.000

The first byte (e.g. 255) will flash. Use the up/down hundreds, tens and units keys to adjust the value. Press the  button to move to the next byte. Repeat until all the bytes have been adjusted.

MAC Address (Ethernet Module Fitted)

With the optional Ethernet Module fitted, it is possible to view the MAC Address of the unit. The currently assigned mask is shown on the screen.



Language

The current language used for the display and also for printing can be changed to: English, German, Portuguese, Spanish, French, Italian, Arabic(*), Chinese(*), Farsi(*), Greek(*), Hebrew(*), Japanese(*), Dutch, Polish, Russian, Korean(*), Turkish.

The language setting is shared with the PC application or Touch Controller. Some languages are not able to be shown correctly on the built in display. Languages marked with an * will revert to display and print dynamic text in English.

RS485 Network

Select this option if the printer is to be connected to an RS485 network. This enables the token system that is needed to allow multiple printers to communicate with a single PC or Touch Controller.

Relay Use

In 'Normal' mode, the alarm relay is activated whenever an alarm condition has occurred. However by changing to 'Show Off/Online', the relay is used to indicate the printer is online and ready to print. For this to occur all the following has to be true: a message has to be loaded, no printer errors, printing turned on. In this case, the relay is energised.

Default Print On

In 'Disabled' mode printing is turned off after a message load from USB stick, PC or Touch controller or when the printer is first switched on. In 'Enabled' mode printing is turned on as default.

Appendix : Input/output 15 way port

The printer has a connector located on the back of the unit that allows for external devices to be connected. These are:

External print trigger

This input allows a 3rd party external sensor to be used to trigger product printing. The input can be triggered either via NPN, open collector, or zero volt contact. 24V power can be supplied by the printer.

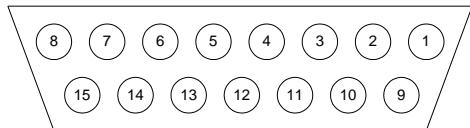
Encoder

A single channel encoder can be connected that allows the printer to measure the speed of the conveyor to maintain correct printing. 24V power can be supplied by the printer.

Beacon alarm output

A relay is provided within the printer that can be used to switch a visual or audible beacon directly or can provide a zero volt signal to a controller.

The pin out is shown below:



Pin	Function
1	24V
2	Print Trigger
3	RS485 A
4	GND
5	PRINT
6	n/c
7	Shutter Trigger
8	24V TOUCH
9	Relay : Normally Open
10	Relay : Normally Closed
11	RS485 B
12	Relay : Common
13	Encoder
14	RS232 RX
15	RS232 TX

Appendix : Short and long term shutdown of printer

Introduction

As soon as you are not using the printer, the ink will start drying at the front of the print head. Initially, the dried ink at the very front of the print head will form a protective crust. This crust will protect the ink that is still inside the print head from drying immediately. However, this crust will gradually grow with time and the ink that is deeper inside the print head will also start drying. This has to be avoided because recovery of the print head becomes more difficult if more ink has dried inside the print head.

The time that it takes for the ink to dry depends on environmental conditions such as temperature, humidity, ventilation and the way the printer is stored.

Storage

At shutdown the ink does not have to be removed from the printer for overnight storage. In gentle environmental conditions, the printer can be left for several days with ink inside.

If you decide to store the printer you should follow the recommended storage procedure as described here:

- replace the ink solvent cartridge with a **solvent cleaner cartridge FX8208**
- open the shutter
- with the cleaner cartridge still inserted, let the printer drain of the ink by positioning the print head lower than the cartridge
- the ink will gradually be replaced by the solvent cleaner
- when all ink has been drained and only clear fluid leaves the print head, replace the cleaner cartridge with the **storage fluid FX8210**
- purge the printer until the storage fluid flows from the print head
- bring the print head back to the normal level
- close the shutter
- with the storage fluid cartridge still inserted, place the printer in storage away from extreme temperature
- make sure that the print head remains 30 – 50mm above the level of the cartridge so no storage fluid can leak from the print head

Putting the printer back to use

- replace the storage fluid cartridge with a **solvent cleaner cartridge FX8208**
- open the shutter
- with the cleaner cartridge still inserted, let the printer drain of the storage fluid by positioning the print head lower than the cartridge
- the storage fluid will gradually be replaced by the solvent cleaner
- when all storage fluid has been drained and only clear fluid leaves the print head, replace the cleaner cartridge with the solvent ink cartridge
- purge the printer until the ink flows from the print head
- bring the print head back to the normal level

Appendix : Preparation before shipping printer

When transporting the FX ONE Remote the above procedure for storage should be followed. In addition the print head should now be sealed using the black plastic protection cap (p/n 156) and the ink cartridge replaced with the cardboard/polystyrene sealer.

Appendix : Networking

What can networking do?

The FX ONE series of printers can be networked together and back to a PC or touch controller for monitoring and control. All the functionality of the regular FX APP is available except that the operator can do the same on more than one printer:

- Edit/create content for a printer
- Download content to a printer
- View/edit printer settings
- Monitor printer status
- View currently selected message on a printer
- Remote control a printer



Connection types

There are three methods of networking multiple FX ONE series printers to a PC or touch controller: USB, RS485 and Ethernet.

USB

This method uses USB 'A to B' cables connected together using a USB hub.



This uses readily available cables and hub devices. Many customers may have used the USB A to B cable option already so they can reuse these cables. There is no configuration required – just plug in.

RS485

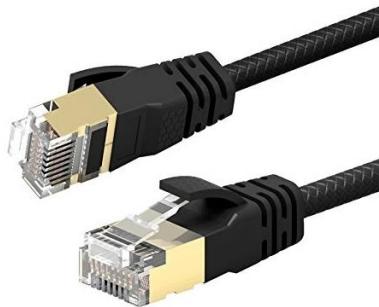
This method uses cables either supplied by Foenix Coding on request, or can be made by the customer. They have the advantage to create a very cheap network with low cost wiring and connectors. RS485 is also a robust method of networking in a factory environment.

RS485 is available directly on the printers and touch controllers at no additional cost. For PC connection, Foenix Coding can supply a suitable converter.



Ethernet

This is a familiar networking type. Standard cables are readily available and are robust for industrial applications. Many factories now provide RJ45 ports alongside power outlets for factory equipment. These ports are connected to a site network to allow remote control and monitoring.



The Foenix Touch Controller has Ethernet as standard. The FX ONE series of printer require an optional Ethernet module to be supplied by Foenix Coding.



An extension to wired Ethernet is wireless (WiFi). Foenix Coding do not directly support WiFi however the customer can use a Wireless Bridge to provide the link between the network and physical RJ45 socket for the printer.

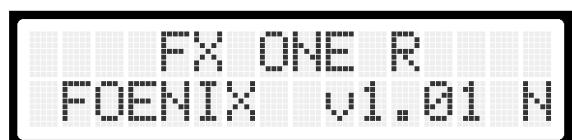
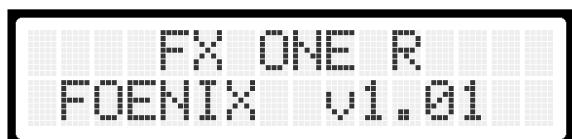
Printer requirements

The networked versions of FX APP will continue to work with any version of FX ONE series printer running version 1.01 and above firmware.

To use the network capability, the printer needs to be networked enabled. This network option needs to be specified at the time of ordering.

A user can check if a printer is network enabled when the power is switched on. The startup screen which displays the printer model and firmware will display an 'N' symbol indicating Network enabled.

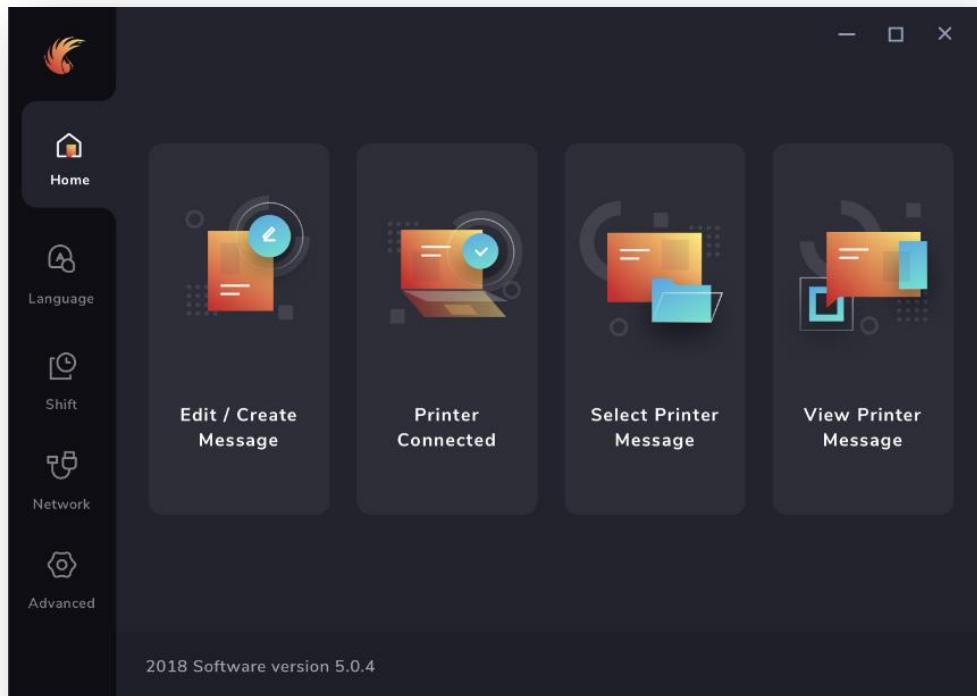
For example:



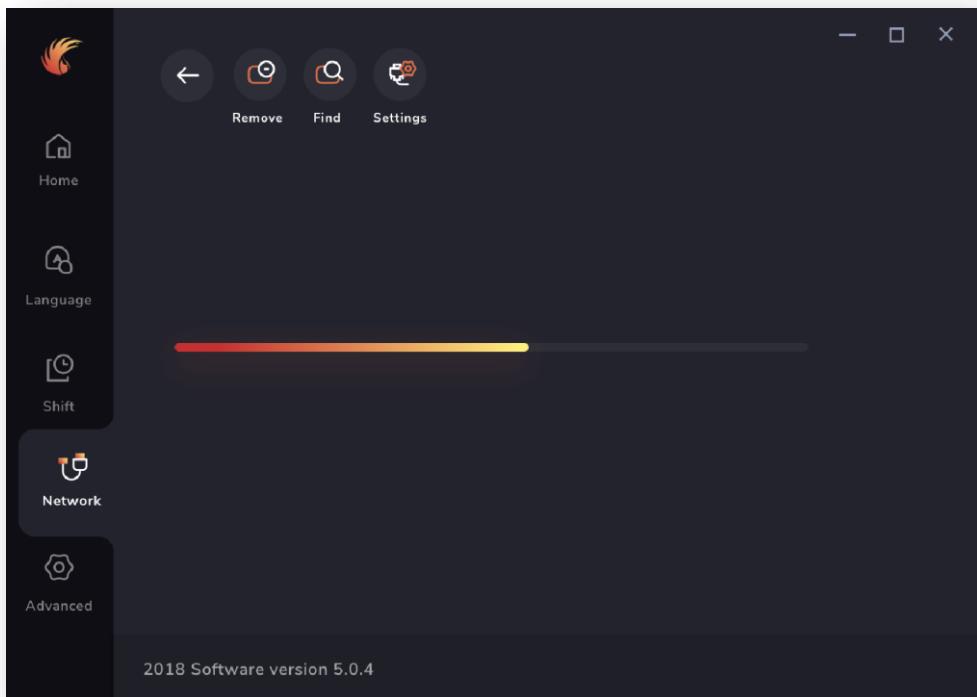
In addition, if Ethernet connectivity is required, an optional Ethernet module from Foenix Coding needs to be fitted to the printer.

Principle of operation

The networking screens are contained within the 'Network' tab.



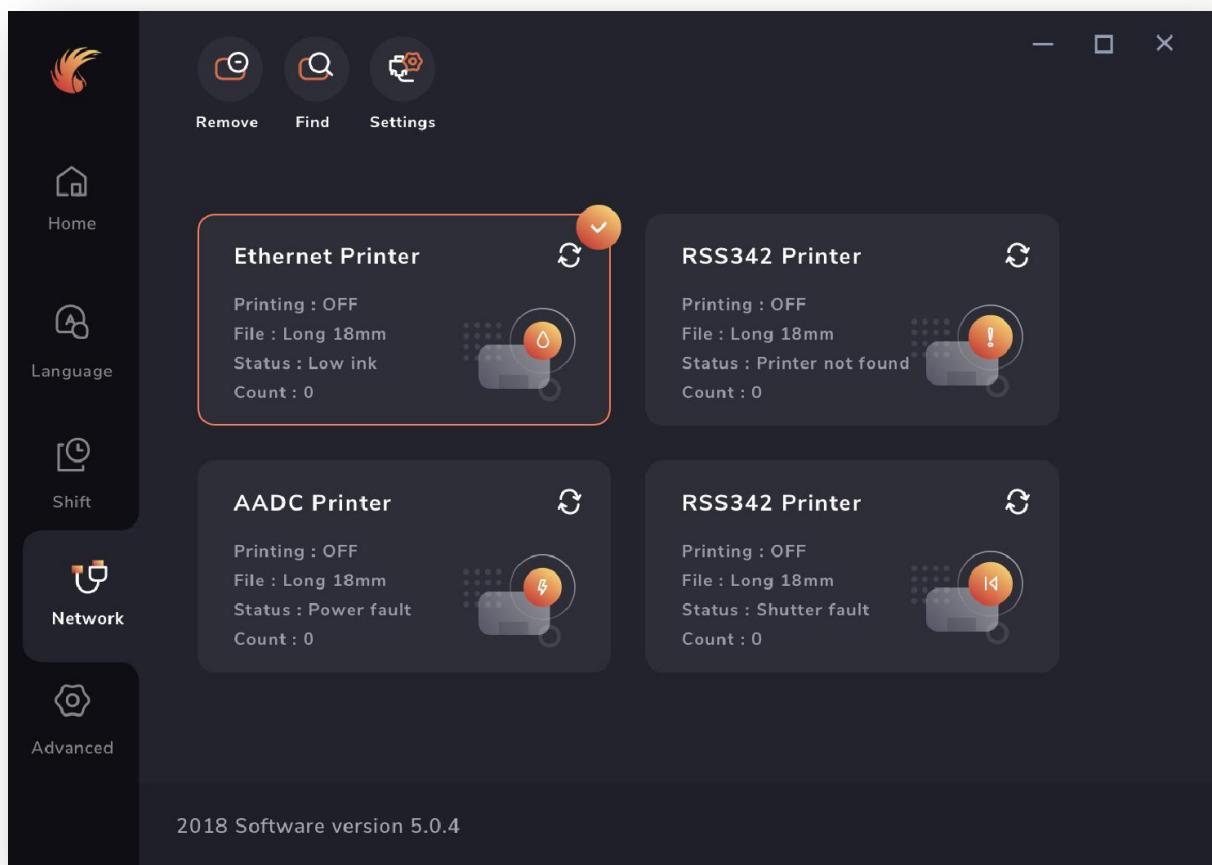
Pressing this tab goes to the main network screen.



A list of printers configured for the network is shown in the main area. From here it is possible to select a printer in order to connect to it and control further. Printers in this list are polled on a regular basis and for each: shows the printer name, printer status, message name, print count and any errors.

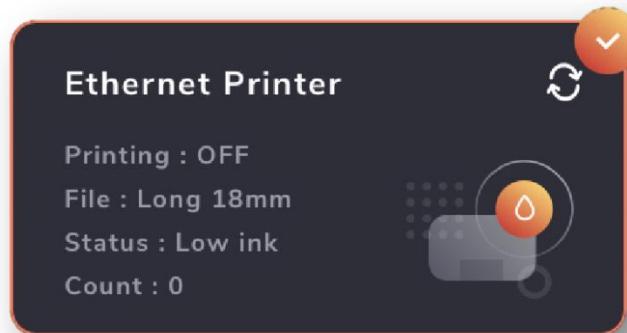
In addition, there are controls that allow the network to be configured. This configuration process is described later for each connection method.

An example network is shown below:



There are 4 printers connected. In this screen, all the printers on the network are polled. A small icon indicates the printer is currently being polled.

Each printer is represented by an icon. The details within this icon are shown below:



Name	up to 16 character name e.g. 'Ethernet Printer'
Printing	OFF – printing disabled, ON – printing enabled
File	up to 16 character message name e.g. 'long 18mm'
Status	error status or OK if no errors
Count	the number of prints for this message

Any errors with the printer are indicated with an overlay icon:



Printer Not Found



Low Ink



Shutter Fault

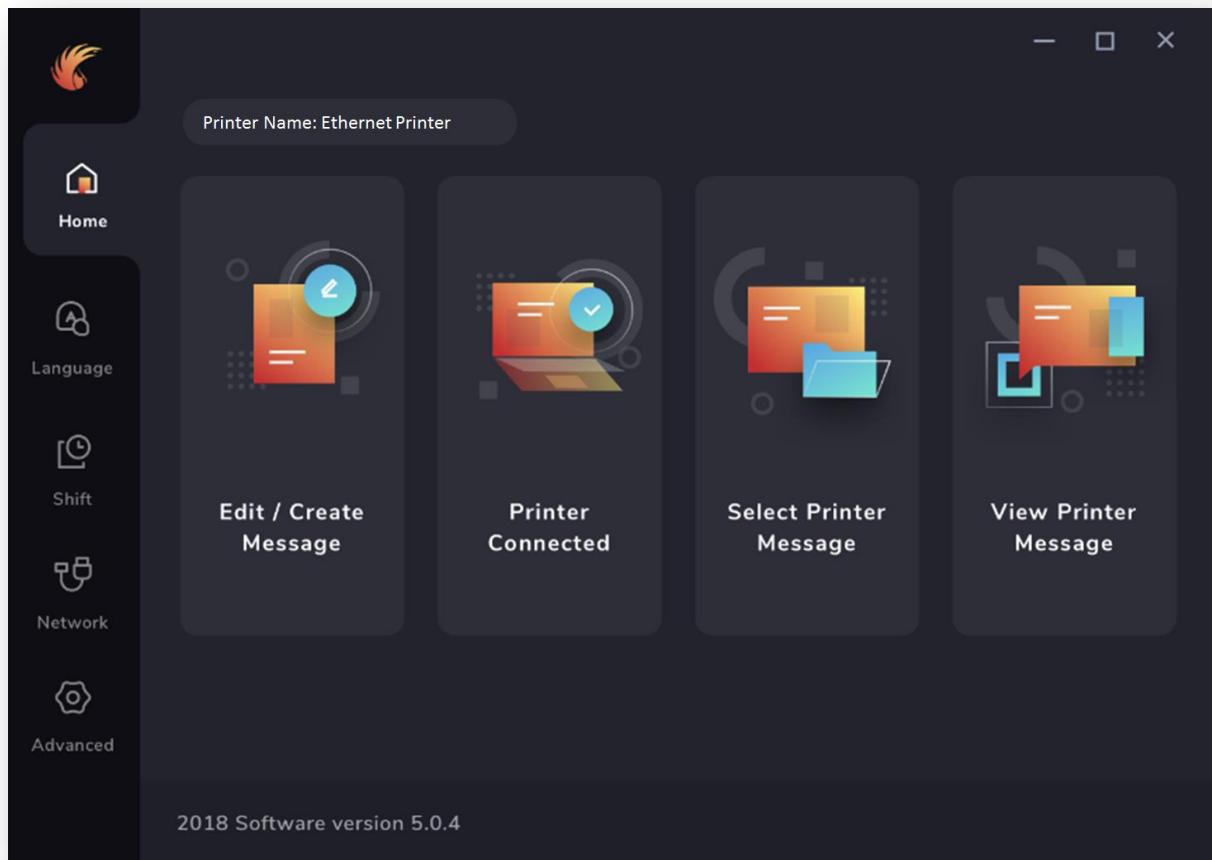


Power Fault

Please refer to the printer manual for further details on these errors.

The printer called 'Ethernet Printer' is the currently selected printer. This is shown by the gold outline.

When the HOME  is pressed, FX APP will automatically connect to the selected printer. The name of the selected printer is shown on the HOME page.



The standard printer functions are available for that printer in the same way as before for the single printer case.

- Edit or create a message
- Configure a connected printer
- Select a message for printing on a connected printer
- View the message currently printing on a connected printer

Changing the currently selected printer

From the Home screen, press the 'Network' tab.

A list of connected printers is displayed:

Click on the new printer to use e.g. 'RS485 Printer 1'. This new selection is shown by the orange outline.

Press the HOME tab to return to the main screen.

FX APP will automatically connect to the selected printer and the name of the selected printer is shown on the HOME page.

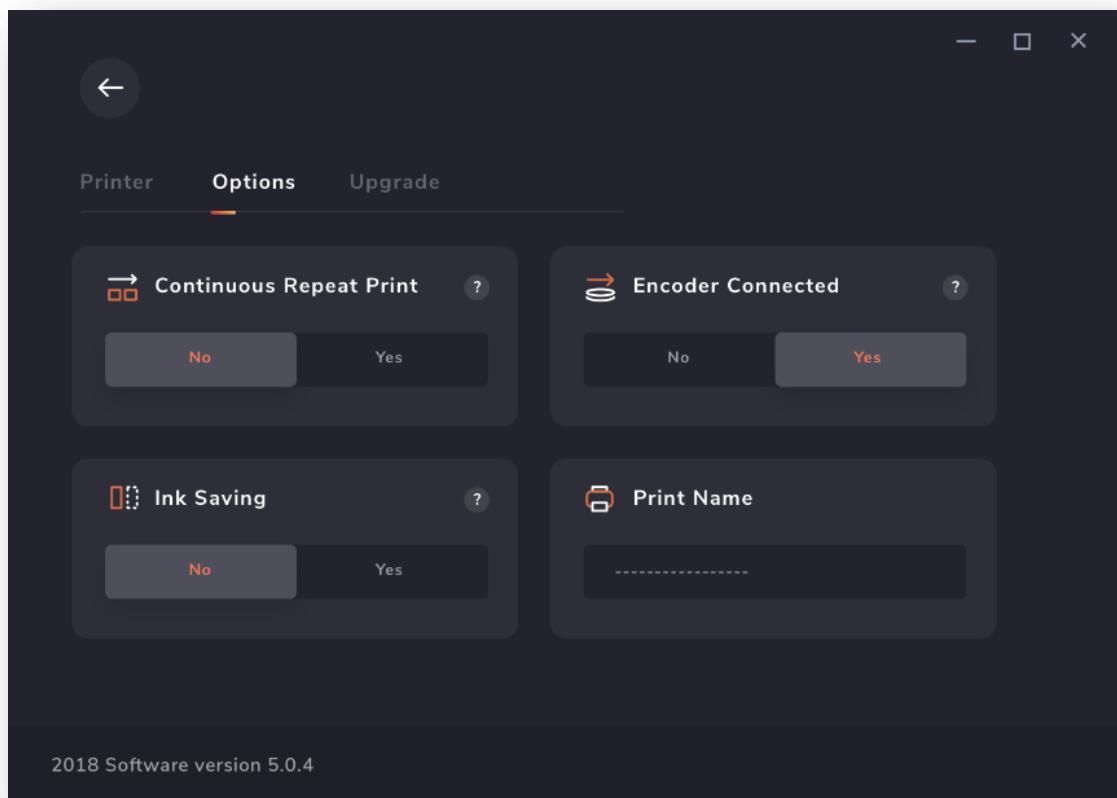
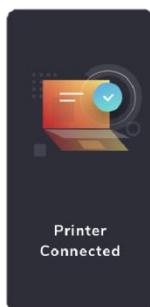
Naming a printer

It is important to give a printer a unique 16 character name before adding it to a network. This is to prevent confusion with multiple printers and (in particular with RS485 connection method) used to determine the printer being accessed.

There are two choices for naming a printer; from FX APP and directly on the printer.

USB cable direct / network connection

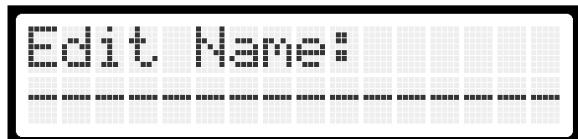
A printer can be named after it has been added to an RS485/Ethernet network or directly using a USB 'A to B' cable. The printer will be detected and FX APP will connect to it. From the Home screen select set up your printer:



Type the new Printer Name in the text box and press the arrow  button to send the settings to the printer and go back to the home page.

On the printer

Press the settings  button repeatedly until the following is displayed.



The printer name is displayed on the bottom line of the display along with a flashing cursor. The cursor position and current symbol is adjusted with:

Hundreds Up	Move cursor right
Hundreds Down	Move cursor left
Tens Up	Next character 0-9, A-Z, a-z and keyboard symbols
Tens Down	Previous character 0-9, A-Z, a-z and keyboard symbols

If a printer name has been entered, this will be shown the next time the printer is switched on.

Creating a network - USB

Ensure before new printers are added to a network, they have unique names. Please refer to the previous section for more details.

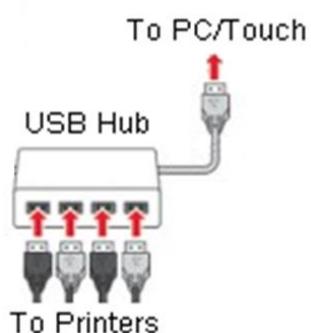
Connection

In a similar way as connecting a printer directly to a PC, connect the USB-A connector to the USB hub and the USB-B connector to the printer.



Repeat for the other printers.

Plug the hub into the PC and connect the power supplies for the printers.



The PC will automatically detect the USB devices.

Creating a Network



To add the 'network enabled' printers to a network select the 'Network' tab and press the Search button

The USB printers will be displayed automatically.



To add them to the network, select each printer and click the Add button:



The printer icon will display a small tick to show it has been added to the network.



Repeat for all the printers to be added to the network then press the following to exit network configuration.

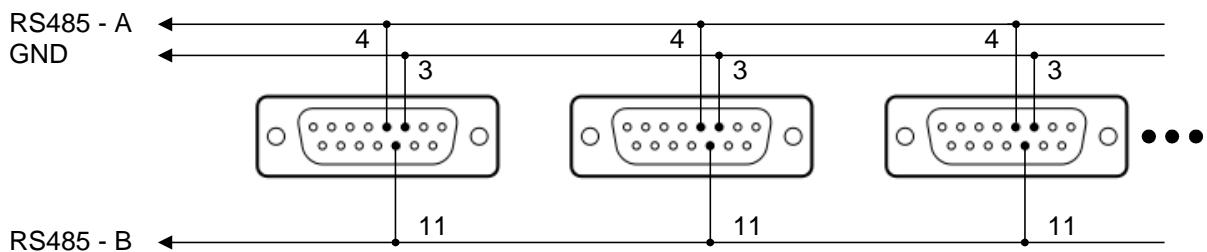
Polling of printers will automatically start. An individual printer can be selected for further use.

Creating a network – RS485

RS485 is an extremely cost effective and robust means of creating a network. It is available as standard on every FX ONE series printer and Touch Controller.

Connection

Cabling is very straightforward – 3 core shielded cable can be used in conjunction with 15 way male D Type connectors.



If the user chooses to make their own cables, it is possible to still use encoders or external photocell triggers wired into the same D Type connector.

RS485 is not available on a PC as standard however Foenix Coding can supply a USB to RS485 converter. This can be specified at the time of ordering with:

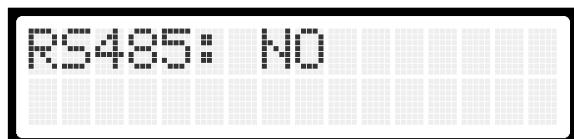
- Length of cable from PC to first connector
- Number of connectors
- Length of cable between connectors
- Any other signals (external photocells, alarm signals or encoders) to be wired

It is necessary to tell the network ready printer that it will form part of an RS485 network. This is a one-off process.

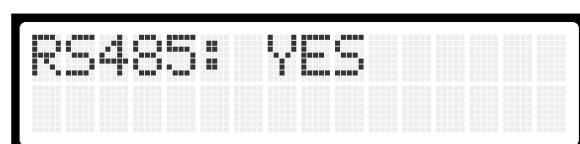
Printer Configuration

Perform a hard reset by pressing and hold the Print On/Off ||> and Settings ✎ buttons and switch on the power. The printer will restart and attempt to search for an Ethernet adaptor. If none is found, the printer will store this result and will allow the RS485 network to be selectable.

After the printer has started, press the ✎ repeatedly until the following is displayed:



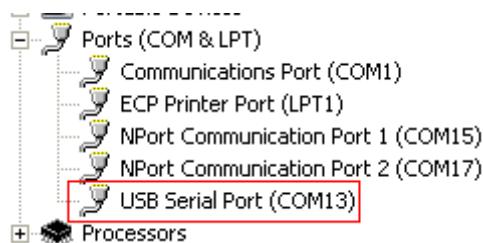
Use any up/down key to toggle the selection.



Wait several seconds to allow the printer to go back to the main screen.

Plug the cable into the printers and the PC/Touch controller. On the PC, this will automatically detect and install the USB driver. As part of the installation process, a COM port will be generated – make a note of this number.

If the number is missed, it can be obtained from Device Manager under Ports. For example, the following has an RS485 device installed on COM 13:



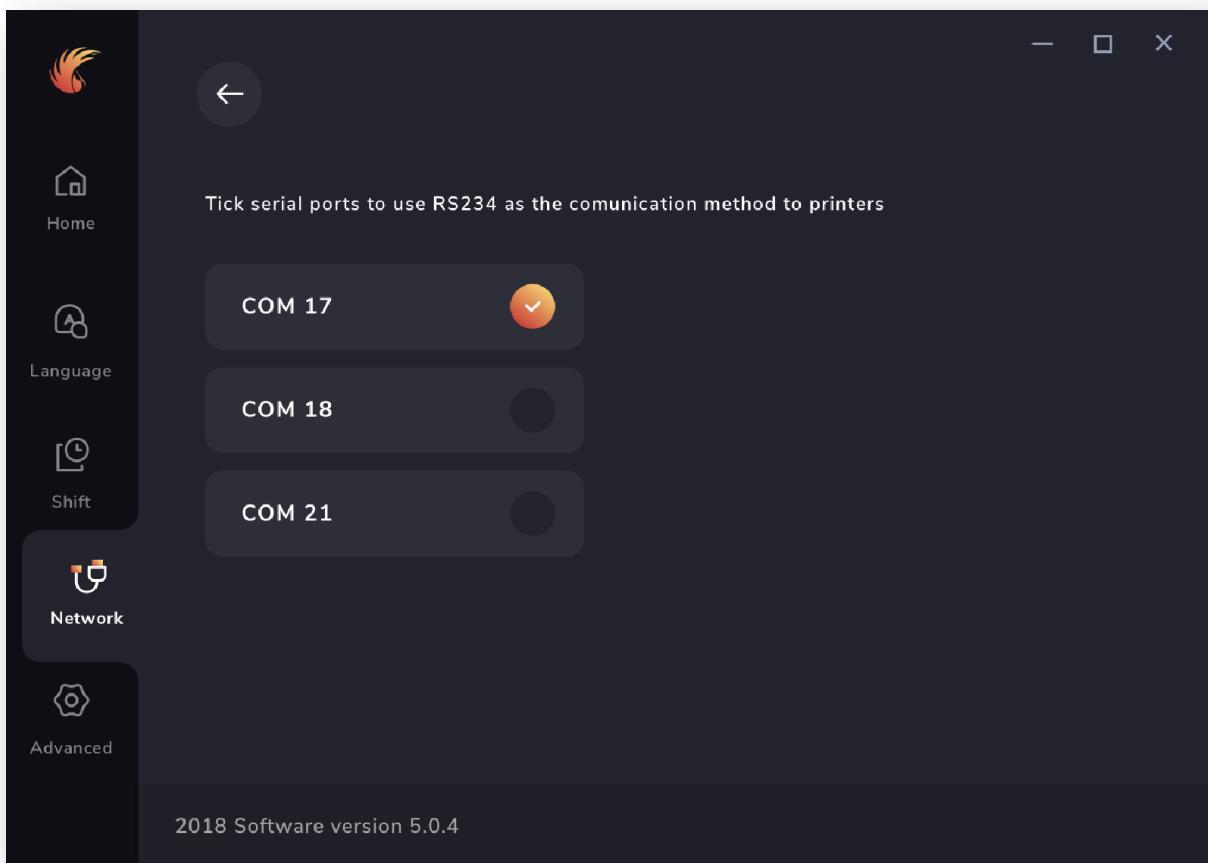
RS485 uses a Token scheme. This means that printers that share the same network need to be told when they start communicating with the PC/Touch controller. FX APP needs to be configured to enable this scheme for the RS485 port (in the example above COM13).

Configuring FX APP



From the 'Network' tab, click the port configuration button:

A list of COM ports will be shown. Tick the port that matches the RS485 device (in this example COM17).

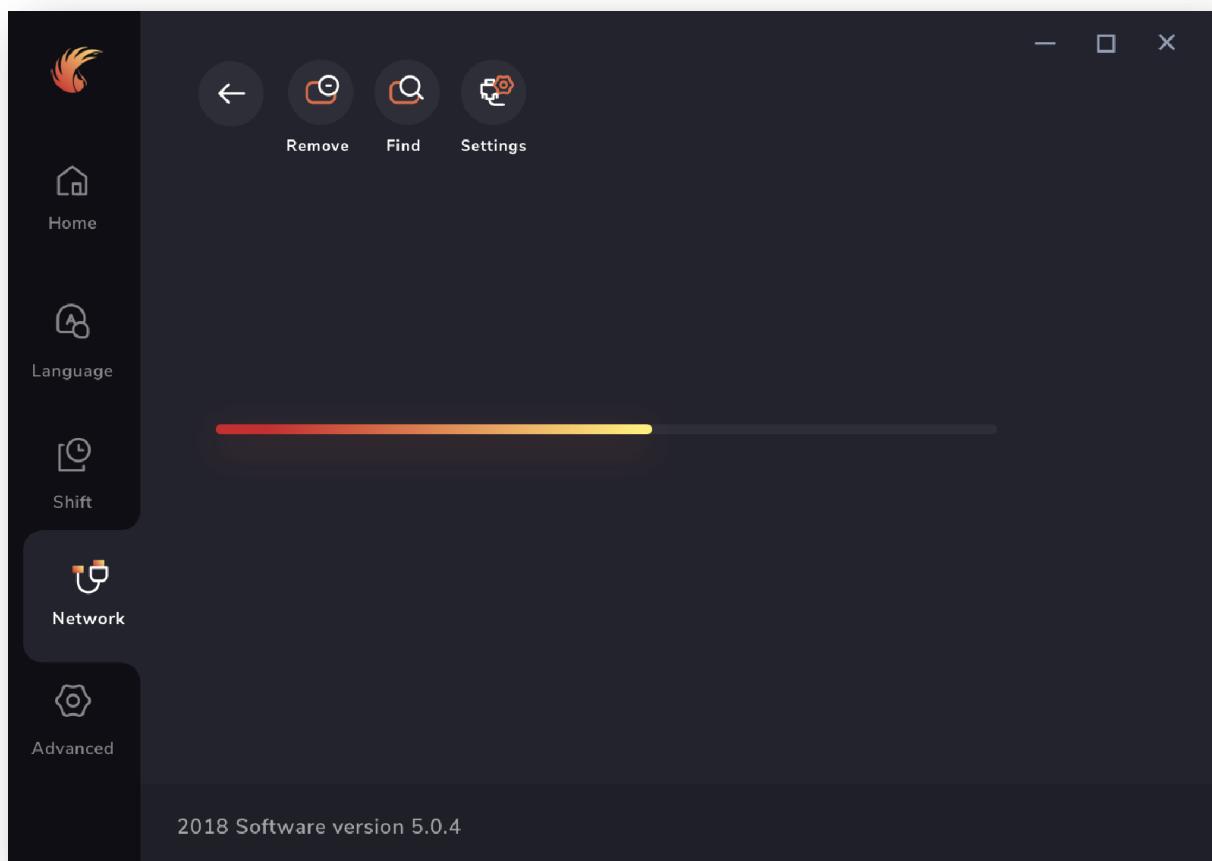


Creating a Network



To add the 'network enabled' printers to a network, go back to the Network page by pressing the printer button and press the Search button again.

FX APP will begin a broadcast and discovery process. This progress will be shown on the screen:



A list of identified printers will be found. To add them to the network, select each printer and click the Add button:



The printer icon will display a small tick to show it has been added to the network.



Repeat for all the printers to be added to the network then press the following to exit network configuration.

Polling of printers will automatically start. An individual printer can be selected for further use.

Creating a network – Ethernet

Ethernet is a very popular method of connecting devices in a network. It is robust, cables and switches are widely available. For full factory networked installations, it provides a very convenient way of interfacing production and office equipment.

Foenix Coding do not support wireless (WiFi) networks. However the printers can be connected to such a network using a customer supplied wireless bridge.

The FX ONE series of printers do not have Ethernet available as standard. It is an optional module that is fitted inside the printer. If the module is installed by Foenix Coding, it is preconfigured to a fixed IP address:

IP Address	192.168.0.100
Subnet Mask	255.255.255.0

These values can be changed on the prior to connecting to a network.

Connection

The printers can be connected to an Ethernet cable using standard Cat 5 (or above cables). Cable lengths between individual powered Ethernet devices need to be observed (maximum 100 metres). One cable is used for each printer to connect to a hub or switch. From this device, other printers are connected to the main network.

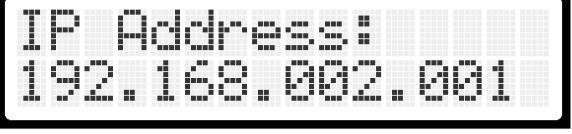
Printer Configuration

It is necessary to tell the network ready printer that it will form part of an Ethernet network. This is a one-off process.

Perform a hard reset by pressing and hold the Print On/Off  and Settings  buttons and switch on the power. The printer will restart and attempt to search for an Ethernet adaptor. If one is found, the printer will store this result and will allow the IP Address and Subnet Mask to be displayed and edited. In addition, the MAC address can be viewed.

With an Ethernet adaptor fitted, the printer takes an additional 15 seconds to start.

It is possible to change the IP Address of the unit. After the printer has started, press the  repeatedly until the following or similar is displayed:



IP Address:
192.168.002.001

The first byte (e.g. 192) will flash. Use the up/down hundreds, tens and units keys to adjust the value. Press the  button to move to the next byte. Repeat until all the bytes have been adjusted to move on to the Subnet Mask.

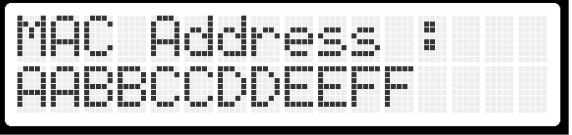
The currently assigned mask is shown on the screen, for example:



Subnet Mask :
255.255.255.000

The first byte (e.g. 255) will flash. Use the up/down hundreds, tens and units keys to adjust the value. Press the  button to move to the next byte. Repeat until all the bytes have been adjusted to move on to the MAC address.

The currently assigned MAC address is shown on the screen, for example:



MAC Address :
AABBCCDDEEFF

Wait several seconds to allow the printer to go back to the main screen.

Ethernet Driver Configuration

Ensure the printer is connected to the network and is switched on.

A driver needs to be installed to allow FX APP to use each Ethernet device. This driver is supplied by Foenix Coding along with a configuration tool.

Double click 'Ethernet Driver.exe' and follow the instructions to install the driver. Accept all the default settings.



Once installed, double click the driver configuration icon

The following needs to be done for each printer added using Ethernet.



The NPort Windows Driver Manager will appear. Click on **Add**.

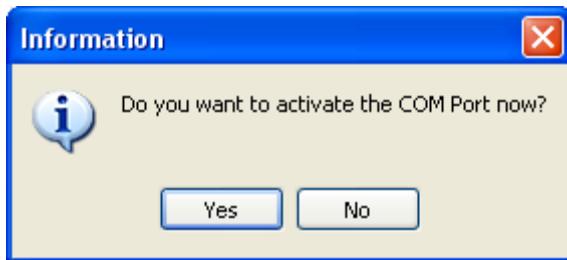
Click on **Search** to locate the Ethernet module. After 5 seconds, a results page similar to that below is shown:

The screenshot shows the 'Select From List' dialog box of the NPort Windows Driver Manager. It has two main sections: 'Select From List' and 'Input Manually'.
Select From List: This section contains a table with one row. The row details are:

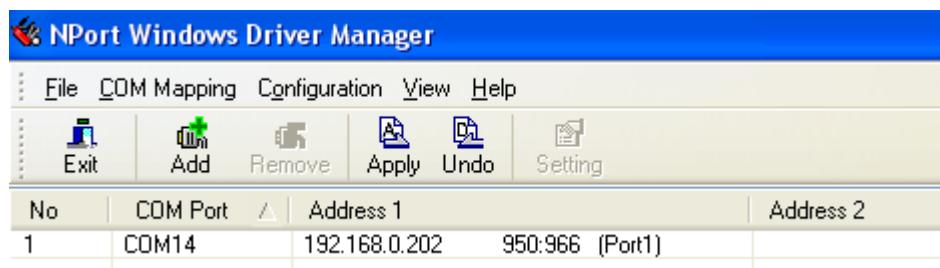
No	Model	MAC 1	Address 1	MAC 2	Address 2
1	MiNiPort E1	00:90:E8:3B:12:44	192.168.0.202	-	-

Input Manually: This section includes tabs for 'RealCOM' (selected), 'Redundant COM', and 'Reverse RealCOM'. It also includes fields for 'First Mapping Port' (Data Port: 950, Command Port: 966, Total Ports: 1) and an 'NPort IP Address' input field.
Buttons: At the bottom are 'Help', 'OK' (with a green checkmark), and 'Cancel' (with a red X).

Click on  to select the device. The driver tool will ask to activate the COM port now. Click 



The COM port will be generated and added to the list.



Click on  to finish driver installation.

Creating a Network

Once the drivers for each Ethernet printer have been created, they can be added to a network within FX APP.



To add the 'network enabled' printers to a network, go back to the Network page by pressing the printer button and press this button again:

The Ethernet printers will be displayed automatically.



To add them to the network, select each printer and click the Add button:



The printer icon will display a small tick to show it has been added to the network.



Repeat for all the printers to be added to the network then press the following to exit network configuration.

Polling of printers will automatically start. An individual printer can be selected for further use.

Editing a network – Adding more printers

To add more printers, follow the steps according to the connection type (USB, RS485 or Ethernet) described previously. Existing printers will be shown in the Network screen.

Editing a network – Removing printers



To remove printers from the network, select a printer and click on Remove button. Repeat for all the printers to be removed.

Creating a network – Mixed types

It is possible to mix and match combinations of USB, RS485 and Ethernet connection types to form a larger network. Following the instructions for each connection type and those printers will be added to the existing list.

When choosing a printer to use e.g. to change message, the user simply selects the icon for the corresponding printer without needing to be concerned about how it is physically connected.

Printer DLL

The printer DLL supplied with Version 1.01 printer firmware supports network printers from a single installation of FX APP. Please refer to the separate manual for details on how to use this DLL in your own programs.