User Manual

SmartDate® X30

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a DOVER company

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General

CAUTION : Before using this printer, please read and fully comply with these instructions and the material safety data sheet (MSDS) for consumables used.

Introduction

This manual, along with the SmartDate X30 Instruction Manual, sets out to explain how to safely install, operate and service your SmartDate X30 printer.

The manual is available in Adobe Acrobat PDF in various languages on the SmartDate X30 DVD.

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The use of non-genuine Markem-Imaje consumables and spare parts may adversely affect the performance of the product and could invalidate the warranty.

Contact

Thank you for choosing Markem-Imaje to provide printing solutions. If questions should arise, please contact the local Business Centre or Agent that assisted with your purchase.

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Related Documentation

Below is a list of documents in the SmartDate X30 related documentation set.

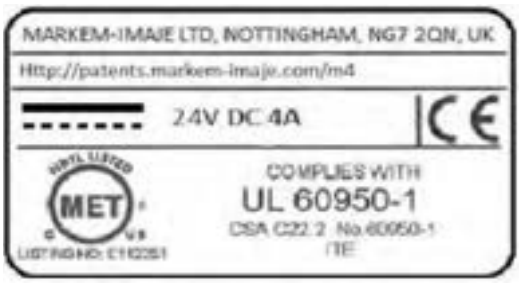
CoLOS Create Pro
CoLOS Control

Useful Websites

www.markem-imaje.com

Patent and Regulatory Information

Markem-Imaje printer serial numbers and patent information can be found on the printer rating labels.



Printer with internal power supply

Printer without internal power supply

Cassette label

Hand-held terminal label

Description

Description

Introduction

This section provides an overview of the main features of the SmartDate X30

Topics covered in the section include:

– Overview
– Printer Types
– Model Options
– Key Features

Overview

The SmartDate X30 thermal transfer overprinter (TTO) is a small and easy to use electronic coder. The two models available are designed to be suitable as a direct replacement for many different methods of coding.

The SmartDate X30 printer prints batch codes, best before dates and other variable information directly onto packaging labels, substrate and other materials.

The size, position and style of the image are fixed at the creation stage, but certain text field information can be edited during the selection process. Time and date information is automatically updated by the SmartDate X30's real time clock.

The main components of the SmartDate X30 printer are:

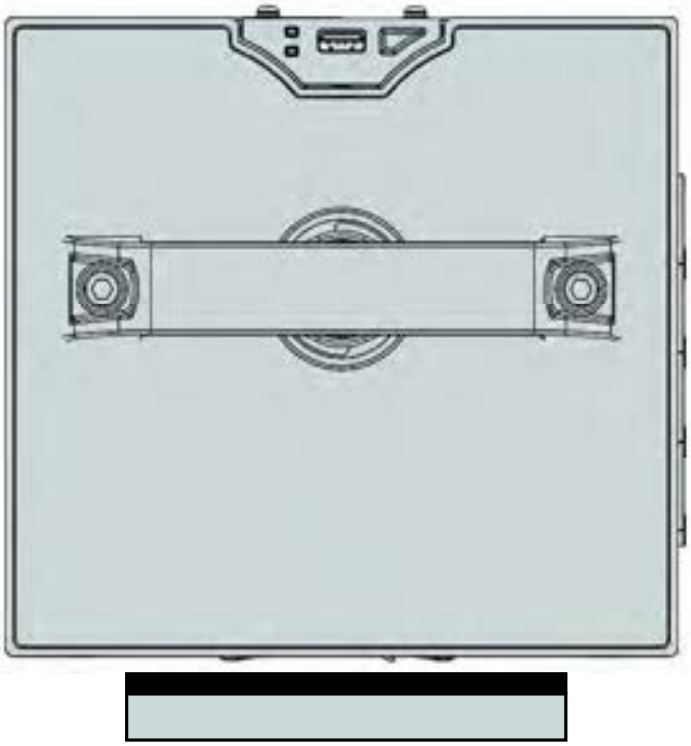
1. Printer and cassette containing drive system, power supply and thermal transfer printhead
2. Detachable hand-held terminal (HHT) containing the local user interface (LUI)
3. Hand-held terminal USB connecting cable

Printer Types

SmartDate X30i

This version is used with intermittent motion packaging machines and prints onto the material when it is stationary. It has a print area of 32mm x 40mm and print speed of 100 to 400mm/s.

Printing occurs during the dwell time, when the packaging material is stationary using a thermal printhead and thermal ink ribbon to print information onto materials held against a flat print platen.

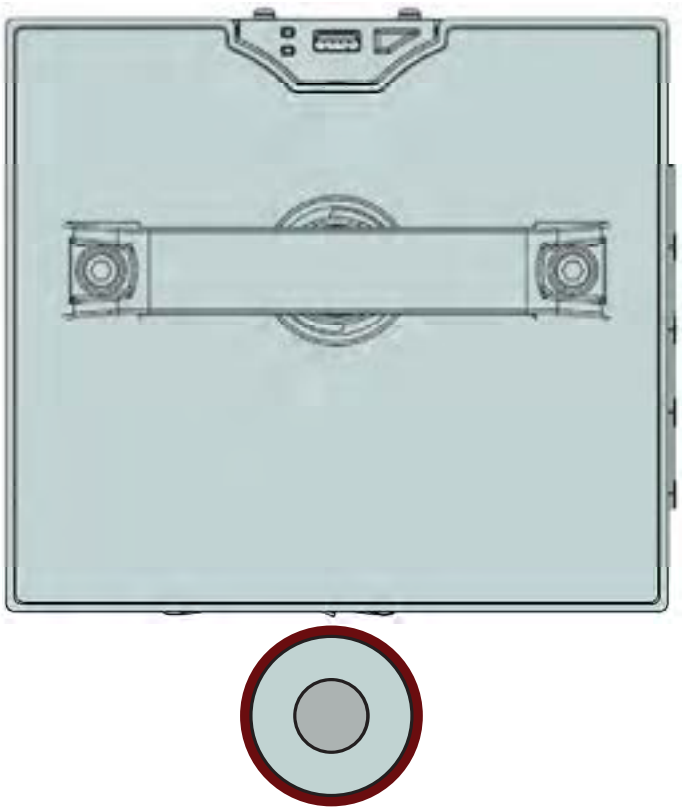


SmartDate X30c

This version is used with continuous motion packaging machines and prints onto the material when it is moving. It has a print area of 32mm x 50mm and print speed of 50 to 600mm/s.

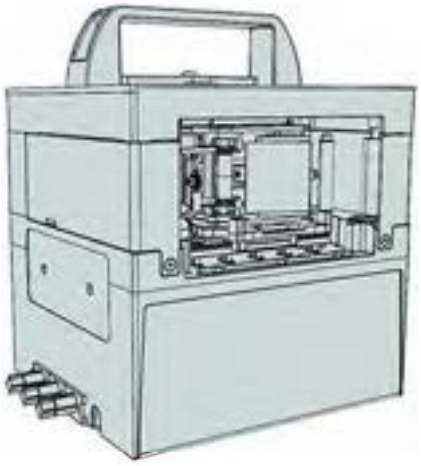
Printing occurs while the packaging material is in motion and uses a thermal printhead and thermal ink ribbon to print information onto the packaging material held against a moving print roller. An encoder is used to establish the speed of the substrate being printed onto.

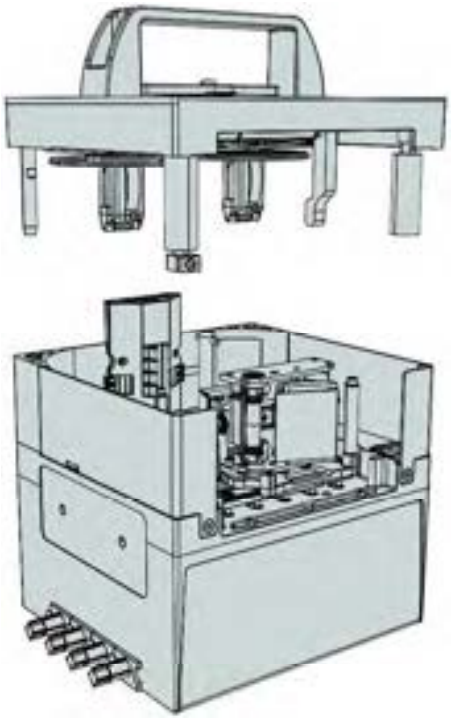
The continuous printer is available in left and right-handed versions to match the direction of substrate travel on the host machine.



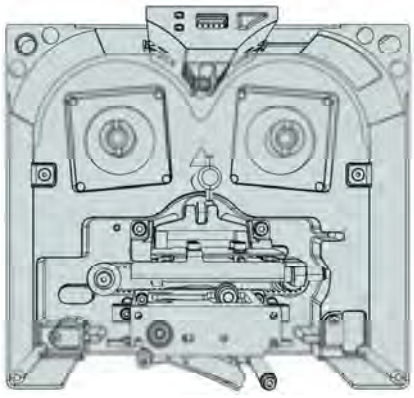
Model Options

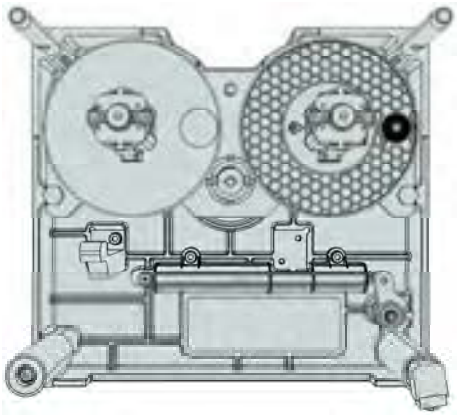
SmartDate X30i - Intermittent





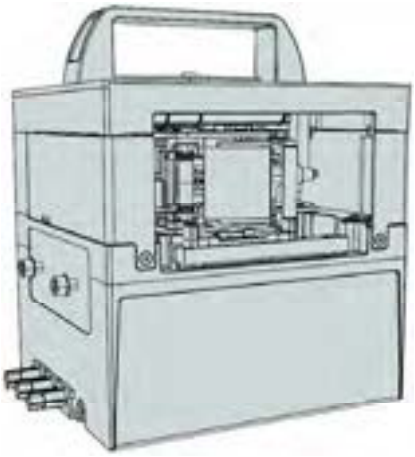
Intermittent printer

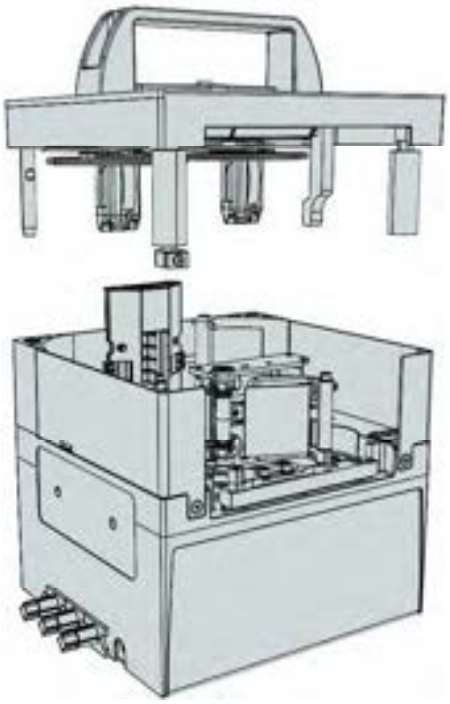


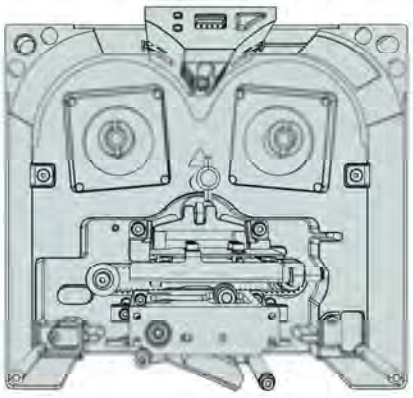


Intermittent cassette

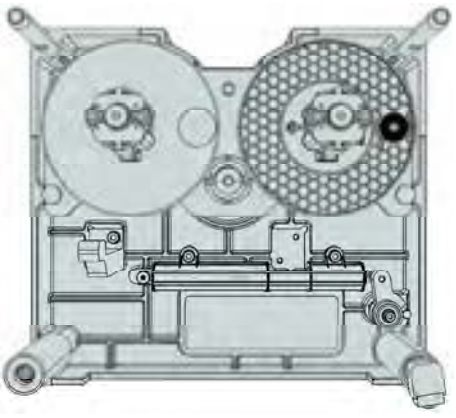
SmartDate X30c - Continuous left-hand







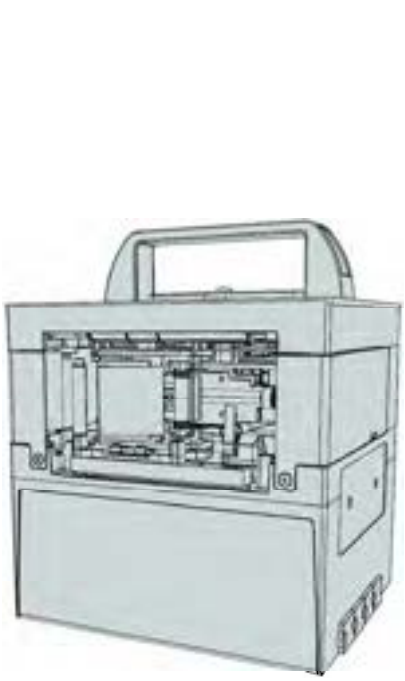
Left-hand printer

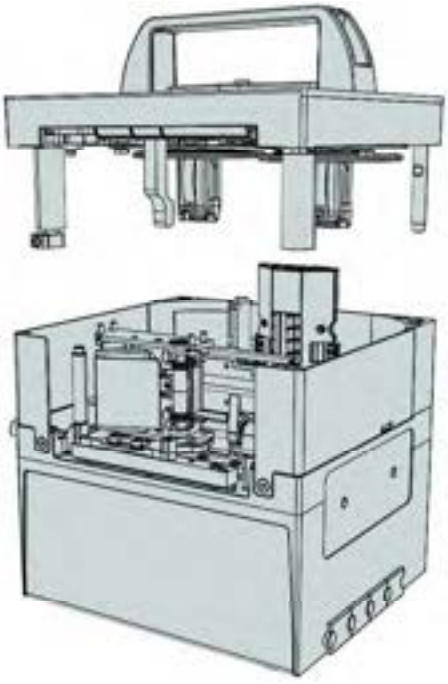


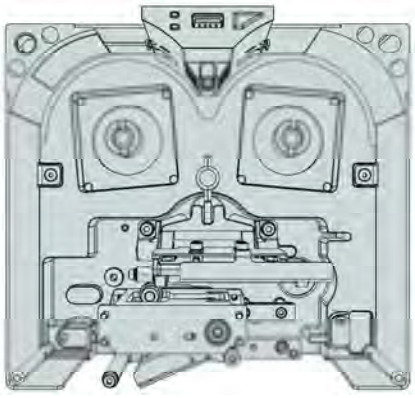
Left-hand cassette

Description

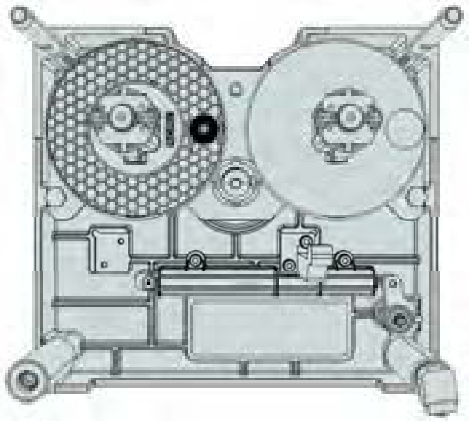
SmartDate X30i - Continuous right-hand







Right-hand printer



Right-hand cassette

Key Features

Efficient ribbon usage: The SmartDate X30 printer automatically controls the ribbon feed and in the continuous printer, accurately tracks the substrate speed. No manual adjustments are required, maximising ribbon usage while maintaining print quality.

Detatchable hand-held terminal: The SmartDate X30 printer can operate with or without the hand-held terminal connected. With the hand-held terminal detached the printer can operated using an emulator on a networked PC.

Self-aligning printhead: After initial set-up, the print platen/roller does not require precise alignment to the printhead, eliminating the need for periodic adjustment.

Reduced set up/down time: Markem-Imaje's many years of experience of thermal transfer printing and the latest design techniques has eliminated the need for complex mechanical maintenance procedures.

High reliability: Robust design and exhaustive reliability testing means the SmartDate X30 printer will provide many years of reliable service.

Description

Installation

Installation

Introduction

This section provides an overview of how to safely install of the SmartDate X30 printer.

Topics covered in the section include:

– Forseen Use
– Installation Requirements
– Machine Safety
– Bracket Installation
– Printer Installation
– Electrical Connections
– Print Positioning

Use

Foreseen Use/Misuse

This document and accompanying DVD provide information about safety, installation, operation, troubleshooting, spare parts,electrical schematics, recommended spares and preventative maintenance procedures.

Using the SmartDate X30 in any other manner is considered a misuse of the product. Please consult your local Markem-Imaje Business Centre or Agent before using this printer for anything other than foreseen use.

Misuses include, but are not limited to:

– Operating a system that is incomplete, cannot be serviced, or has been modified without authorization
– Failing to observe hazard requirements in the manual and/or on safety labels
– Combining or interfacing non-Markem-Imaje equipment with this system, other than as intended
– Permitting any untrained person to operate and/or service the system
– Using unspecified supplies or materials which may produce unsatisfactory or unexpected results

The information above is correct to the best of our knowledge, information and belief at the date of this publication. The information given is designed only as a guidance for safe handling use, storage, transportation, disposal and is not a warranty or quality specification.

The printer is designed for thermal transfer printing. Any other use of the printer is prohibited and any consequences shall be under the entire responsibility of the user.

Installation

Installations are normally performed by qualified Markem-Imaje service technicians or approved distributors.

Installations not performed by Markem-Imaje technicians or approved distributors must be performed by competent personel in accordance with the applicable local regulations. Seek advice from your Markem-Imaje representitive if you are in any doubt.

Installation Requirements

Power supply and electrical protection:

For AC voltage

Power supply: ~1 100-230V 2.2-1.1A 50-60Hz

Over-current protection

5A HRC or HBC type fuse with a minimum of 100A RMS symmetrical prospective current rating at a 10ms minimum pre-arcing time e.g. ASTA certified to BS88 part 2 ‘pullcap’ type or equivalent.

Or

MCB, 6A - IEC 947-2 / EN 60947-2 and BS EN 60898 with a minimum instantaneous release response current of 10x rated current (type D)

For DC voltage

Power supply: 24V +4/-0% 4A

Over-current protection:

6.3A HRC or HBC type fuse with a minimum rupture capacity of 200A RMS, fast speed type or equivalent.

Print go signal

Either a volt- free contact which closes when printing is required, or a 24V DC signal from a PNP sensor.

Encoder signal

The SmartDate X30 continuous printer requires an encoder to monitor the substrate speed.

Machine Safety

The product is designed to conform to all current machine safety regulations.

Installation of the SmartDate X30 thermal transfer printer must be carried out by a suitably trained person. (Please refer to your Markem-Imaje business center or your Markem-Imaje approved distributor).

All relevant safety procedures must be followed. Failure to do so may invalidate the warranty. Please read through this section before any operation of the machine is undertaken.

Electrical Safety

This printer is designed for use with the following supply systems that conform to IEC 664 light industrial/domestic installation category II mains supply.

The electrical installation must include a connection to a suitable earthing point. The incoming supply cable should be rated at 10A minimum for the SmartDate X30 (independent of normal supply voltage).

Static Electricity Protection

Excessive electrostatic discharge (ESD) around the printhead area can cause damage to the SmartDate X30 printhead and printer circuitry. Static reduction methods should be installed where excessive static discharges are identified as a problem.

Common areas of static build up are the print platens, substrates and conveyors. Methods such as carbon brushes on the substrate, earthed conveyor frames and printer brackets, robust mains earthing and deionising guns are commonly used.

Electrical Safety Testing

After installation, it is essential that the continuity of the protective bonding circuit and the prospective short circuit current level be checked after the machine is installed and the electrical connections, including those to the power supply are complete. This test should be repeated if for any reason the protective bonding circuit is broken.

Safety - General Guidelines

1. DO NOT operate the machine with any covers removed
2. Disconnect the power from the machine before removing any covers
3. Be aware that signals from the host machine or an electronic fault could cause the printer to start up unexpectedly
4. Make sure the body of the printer is at a temperature that can be comfortably handled before removing the printer from the host machine
5. DO NOT insert body parts into the printhead opening while the printer is powered as there is a possibility that the mechanism will move without warning and present a crushing hazard
6. Read the isopropanol safety data information before using isopropanol with any Markem-Imaje product
7. There is a non-replaceable lithium battery mounted on the printer board assembly. Under no circumstances should this be replaced (it should last for the life of the printer). An explosion could result if the battery is incorrectly replaced. Used batteries must be disposed of according to local regulations

Isopropanol Safety

Markem-Imaje supplies isopropanol wipes for cleaning the SmartDate X30 printhead.

Some general safety guidelines for using isopropanol follow:

Handling and Storage of Isopropanol

Handling

Use only in well ventilated areas. Do not breathe vapors or spray-mist. Avoid contact with the skin and the eyes. When using do not eat, drink or smoke.

Storage

Keep in a cool well ventilated place. Keep product and empty container away from heat and sources of ignition. Take precautionary measures against static discharges.

Bracket Installation

The SmartDate X30 is normally supplied with the appropriate bracket to suit the application requirements. Various bracket options are available to suit the specific packaging machine type.

Please consult the documentation supplied with the bracket for assembly and installation instructions.

Printer Mounting

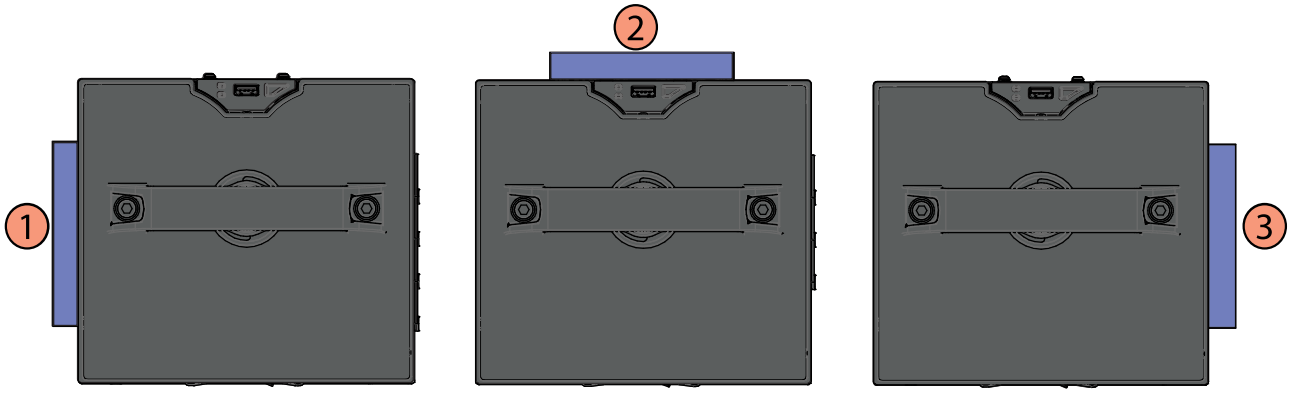
The mounting and dimensional requirements of the printer body are shown in the SmartDate X30 Bracket manual on the DVD supplied with the printer. Additional space is required to interconnect cables.

Two M6x10mm mounting holes are provided in three sides of the printer. Mounting positions 1, 2 or 3 can be used. The required print position on the substrate determines the position of the printer body.

Rigid fixing of the printer body is essential to achieve the best possible print quality. If vibration is transmitted to the printer, print quality may be affected.

Markem-Imaje brackets are manufactured to very accurate tolerances. When assembled with the printer in position, the distance between the printhead and print anvil/roller is the recommended 2mm. Fine adjustments can be achieved using the setting screw on the printer bracket (page 28).

Use the supplied printhead gap tool to set the printhead gap distance. Do not use metal or sharp objects to check the gap as this may damage the printhead.



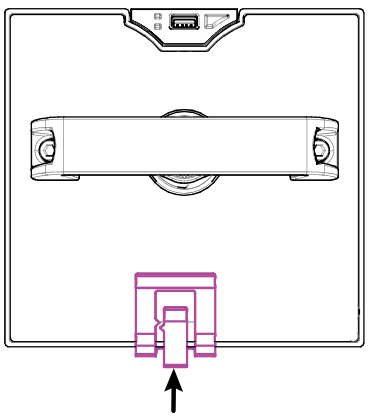
Printhead Positioning

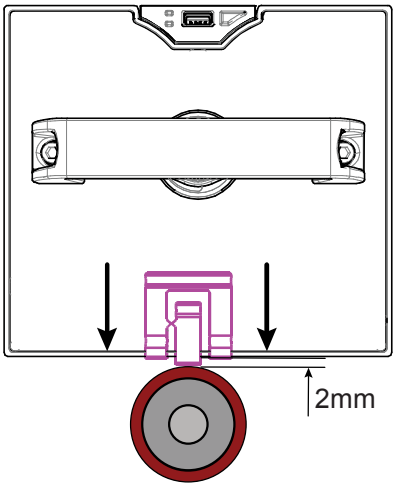
For optimum performance the positioning of the printhead in relation to the print roller/platen is critical. This distance between the printhead and print roller/platen is called the printhead gap and is set using the following instructions.

Printhead Gap

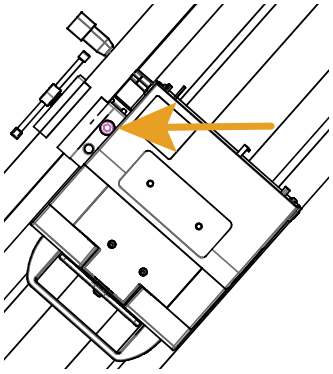
The optimum printhead gap for most applications between the printhead and print roller/platen is 2mm. A tool is provided for setting this.

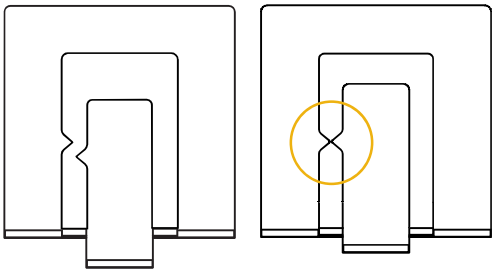
With the printer mounted on the host machine, place the printhead gap tool on the cassette and the cassette into the printer





Set the printer height with respect to the roller or platen by using the adjustment screw on the printer bracket



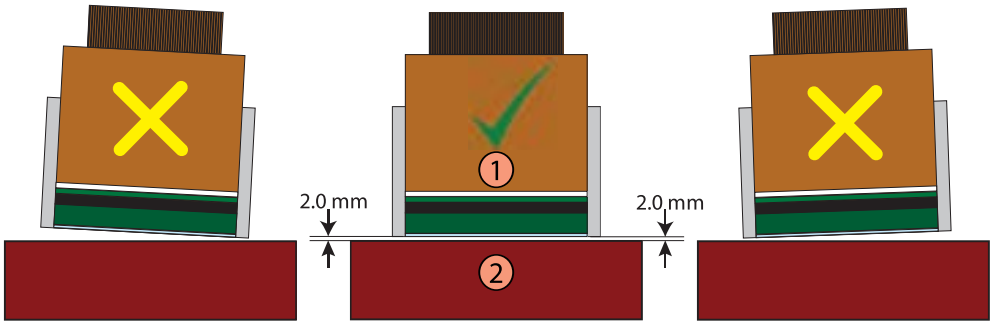


The printhead is in the correct postion when the indicators are aligned

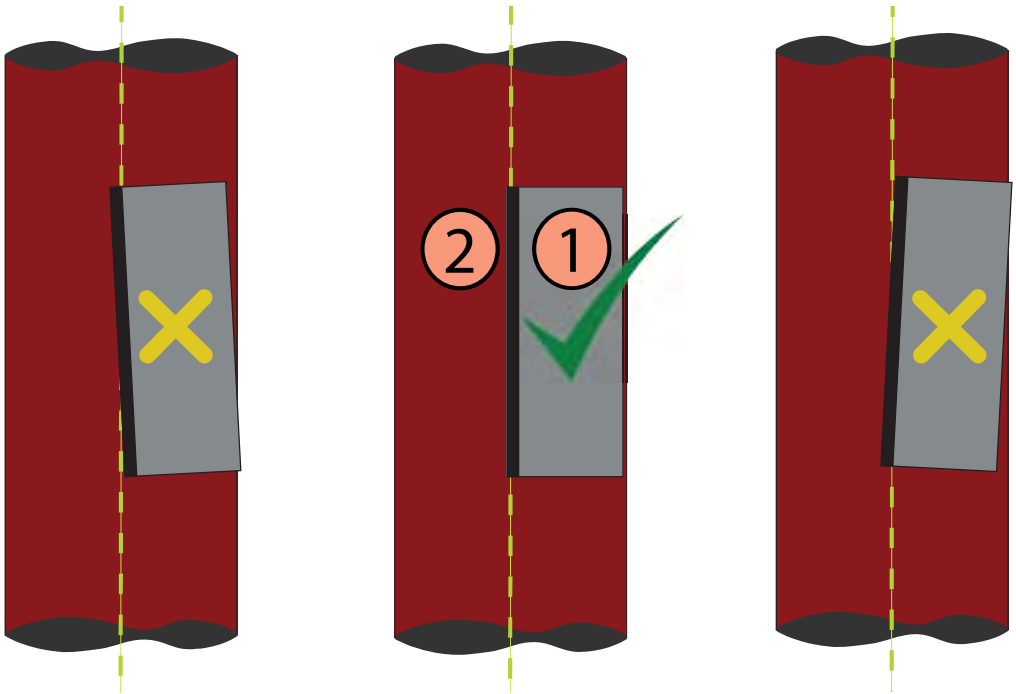
Printhead Alignment

For optimum performance and maximum printhead life, make sure the printhead is correctly aligned on the print roller/platen. Failure to do so may result in poor print quality, ribbon handling errors and reduced printhead and print poller/platen life.

After installing the printer, check the printhead is parallel to the print roller/platen. If misalignment is found, check the printer has been correctly installed on the bracket.

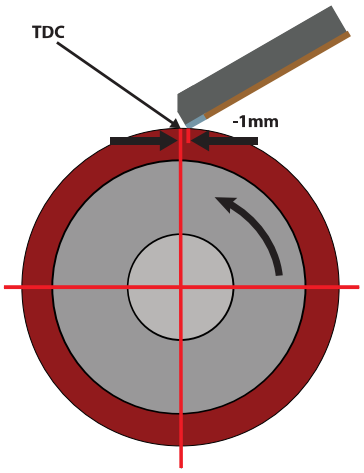


In continuous applications, the printhead alignment across the print roller must also be accurate. Small corrections to the alignment may be possible by loosening the printer mounting bracket and repositioning the printer.

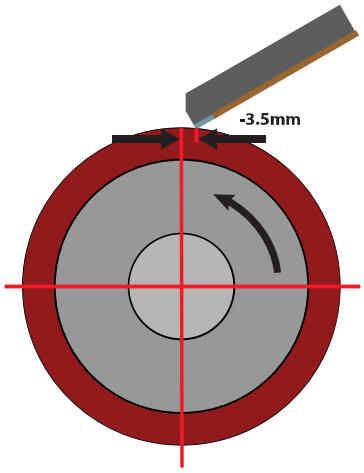


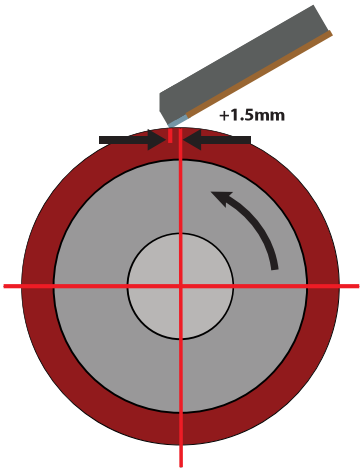
Printhead Position (Continuous Printers)

The default printhead position in relation to the print roller is 1mm before the top dead center (TDC) and does not require adjustment in the majority of applications.



However in slower applications, typically those below 100mm/s, an adjustment of the printhead postion may improve the performance of the printer. The position of the printhead can be set up to 2.5mm either side of the default position.

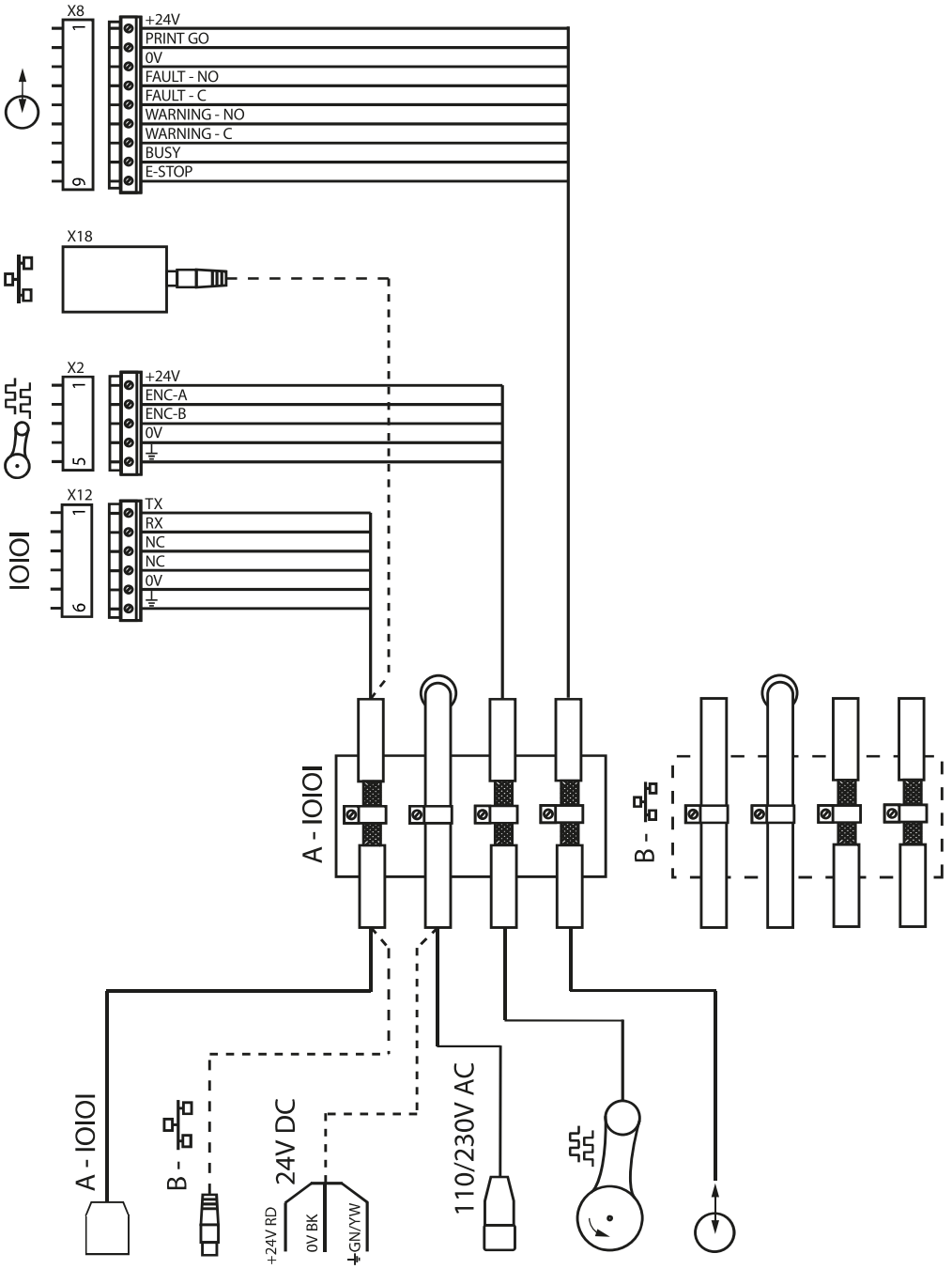




Electrical Connections

The SmartDate X30 is supplied with the appropriate cables in place. Connect the relevent power cable as shown on page 34 and follow electrical diagram 10073532 on page 32 for the remaining connections.

Electrical Diagram 10073532



External I/O Connections (X8)

Pin Number	Function
1	+24V
2	Print Go
3	0V
4	Fault - NO
5	Fault - C
6	Warning - NO
7	Warning - C
8	Busy (FlexIO Configurable)
9	E-Stop (FlexIO Configurable)

Encoder Connections (Continuous Printer) (X2)

Pin Number	Function
1	+24V
2	ENC-A
3	ENC-B
4	0V
5	Earth

Communication Connections(RS232) (X12)

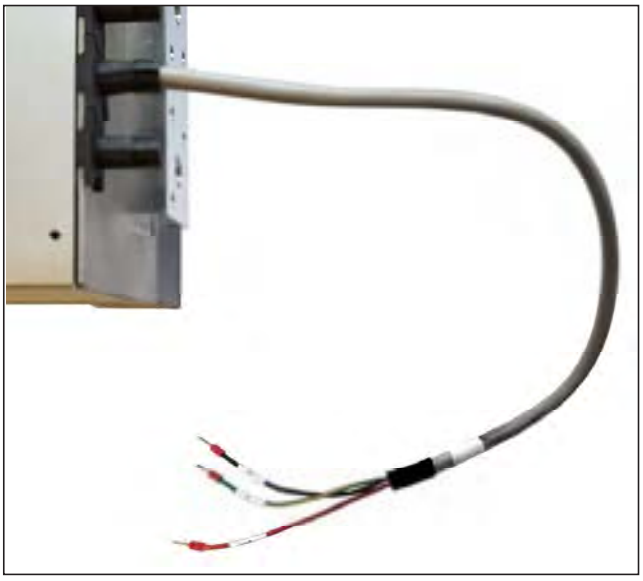
Pin Number	Function
1	TX
2	RX
3	NC
4	NC
5	0V
6	Earth

Power Configuration

For 100-230V AC operation connect the in-line printer power socket to the mains power supply plug using the IEC lead provided.

For 24V DC operation, connect the power supply cables as shown.

Color	Function
Black	0V
Green/Yellow	EARTH
Red	+24V

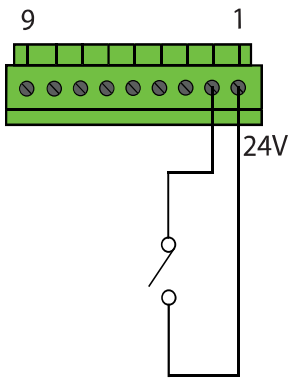


Print Go Input Wiring (X8)

Print Go input using a voltage free contact

Connect the input between terminals 1 (24 VDC) and 2 (PRINT GO).

SmartDate X30 is edge triggered and prints whenever the contacts close, but will not print again until the contacts have opened and closed again after the previous print is complete.



Print Go input using a PNP sensor

If a PNP sensor is used, connect as follows:

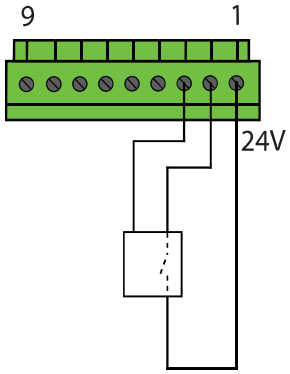
Power cable to terminal 1 (+24 V)

Signal cable to terminal 2 (PRINT GO)

Ground cable to terminal 3 (GND)

The printer prints each time the sensor changes from low state to high state.

The input draws a maximum of 13 mA at 25 VDC



Fault and Warning Outputs (X8)

PRODUCING
Pins 4 and 5 on the I/O connector are the relay contacts used to indicate the printer status.The relay contact is closed when the printer is in **PRODUCING** mode and ready to print.

FAULT
The fault relay contacts open when the printer is in any state other than **PRODUCING** mode. The contacts should be used to provide an interlock to the overall control of the packaging machine preventing unmarked products being produced.

WARNING
Pins 6 and 7 on the I/O connector are the closed relay contacts for warnings. The **WARNING** relay contacts open when a warning such as a low ribbon condition is detected.

CAUTION: The relay contacts are suitable for a current between 10mA and 1A. The maximum rating is 1A at 30VAC/DC. Control of higher voltages (e.g. 100VAC) or currents must use intermediate external control relays or contactors.

Print Positioning

The print position is decided by two settings:

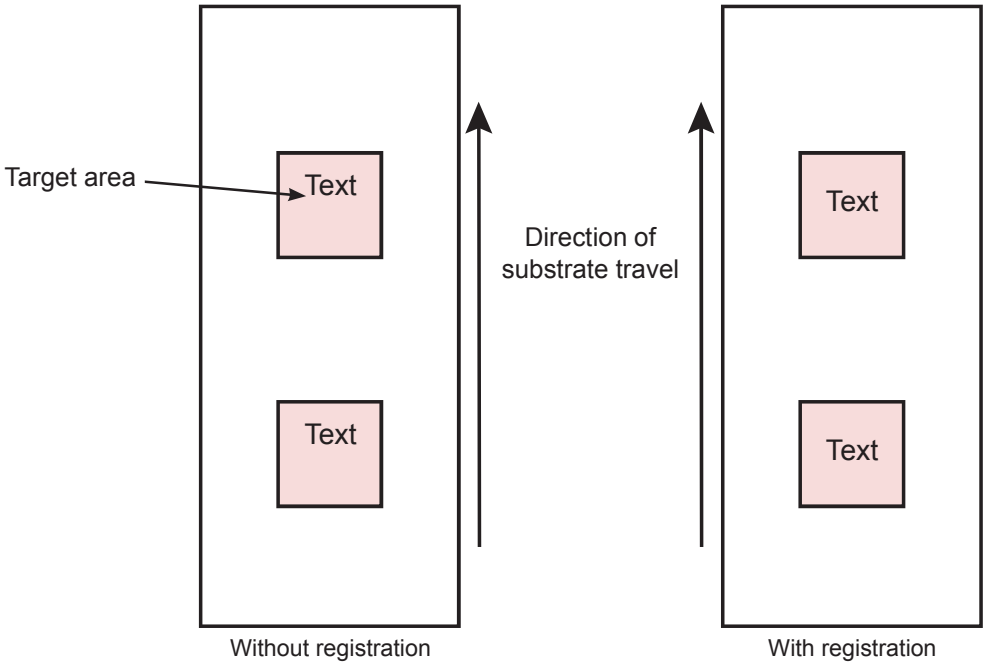
– Registration

– Offset

Registration

Registration is used to move the position of the print. Increasing the registration moves the position of the print further back on the substrate.

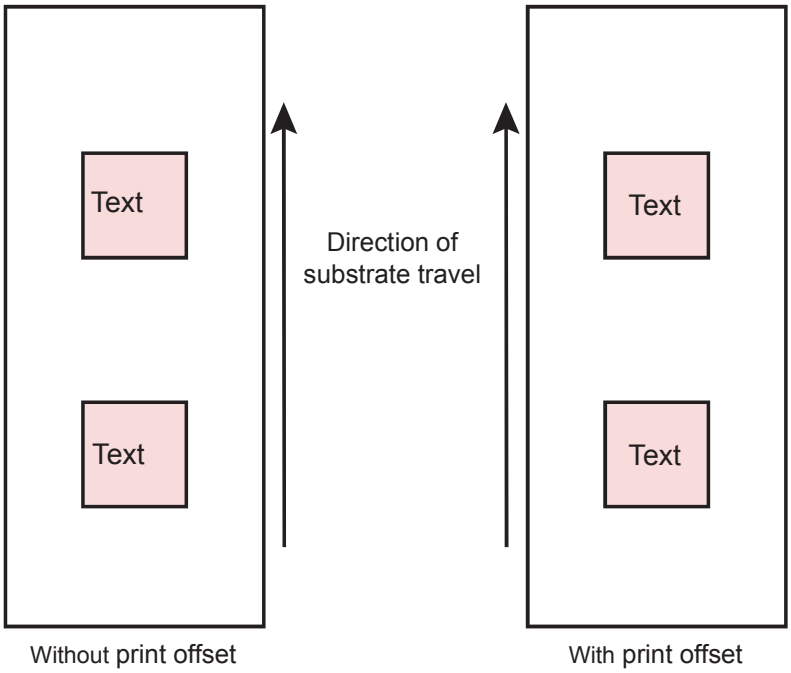
Example:



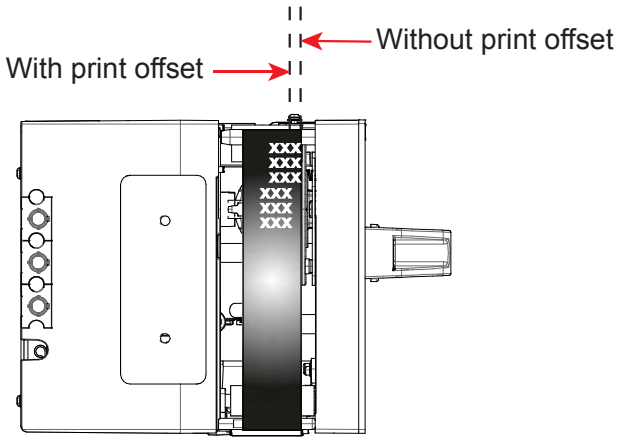
Note: *Setting a registration value on an intermittent printer will reduce the maximum length of the print and reduce the maximum pack rate using a continuous printer.*

Offset

Offset defines the position of the print across the ribbon.



By default the print is closest to the cassette outside edge as possible. Applying an offset moves the image towards the printer body.



Note: *Using an offset value will reduce the maximum possible width of the print.*

Preparing for printing

Power up

When power is connected and a cassette with ink ribbon loaded, the printer will calibrate the ribbon sensor and check the tension sensor value. This establishes the ribbon diameter, ribbon tension and the datum position of the printhead.

If calibration fails an error message will be displayed. Check that the ribbon is loaded correctly and try again. Refer to the troubleshooting section for help.

If no problems are detected, ‘Ready’ is displayed on the LUI screen. To start producing, make sure a job has been selected and press the ‘Start’ button on the LUI.

Initial setup

Before operating the SmartDate X30 for the first time, a number of machine settings may need to be adjusted. The settings will vary depending on the ribbon and substrate being used and the speed of printing. The settings are entered using the LUI.

Machine settings

– Date and Time
– Darkness
– Print Speed (intermittent)
– Print Delay
– Print Direction
– Debounce

Machine Interface

Machine Interface

Introduction

This section describes how to operate the SmartDate X30 printer after successful installation.

Topics covered in this section include:

– Hand-Held Terminal
– Keypad
– Screen Navigation
– Icons
– Screen Types

Hand-Held Terminal

SmartDate X30 HHT

The hand-held terminal (HHT) consists of the local user interface (LUI) LCD screen and a 18 button keypad interface. The buttons are ‘soft labelled’ on the screen when usable.

The screen supports graphics and text and depending on the screen displayed, has a three or four line display and is used to access to the following printer settings.

– Time and Date Configuration
– Job Selection
– User Input Data Entry
– Printer Settings
– System Inputs and Outputs
– Statistical Information

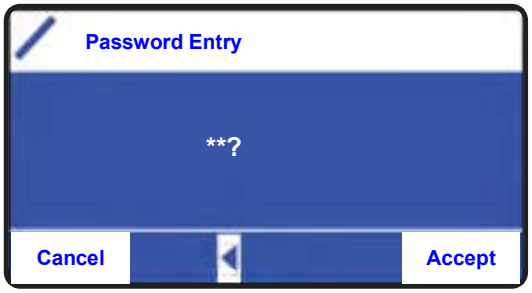
LCD Screen

The SmartDate X30 LCD screen is a monochrome (1Bit) 128 x 64 pixel screen.

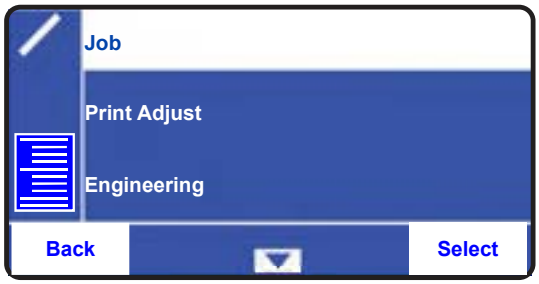
Depending on the printer function at the time, the screen will normally display 3 or 4 rows of text/graphics.

The appearance of the screen will vary depending on the screen type being used.

Example of 3 row display:



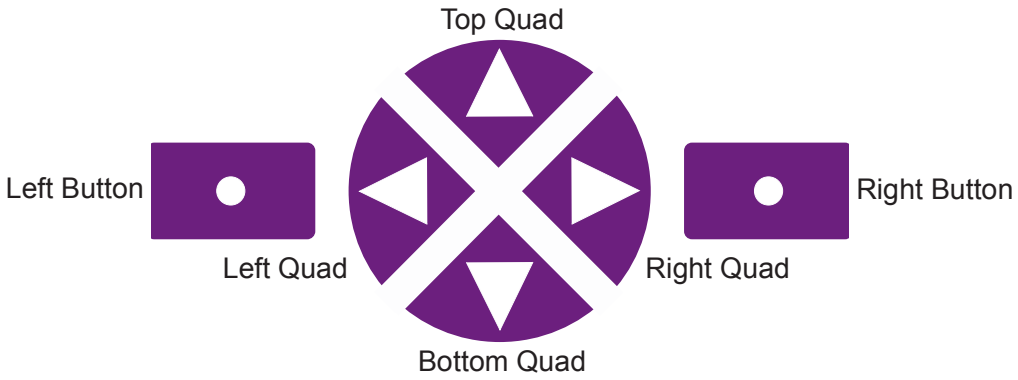
Example of 4 row display:



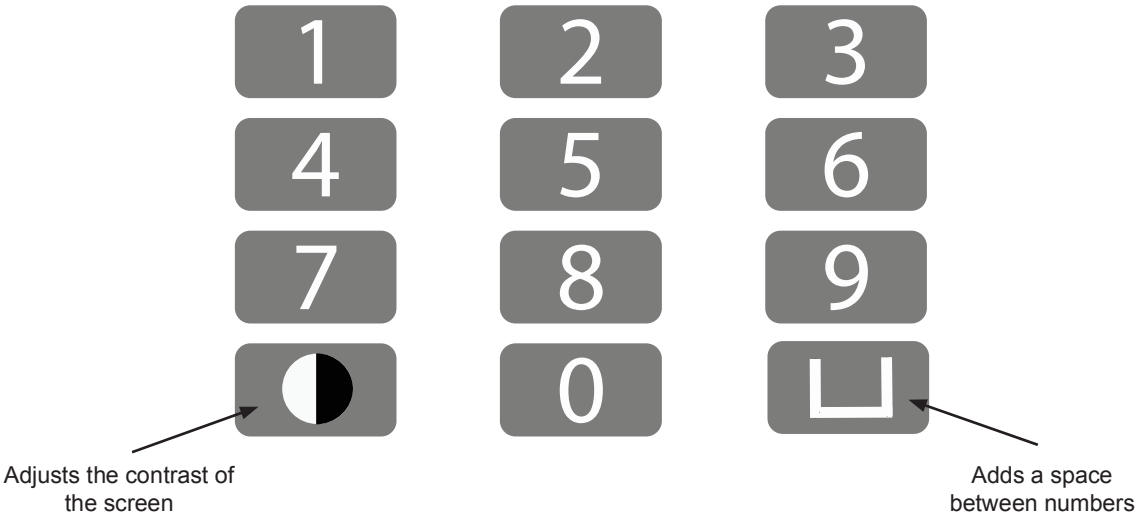
Keypad

The keypad consists of six buttons. Each button may have more than one function depending on the screen being viewed at the time.

For reference the buttons have been given the following names:

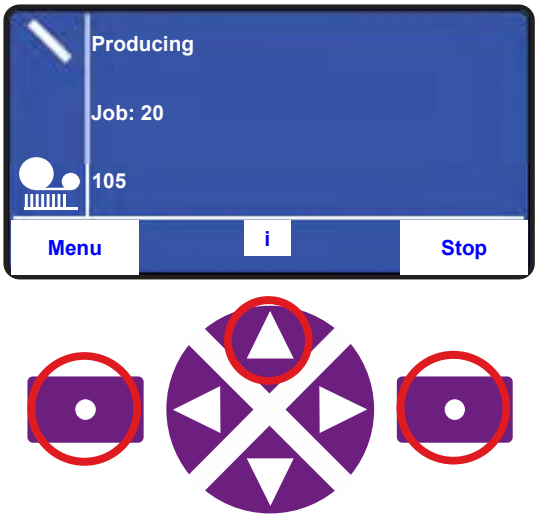


The numerical keypad consists of 12 buttons.



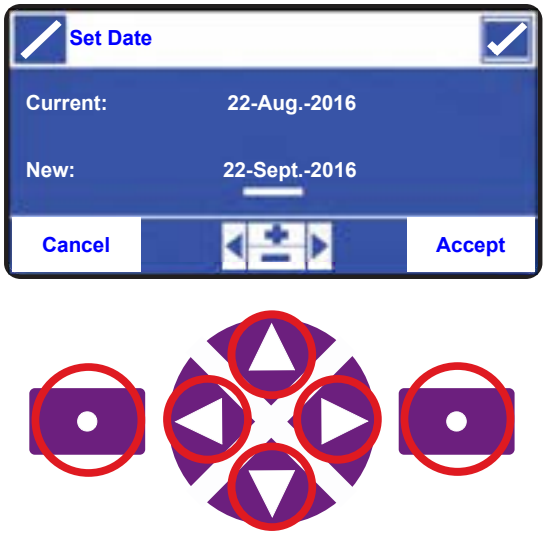
Keypad Navigation

In the following example the left, right and top quad buttons are available for use.



The left, right and top quad buttons are active.

In this second example all six buttons are active.



The left and right quad buttons move the cursor to the left and right, the top and bottom quad buttons decrease and increase the month. The left and right buttons cancel or accept any changes made.

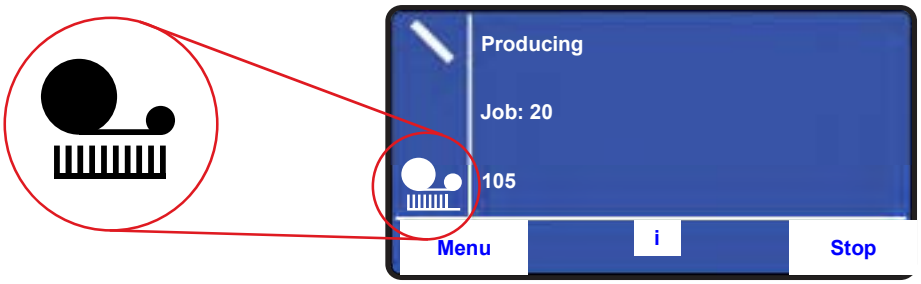
Navigation Keypad Button Functions

Button Name	Meaning	Usage and Labels
Left Button	Back to last screen	On home screen - Menus Elsewhere - Back/cancel
Left Quad	Move cursor/selection left	Move cursor left
Right Quad	Move cursor/selection right	Move cursor right
Top Quad	Move up/increase by one	While navigating the menu - Previous menu On data entry screens - Increase by one
Bottom Quad	Move down/decrease by one	While navigating the Menu - Next menu On data entry screens - Decrease by one
Right Button	Action/do it	On home screen - Stop/run Elsewhere - Select/accept/confirm/hide

Icons

Icons are used to indicate the status of the printer or menu options and their meanings are listed below:

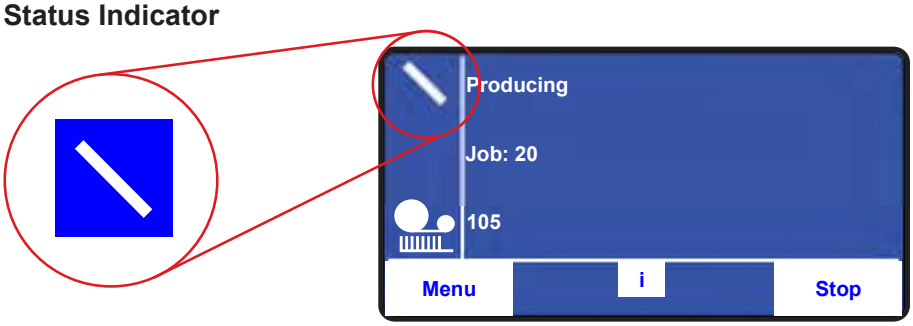
Ribbon Status Indicator



The horizontal bar indicates the maximum ribbon capacity of the printer, for example 700 metres when using Xtra 3521 ribbon. The vertical bars and indicate the ribbon remaining in 10% divisions. This figure is calculated during ribbon calibration.

If a part ribbon is loaded into the printer, the indicator is adjusted accordingly.

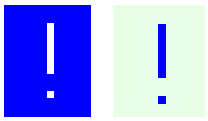
Status Indicator



The status indicator is positioned at the top left hand corner of every screen. On the home screen the status icon supplements the status text. i.e. ‘Producing’, ‘Stopped’, ‘Warning’.

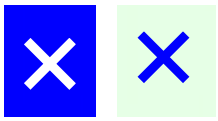
The icon is animated when the printer is producing. 

Warning Indicator



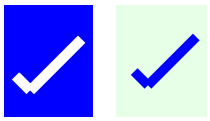
This replaces the status indicator when a warning occurs. The icon flashes alternately in time with the status text on the ‘Warning Alert’

Fault Indicator



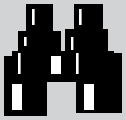
This replaces the status indicator when a fault occurs. The icon flashes alternately in time with the status text on the ‘Fault Alert’

Validation Indicator

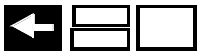


This indicates that the alphanumeric data entered is within the acceptable range.

Menu Icons

Icon	Menu Name
	Main Menu
	Engineering Menus
	View Menu
	Settings Menu
	Ribbon Status
	Language Menu
	Image Menu
	File Management Menu

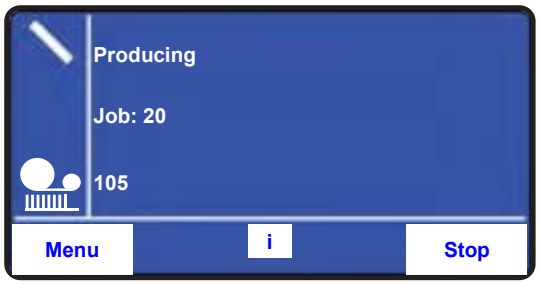
Screen Quad Label Icons

Quad Icon	Quad Button Action
	Enter the ‘View’ menu where ‘Job’ and ‘Device’ information is displayed
	Move the cursor left one position
	Move the cursor right one position
	Move up to the previous setting option
	Move up to the previous or down to the next setting option
	Move down to the next setting option
	Increase by one unit
	Increase or decrease by one unit
	Decrease by one unit

Screen Types

The SmartDate X30 LUI supports various screen types.

The screen is generally divided into a grid of four rows.



– The bottom row of the grid the navigation button labels
– The top left hand corner displays the staus icon

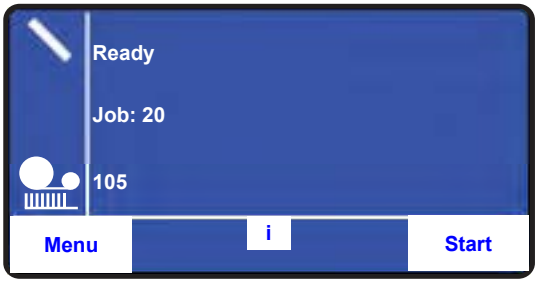
The screen types are grouped as follows:

Screen Type	Description
Home screen	The main start screen
Menu screen	Used to navigate between different menu options or screen types
Information screens	Used to display extended information
Data entry screens	Used to enter data for job setup or printer settings
Diagnostic screens	Display real time dynamic diagnostic information
Special screens	Displays special information such as warnings or problems

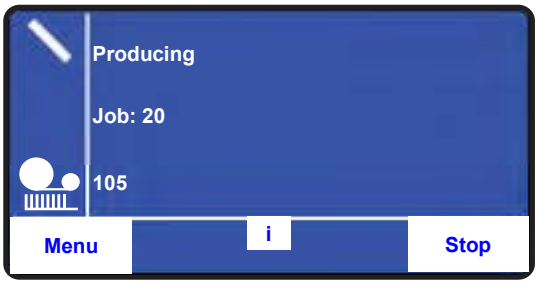
Home Screen

The home screen is the start-up screen displayed when the SmartDate X30 printer is powered on. Depending on settings, it can be the either the ‘Ready’ or ‘Producing’ screen.

Ready Screen:



Producing Screen:



NOTE: *Not all menus are accessible from the ‘Producing’ screen.*

Password Entry Screens

If your printer has been installed with security enabled, selecting an option with password protection will prompt for a ‘Password Entry’.

1

2 Enter the appropriate password

Press ‘Accept’ to continue.

Menu Screens

Use the top and bottom quad buttons to move either up or down through the menu screens. Alternatively enter the menu item number using the numeric keypad to select the item.

After entering a menu, the top item in the list will be highlighted. The navigation icons indicate which menu selections availble

1

Pressing the bottom quad button will highlight the menu item below that currently selected.

2

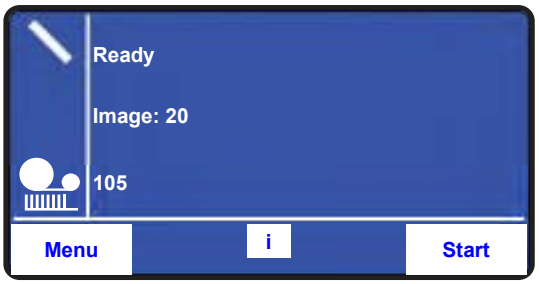
The navigation icons will change to indicate menu selections above and below are available.

3

When the last menu item is reached the menu is scrolled around and the first menu item reappears.

4 Press the ‘Select’ button to enter the highlighted menu item, in this example the ‘Engineering’ menu.

5 Press the ‘Back’ button to return to the previous menu screen.



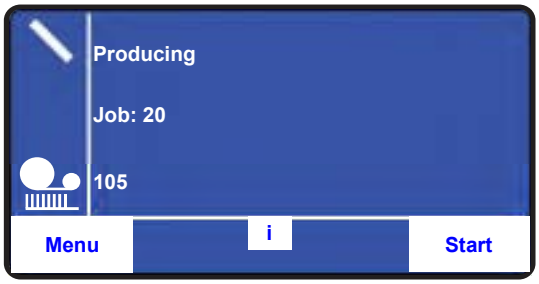
Information Screens

This includes full information about detected faults and warnings. Information including software version number and hardware serial numbers etc. are also displayed here. Unlike the 'Diagnostics' screens, which display real time status details, the information displayed here is static.

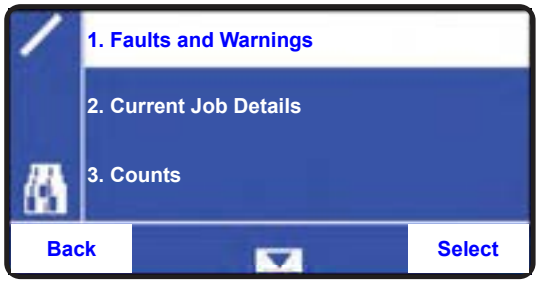
This screen allows access to the following information:

- Descriptions of Faults and Warnings
- Current Job Details
- Supplies
- Counts
- Printhead Information
- Printer Version Information

The 'Information' screens are available from the home screen by pressing the 'i' button.



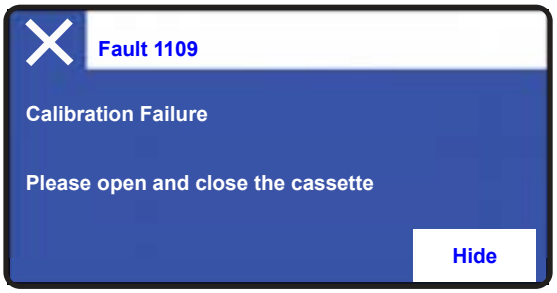
This acceses the information screens.



Fault Screen

The fault screen indicates a problem that has stopped the SmartDate X30 printing.

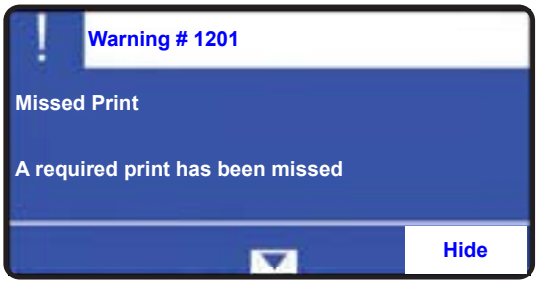
– An X flashes to indicate a fault condition
– The fault number is displayed
– A text description of the fault is indicated
– Before continuing, the problem that caused the fault must be fixed and cleared
– Faults cannot be supressed



Warning Screen

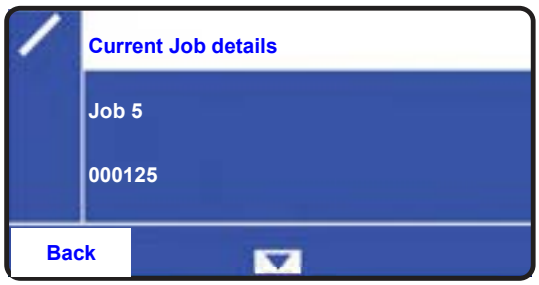
The warning screen highlights a problem which may soon cause the SmartDate X30 to stop printing.

– An ! flashes to indicate a warning condition
– The warning number is displayed
– A text description of the warning is indicated
– If the printer is producing, it will continue to do so
– Warnings can be suppressed (See page 131)



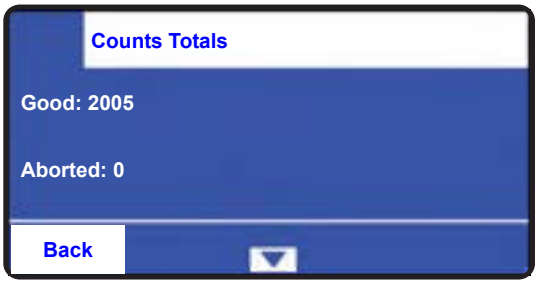
Current Job Details

Displays the name of the job currently selected.



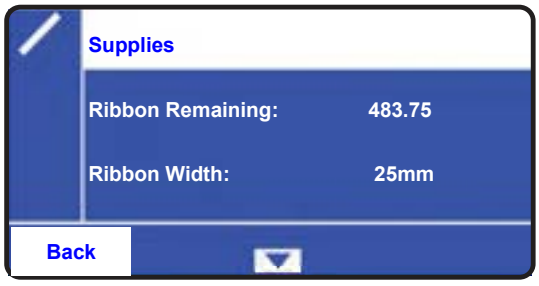
Counts

Displays the number of good and aborted prints.



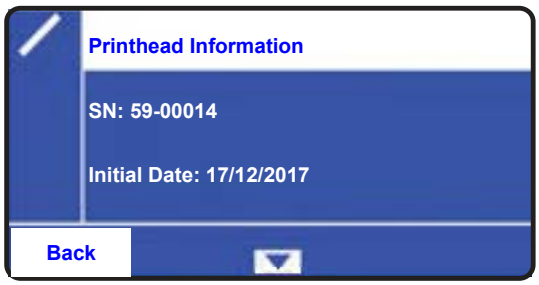
Supplies

Displays the amount of remaining ribbon and the ribbon width.



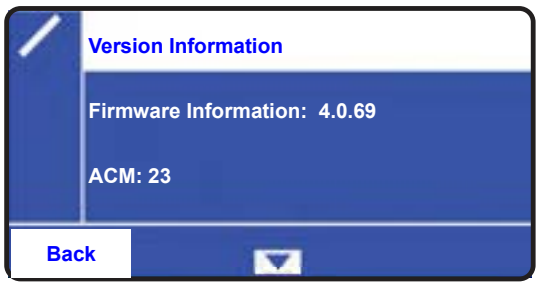
Printhead Information

Displays the printhead serial number and the date the printhead was first used.



Version Information

Displays the printer firmware and ACM versions.



Data Entry Screens

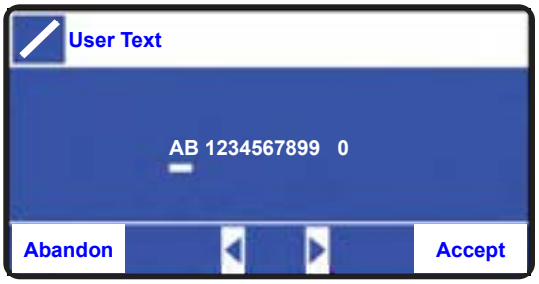
Data entry screens vary in appearance depending on the menu option selected and are grouped as follows:

– Prompted Data Entry Screens
– Date Entry Screens
– Settings Adjustment Screens
– Image Setup Screens

Prompted Data

Prompted data entry screens are used to input the data required during job selection. As the image design can prompt for different types of input, the screen types vary.

User Text



Use the keypad to add or edit the text. Move the cursor along the line of text to edit each character. User text is limited to 16 characters, including spaces and is alphanumeric.

User Date

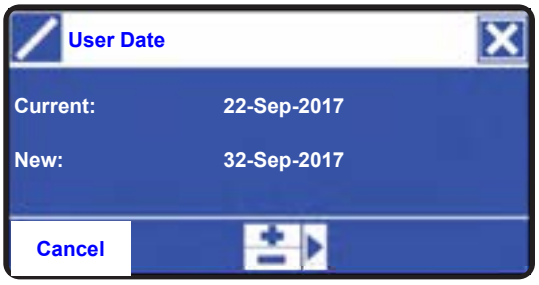
Use the keypad to edit the date. Move the cursor along the line to edit each field. User dates do not rollover automatically and will remain until a new job is selected or the current job is reselected.

Date Entry Screens

Literal Date Entry

The date format is defined during the image design in CoLOS Create. The date does not rollover and changes only when a new job is selected or the current job is reselected.

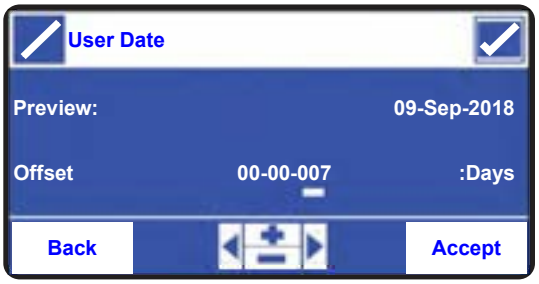
Use the quad buttons to input the date to be printed. If an incorrect day number is entered, the validation indicator will be displayed as an X and the ‘Accept’ option will not be available.



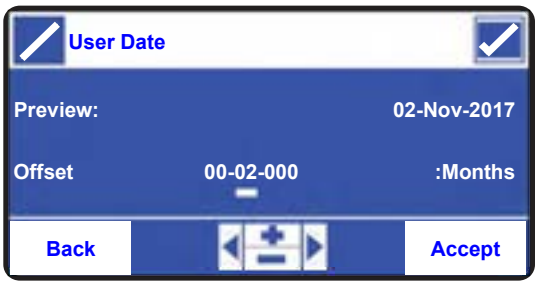
Offset Date Entry

This screen is used to set an offset from the current date set in the SmartDate X30's internal clock. The date format is defined during the image design in CoLOS Create and rolls-over as set by the date rollover settings in the printer.

This example shows a 7 day offset. The printer date is set to September 2nd 2018 and therefore the date to be printed is September 9th 2018.



This example shows an offset of 2 months. The printer date is set to September 2nd 2018 and therefore the date to be printed is November 2nd 2018.

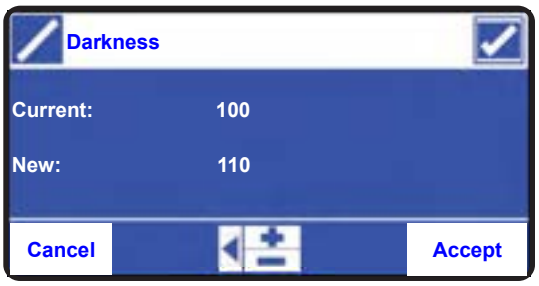


Setting Adjustment Screens

Two types of 'Settings Adjustment' screens are used:

Direct Input Settings

Where the value required is input directly using the LUI keypad.



Use the top and bottom quad buttons to increase and decrease the required value.

Press the 'Accept' button to set the value.

List Settings

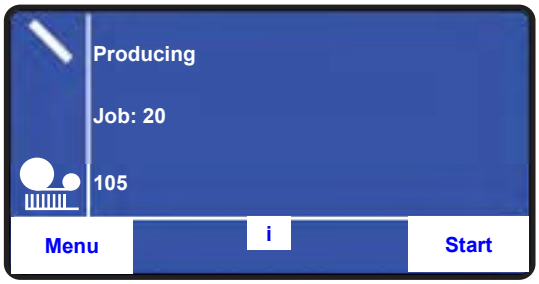
Where the value required is selected from a list.

The ▲▼ symbol indicates that there are more options available, use the top or bottom quad buttons to select the required option.

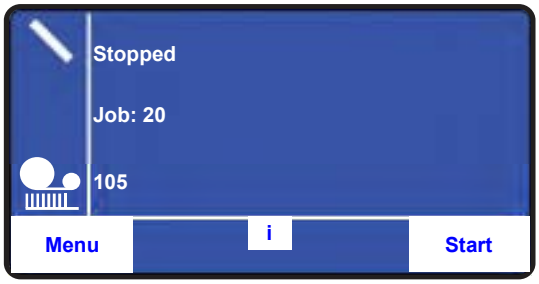
Press the 'Select' button to set the value.

Job Setup Screens

Some job setup screens are accessible in the ‘Producing’ state.

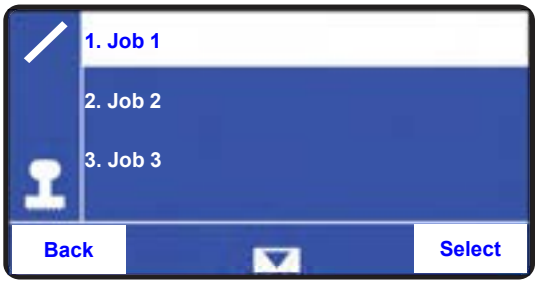


To access the complete range of setup screens, the SmartDate X30 must be in ‘Stopped’ state.



Select ‘Menu’ by pressing the left button. The first option in the menu is ‘Select Job’

The job currently selected is always the first in the list. Use the up and down quad buttons to select the required job



Alternatively if known, enter the job number directly using the LUI keypad.

If prompted, enter user text and dates.

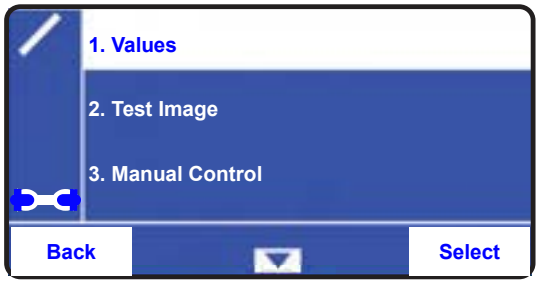
Press the ‘Accept’ button to complete the job selection process.

Diagnostics Screens

The ‘Diagnostics’ screens display the current status and dynamically changing data.

This screen allows access to the following information and actions:

– Values
– Test Image
– Manual Control



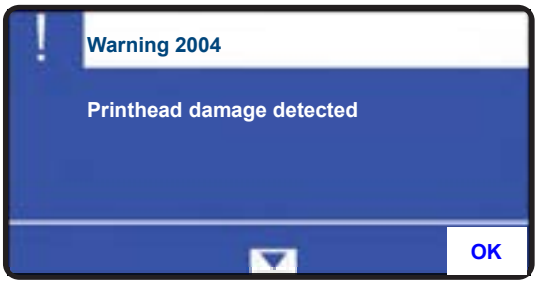
NOTE: *This screen can be viewed while in ‘Producing’ mode.*

Dead Dot Detection

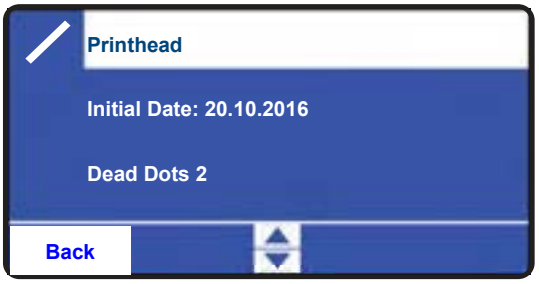
On power up, SmartDate X30 will automatically detect if any of the printhead dots are not working.

A warning is displayed if any non-working printhead dots are detected.

1



2 Use the diagnostics screen to view the details.



Machine Operation

Machine Operation

Introduction

This section describes how to operate the SmartDate X30 printer after it has been successfully installed.

Topics covered in this section include:

– Principles of Printing
– Starting the Printer
– Stopping the Printer
– Loading or Replacing the Ribbon
– ACM
– Operating Modes
– Master/Slave Operation

Principles of Printing

Thermal Transfer Technology

The SmartDate X30 printer uses a ‘Thermal Transfer Printhead’, similar to those used in fax machines.

Each printhead has a series of heating elements (resistors) along the print line, known as ‘dots’. The SmartDate X30 printhead has 12 dots per mm and they are covered in a ceramic glaze for protection.

SmartDate X30 printers use stepper motors to move the ink ribbon and in the case of intermittent printing, for printhead carriage movement.

During printing, the printhead is moved to the printing position by activating an electrical solenoid. This causes the printhead to press the ink ribbon against the substrate or label. The heat from the printhead dots melt the ink and the pressure of the printhead against the substrate transfers the ink.

Print Cycle

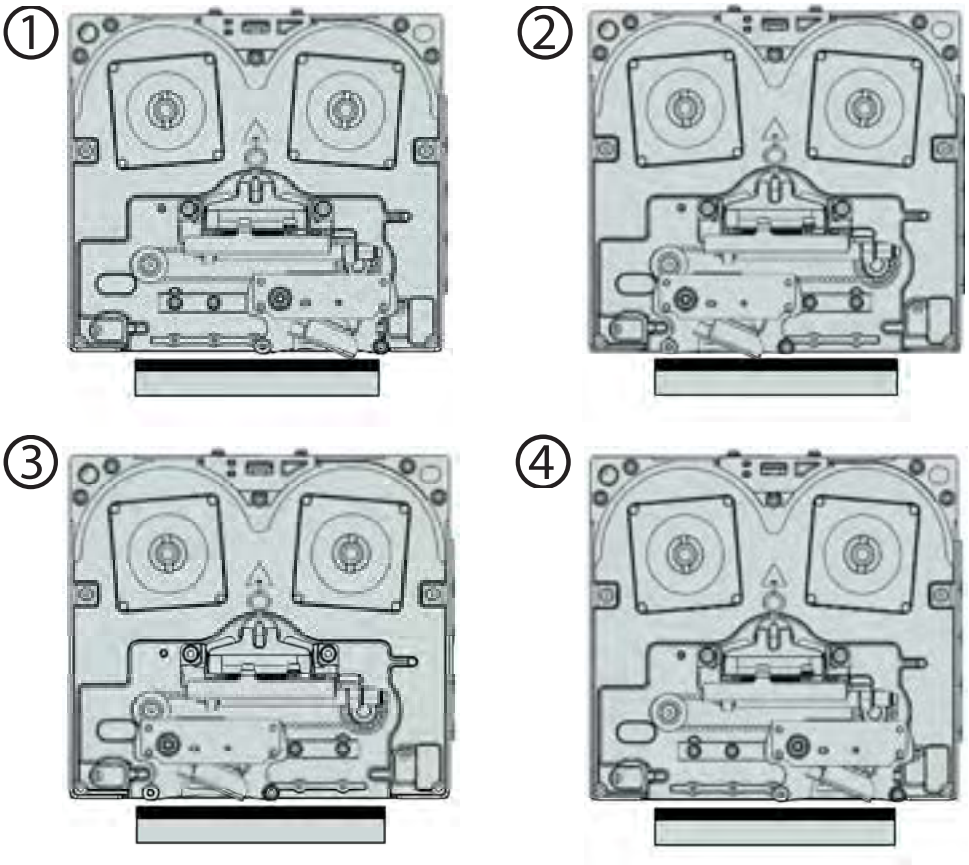
Intermittent Printer

This version is used with intermittent motion packaging machines and prints onto the material when it is stationary. It has a print area of 32mm x 40mm and print speed of 100 to 600 mm/s. The printhead is moved out during the dwell time of the packaging/ labeling machine and moved across the substrate/label while printing takes place.

The printer feeds the ribbon to the next printing position during the return movement of the printhead. To prevent images overlapping a small amount of ribbon is added to the ribbon feed.

The operating sequence is:

1. A ‘Print Go’ signal triggers the printhead to move into position
2. The printhead moves along a linear slide and prints the required information
3. The printhead retracts
4. The printhead returns to its home position and the ribbon is advanced, ready for the next print



Continuous Printer

This version is used with continuous motion packaging machines and prints onto the material when it is moving. It has a print area of 32mm x 50mm and print speed of 50 to 600 mm/s.

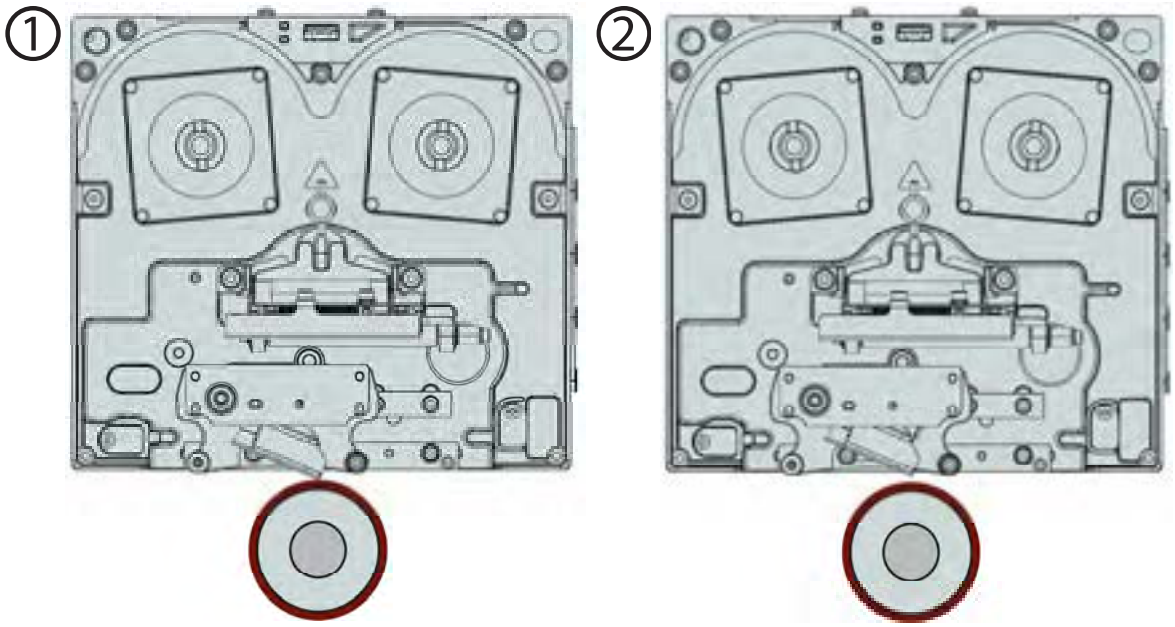
Printing occurs while the packaging material is in motion and uses a thermal printhead and thermal ink ribbon to print information onto the packaging material held against a moving print roller.

The operating sequence is:

A ‘Print Go’ signal triggers the print cycle and the ribbon is accelerated to match the substrate speed

1. The printhead is moved to the print position and the required information is printed

2. The printhead retracts and the ribbon is advanced ready for the next print



ACM (Advanced Consumable Management)

SmartDate X30 uses ACM to automate ribbon set-up and Markem-Imaje branded ribbon is the only ribbon compatible with the SmartDate X30. An RFID tag is fitted to each ribbon waste spool and contains the set-up information of the ribbon as required by the printer.

Information contained on the RFID tag includes.

– Ribbon Width
– Ribbon Length
– Ribbon Grade
– Ribbon Color

The printer reads the RFID tag during the calibration process and ‘pairs’ with the ribbon. Ribbon used in one printer can usually be transferred to a second printer. However the number of times this action can be performed is limited. Markem-Imaje recommends the ribbon is kept paired with the printer that it was first associated with.

– Excessive use of used ribbons will cause fault ‘1700 – Unrecognized Ribbon’ to be displayed
– Use of non-Markem-Imaje or untagged ribbons will also result in the same fault being displayed

Operating Modes

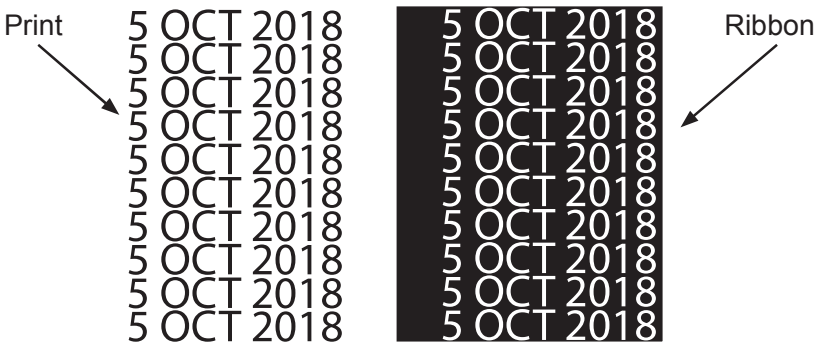
SmartDate X30 has two modes of operation, ‘Normal’ and ‘Ribbon Save’. The choice of mode will depend on the type of application and the intended objectives:

– If maximizing print quality or print speed is the objective, choose ‘Normal’ print mode

– If reducing cost and downtime is the main objective and the application is compatible, use one of the ‘Ribbon Save’ modes

Normal

In this mode the ink removed from the ink ribbon will be equal in size to the printed image on the substrate. For example, a 5mm long print uses 5mm of ribbon.



Ribbon Save

Interlace

This is a printer mode used to save ribbon by advancing the ribbon every second print, reducing ribbon use and costs by 50% and increasing the time between ribbon changeovers.

How it works

When printing the first print, the printhead dots are active for only 50% of the printing time, removing 50% of the ink from the ribbon. In intermittent printers the ribbon is returned back to its original starting position. In continuous printers, the ribbon remains in its finishing position.

For the second print, all printhead elements are energized, transferring the remaining ink. In both intermittent and continuous printers, the ribbon is then advanced to the next position.

As each print contains 50% of the ink normally used, there is a decrease in print contrast. Interlace mode is best suited to date and 'lot type' printing where the reduction in print quality is acceptable.

Interlace mode is limited to around 400mm/sec and is not suitable for printing barcodes or graphics, or for printing variable data.

Setting up Interlace Mode

The printer settings are optimized for a wide range of printing materials however the first and second prints may differ slightly in contrast. The print 'Darkness' setting can be used to balance the prints making them as equal as possible.

– If the first print is darker than the second, reduce the darkness
– If the first print is lighter than the second, increase the darkness

Typically, best results are achieved with the printer set in the speed range of 150mm to 250mm/sec. The maximum print speed recommended is 400 mm/sec.

Materials and Applications

Testing has proven SmartDate X30 interlace mode to work well on most packing materials including:

– Polypropylene

– Polythene

– Premium Labels

– Laminated Films

Films and labels with rough or porous surfaces such as paper and card, which give poor results with standard printing, do not work well in interlace mode.

Limitations

The use of interlace mode has major cost and uptime benefits, however there are limitations of this feature which must be considered when qualifying an application.

– Make sure the materials are printed with acceptable print quality on both first and second prints at the required print speeds

– Interlace mode should not be used to print barcodes or machine readable information

– Avoid using narrow fonts, typically bold and Sans-serif font types work best and provide the most consistent results.

Radial Ribbon Save

In this mode, ribbon use is maximized by advancing only after as much as possible of the printable area of the ribbon has been used.

For example, if using a 33mm wide ribbon and and each print is 5mm wide, SmartDate X30 will print six times across the ribbon before the ribbon is advanced.

As the relative position of the print will move on the substrate. This mode is useful if the final position of the text on the substrate is not important.

Printer Status Indicators

The status of the SmartDate X30 is indicated by two LEDs on the front panel of the printer. While visible at all times, this feature is particularly useful if the printer is operating in stand-alone mode (page 83).

The status LEDs indicate the following

Green - Producing

The printer is in ‘Producing’ mode and waiting for a ‘Print Go’ trigger and if continous printing, an encoder signal

Red - Ready/Fault

The printer is ‘Ready’. Press the ‘Start/Stop’ button to switch the printer to ‘Producing’ or the printer is in ‘Fault’ condition. Connect a HHT to view the ‘Fault’ message

Orange - Warning

The printer is in ‘Producing’ mode but may soon stop printing. Connect a HHT to view the ‘Warning’ message

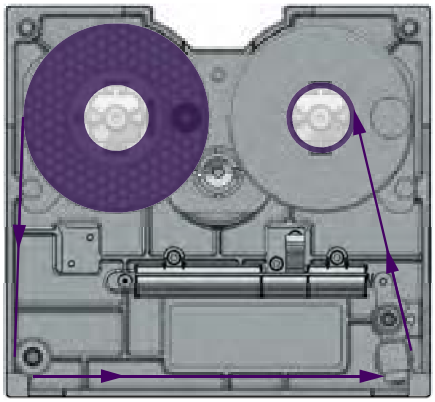
A second LED indicates whether the printer is ‘Busy’

The printer is within a printing cycle

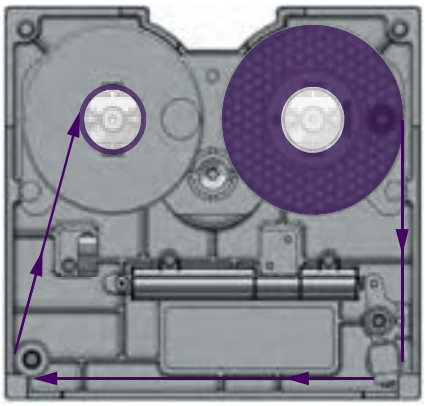
Loading or Replacing the Ribbon

Loading a New Ribbon

1. Fit a new ribbon waste take up core and load a new ribbon following the web pattern on the ribbon supply and take up spools
2. Make sure there are no creases in the ribbon by rotating the take up reel by hand
3. Make sure the ribbon tracking is parallel on the rollers and is positioned correctly
4. Ensure the ribbon is wound forward enough so that the transparent or metalized lead section is not under the printhead



Right Hand Cassette



Left Hand Cassette

Reconnecting a Broken Ribbon

1. Do not tie a knot in the ribbon to reconnect it
2. Wind the remaining waste ribbon onto the waste core
3. Pull unused ribbon from the ribbon supply and wind it onto the waste ribbon take up
4. Turn the waste reel by hand at least one revolution keeping the join between the two as flat as possible

NOTE: *Failure to follow this procedure may cause unacceptable eccentricity on the waste ribbon take up reel. This cannot be controlled by the printer and may produce ribbon tension faults.*

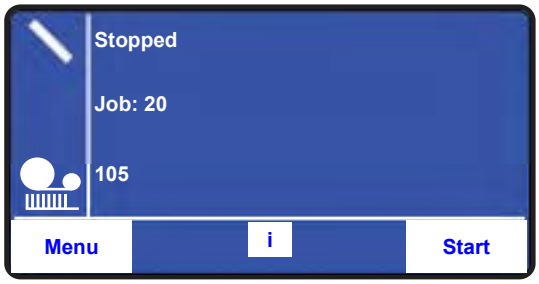
Starting and Stopping the Printer

Starting the Printer

Home Screen

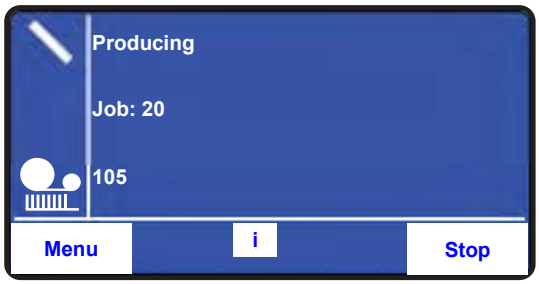
The ‘Home’ screen is the first screen displayed after the printer is powered up and the ribbon is calibrated. The default option is for the printer to begin in ‘Stopped’ mode. To configure alternative behavior see page 131.

Stopped Screen:



Press the ‘Start’ button to switch the printer into ‘Producing’. Any fault condition present will stop the printer entering ‘Producing’ mode. See page 153 , ‘Faults and Warning Messages’.

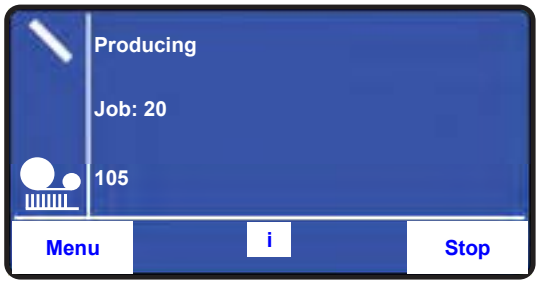
Producing Screen:



The screen indicates ‘Producing’ mode has been selected and the printer is now ready to recieve ‘Print Go’ signals.

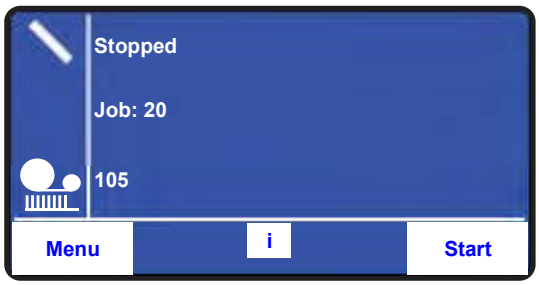
Stopping the Printer

Producing Screen:



To stop the printer press the ‘Stop’ button.

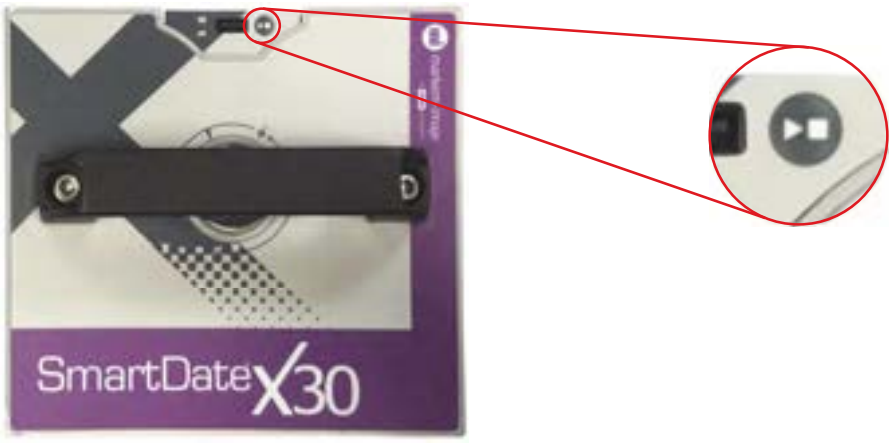
Stopped Screen:



This will put the printer into ‘Stopped’ mode and the printer will ignore ’Print Go’ signals.

Stand-Alone Operation

The SmartDate X30 printer can operate without a HHT connected, a ‘Start/Stop’ button is located next to the HHT USB connector for this purpose.



If a fault prevents the printer from entering a ‘Producing’ state the printer status indicator will remain red to indicate a fault condition.

To view the fault message, warnings or any other information, a HHT must be connected to the printer.

Master/Slave

The SmartDate X30 can be configured for a single SmartDate (master) to control the jobs and status and on up to 7 other SmartDates (slaves).

When operating in this mode it is possible to:

– View the operational state of the slave printers on master SmartDate LUI
– Select jobs simultaneously across multiple SmartDates, entering any required job data once only
– Synchronize start/stop printing across slaves
– Synchronize the clock date/time of the slaves with the master

The date and time are automatically synchronized when the slave SmartDates connect to the master.

Jobs can be stored in each SmartDate local database, or downloaded to the master and/or slaves from a host PC running CoLOS Control.

Connecting Master and Slave Printers

Master/slave uses Ethernet to support communication between printers. A pair of SmartDates can be connected directly to each other by using an Ethernet cross-over cable. Printers can also be networked using a network switch or hub. This configuration also allows connection of the SmartDates to host software (e.g. CoLOS Control) as well as each other.

Configuring the System

The master/slave function is configured on SmartDate to be used as the master. Fixed IP addresses are required and in the case of networked SmartDates, these should be obtained from your IT department and the network must be accessible to CoLOS Control if needed.

The number of slaves, IP address and start/stop options are configured from the ‘Machine’ menu screen (page 115).

Job Selection

Job selection

Introduction

Topics covered in this section include:

– Job Setup

– Data Entry

– Auto Job Selection

Job Selection

Default Job

A default job for basic designs is built into the SmartDate X30. This

option allows you to enter up to four lines of text using the LUI.

– The size and type of font is limited to 8 point Arial Bold
– The number of characters available on each line is approximately 20 and is language dependant
– The design does not support live updates, such as ‘Time and Date’ fields, ‘Best Before Dates’ or ‘Shift Codes’

Downloaded Jobs

More complex jobs are created using Markem-Imaje’s CoLOS Create software and includes support for:

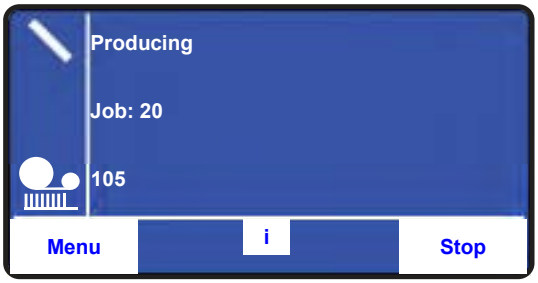
– TTF Fonts
– Barcodes
– Time and Date Fields
– Machine ID Field
– Shift Codes

Job files are stored in the SmartDate X30's local job database, USB memory stick database or on a host PC running CoLOS Control software where they can be downloaded at job selection.

Job selection

Job Setup using the Default Job

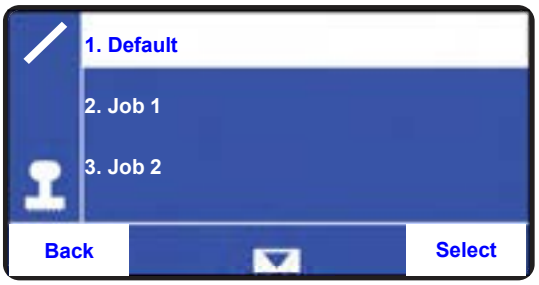
1 From the ‘Home’ screen press ‘Menu’ the button



2 The main menu screen is displayed

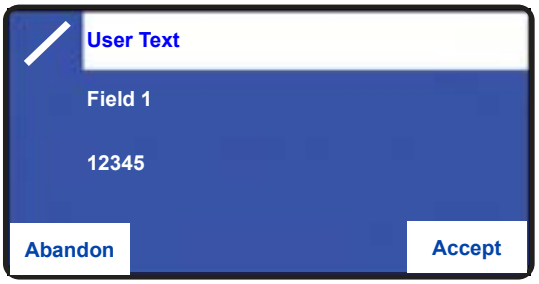
Press the ‘Select’ buton to choose ‘Select Job’

3 A list of available jobs appears.



Choose the ‘Default’ job by pressing ‘Select’

4

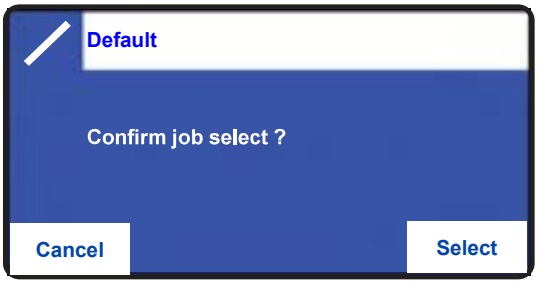


Use the quad buttons to select the required data for each line of text

5 Press the ‘Accept’ button after each line is completed

6 If no text is required on a particular line press ‘Accept’ to leave it blank

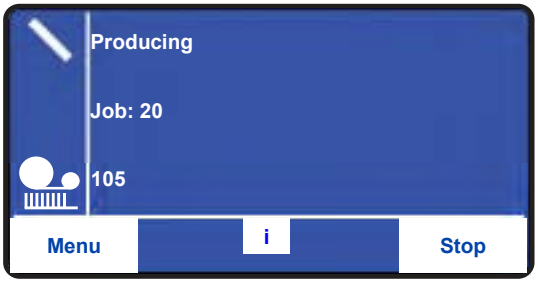
7 Confirm the selection by pressing the ‘Select’ button



Job selection

Job setup using a job from the local database

1 From the ‘Home’ screen press ‘Menu’ the button

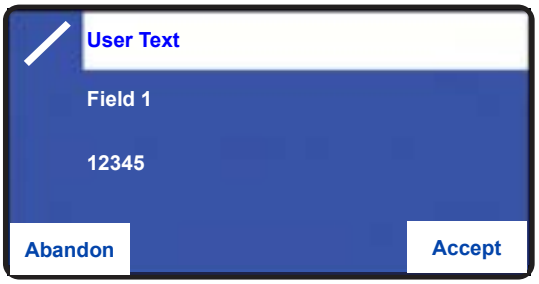


2 The main menu screen is displayed

3 To begin the job selection press ‘Select’

4 A list of available jobs appears. Use the quad buttons to select the required job or enter the job number directly into the keypad

5

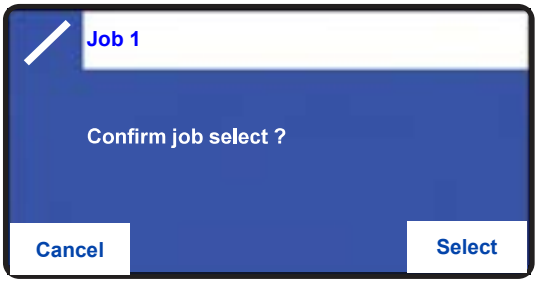


Use the quad buttons to select the required characters for each line of text

6 Press the ‘Accept’ button after each line is completed

7 If no text is required on a particular line press ‘Accept’ to leave it blank

8

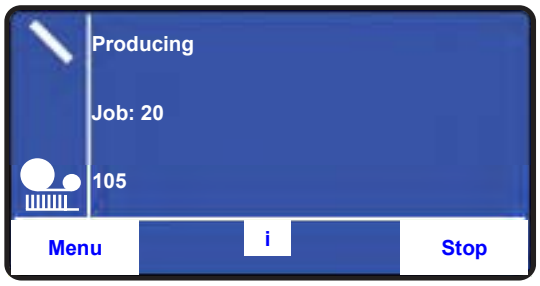


Confirm the selection by pressing the ‘Select’ button

Job setup using a USB memory stick database

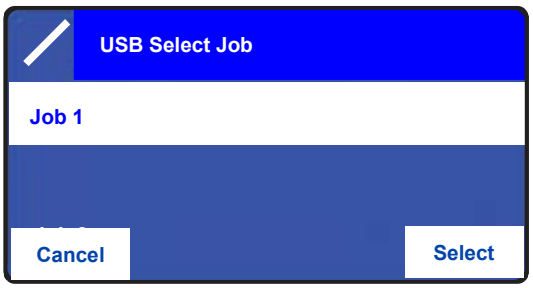
1 Insert the USB memory stick into the USB connector on the bottom of the HHT

From the ‘Home’ screen press ‘Menu’ the button

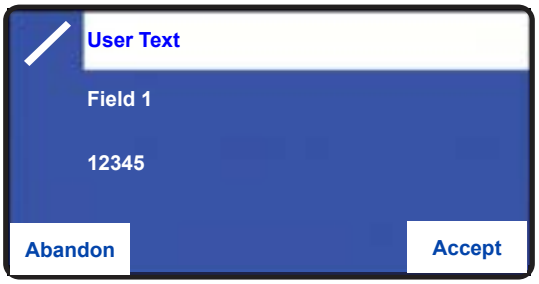


2 The main menu screen is displayed

3 A list of available jobs appears. Use the quad buttons to select the required job



4

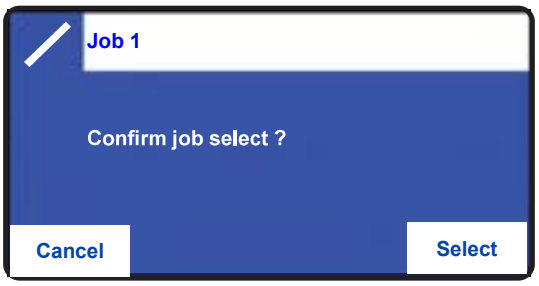


Use the quad buttons to select the required characters for each line of text

5 Press the ‘Accept’ button after each line is completed

6 If no text is required on a particular line press ‘Accept’ to leave it blank

7

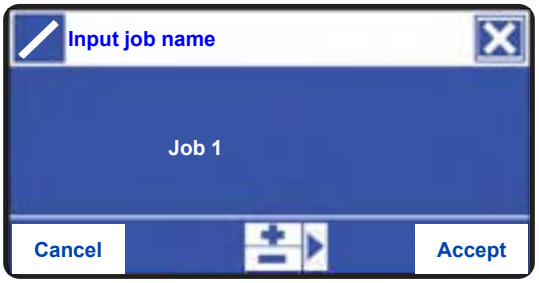


Confirm the selection by pressing the ‘Select’ button

Job selection

Selecting a job from a host PC

1 From the ‘Main’ menu screen, select a job

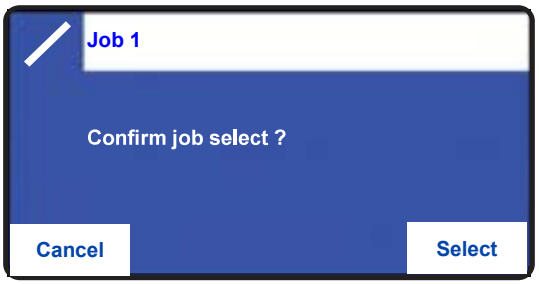


Enter the name of the required job by using the quad buttons

2 Select the job by pressing the right ‘Accept’ button

If prompted, enter any required user text

3



Confirm by pressing the ‘Select’ button

Data Entry

Data entry screens vary depending on the menu option selected.

Prompted Data

Prompted data entry screens are used to input the data required during job selection.

As the image design can prompt for different types of input, the screen types vary.

User text is limited to 16 characters including spaces and is alphanumeric.

Use the LUI keypad to add or edit a number.

Date Entry

Two types of ‘Date Entry’ screens supported by the printer:

– Literal Date Entry

– Offset Date Entry

Literal Date Entry

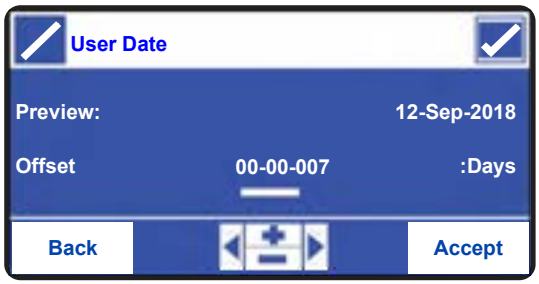
The date format is defined during the image design in CoLOS Create. The date does not rollover and changes only when a new job is selected or the current job is reselected.

Use the quad buttons to change the user date and press the ‘Accept’ button to confirm.

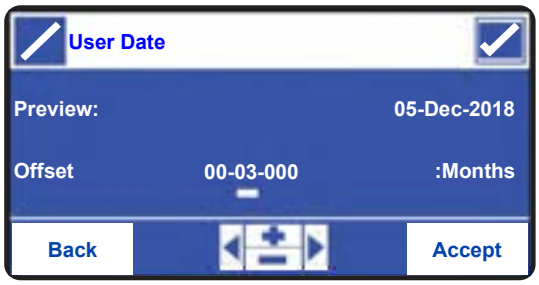
If an incorrect day number is entered the ‘Validation Indicator’ will be displayed as an X and the ‘Accept’ option will not be available.

Offset Date Entry

This screen is used to set an offset from the SmartDate X30 internal clock and to preview what the resulting date will be.



In this example the SmartDate date is set as 5th September 2018 and an offset of 7 days applied, the printed date is therefore 12th September 2018.



In this example the SmartDate date is set as 5th September 2018 and an offset of 3 months applied, the printed date is therefore 5th December 2018.

Auto Job Selection

If the SmartDate X30 is operating in stand-alone mode it is possible to download and select a job using a USB memory stick automatically. This feature is limited to a single job and works only with jobs that do not require user interaction.

Operation

1. Insert the USB memory stick into the PC and delete any files
2. Using CoLOS Create, download the required job to the USB memory stick using the ‘Print To File’ feature
3. Disconnect the power to the SmartDate X30 printer and insert the USB memory stick
4. Reconnect power to the printer and wait for the calibration to complete
5. Remove the USB memory stick
6. If auto-start feature has not been selected, switch the printer into ‘Producing’ using the ‘Start/Stop’ button
7. Verify the correct job has been selected correctly by producing some sample prints

Note: *This feature works only when the USB memory stick plugged directly into printer. Inserting the USB stick into the HHT does not work.*

Printer Configuration

Printer Configuration

Introduction

This section describes how to navigate the menus and the options available.

Topics covered in this section include:

- Accessing the Menus
- Print Settings
- Print Quality
- Test Print
- Date and Time Settings
- Language Selection
- Communications
- Diagnostics
- Statistics
- File Management
- Print Features
- Print Initiation
- Menu Structure

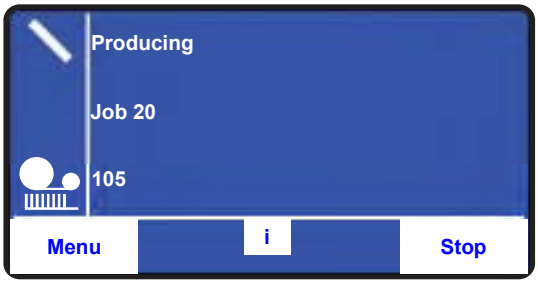
Most settings do not usually require configuration after installation. Darkness and other setting may require periodic adjustment.

Accessing the Menus

The main menu screen allows you to:

– Select a Job
– Adjust the Print Settings
– Access the Engineering Menus

1 From the home screen, press the ‘Menu’ button



2 If a ‘Password Entry’ is prompted for, enter the code

3 The main menu screen is displayed

Settings

Print Adjust

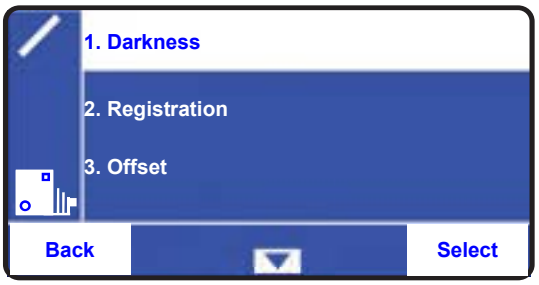
This menu is used to make small adjustments to the position of the printed image on the target material. Adjustments can also be made to other settings to improve print quality.

The ‘Print Adjust’ menu is used to set:

– Darkness
– Registration
– Offset
– Rotation

1 From the main menu screen select ‘Print Adjust’

2 The print adjust menu is displayed



Use the down arrow to scroll to the required menu or enter the item number required at the numeric keypad

Press the ‘Select’ button to confirm selection

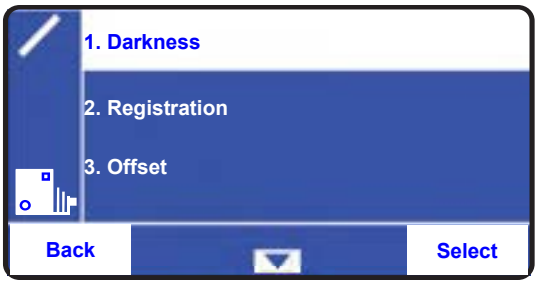
Information	Description
Darkness **Range: 80 to140%** **Default: 100**	The darkness setting is used to make sure the correct amount of energy is used to remove the ink from the ribbon
Registration **Range:** **0 to 35mm (Int.)** **0 to 600mm (Cont.)** **Default: 0mm**	Registration is the position of the print relative to the direction of the substrate. Increasing the registration will delay the printing action
Offset **Range: 0 to 32mm** **Default: 1mm**	Offset is the position of the print relative to the Printhead. Increasing the offset will move the position of the print across the printhead
Rotation **Range: 0 or 180** **Default: 0**	Rotates the image through 180° and back
Test Print	Selects the test pattern for printing

■ Darkness

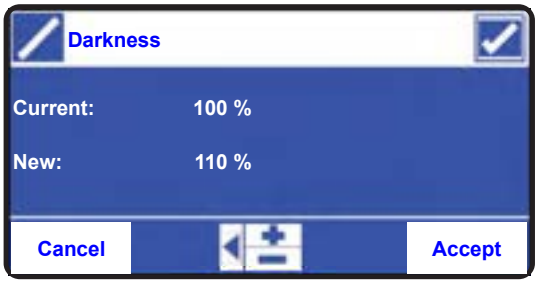
Used to control the amount of energy applied to the printhead during printing, making sure the correct amount of ink is removed during the print.

To access the darkness menu:

1 From the ‘Print Adjust’ menu screen select ‘Darkness’



2 The darkness screen is displayed



Use the **+** and **-** buttons to increase or decrease the units or alternatively enter the required value using the numerical keypad

Press the ‘Accept’ button to confirm the change

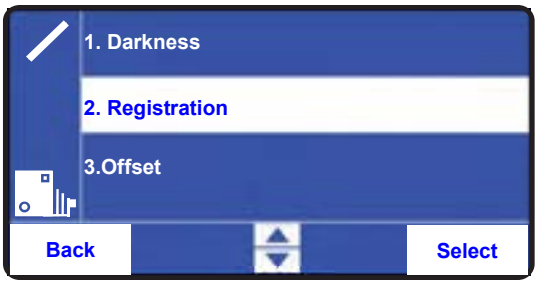
NOTE: This option can be accessed from the producing mode screen.

■ Registration

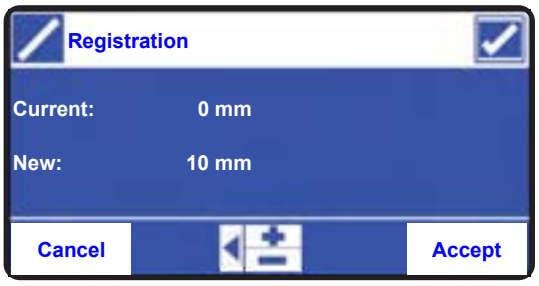
Used to make small adjustments to the position of the printed image on the target material

To access the registration menu:

1 Select ‘Registration’ from the ‘Print Adjust’ menu screen



2 The registration screen is displayed



Use the **+** and **-** buttons to increase or decrease the units, or alternatively enter the required value using the numerical keypad

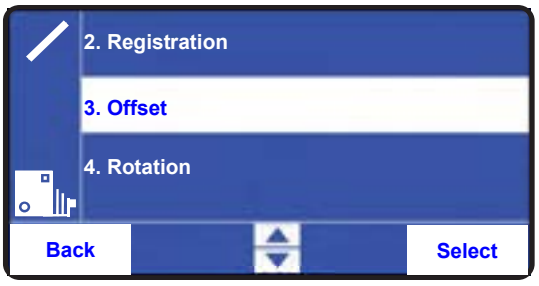
Press the ‘Accept’ button to confirm the change

■ Offset

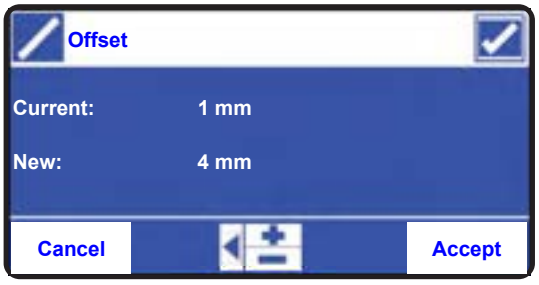
Used to make small adjustments to the position of the printed image across target material.

To access the offset menu:

1 From the ‘Print Adjust’ menu screen select ‘Offset’



2 The offset screen is displayed



Use the **+** and **-** buttons to increase or decrease the units or alternatively enter the required value using the numerical keypad

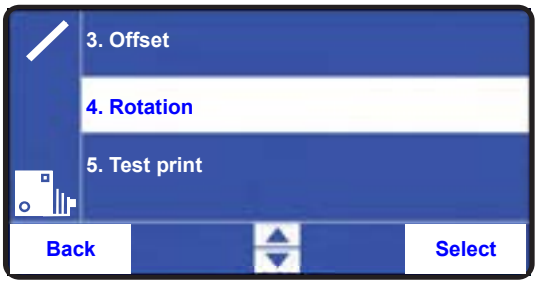
Press the ‘Accept’ button to confirm the change

■ Rotation

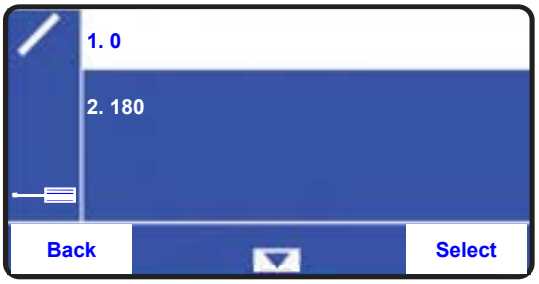
Used to rotate the image through 180° and back.

To access the rotation menu:

1 From the ‘Print Adjust’ menu screen select ‘Rotation’



2 The rotation screen is displayed



Use the up and down arrows to scroll to the required value.

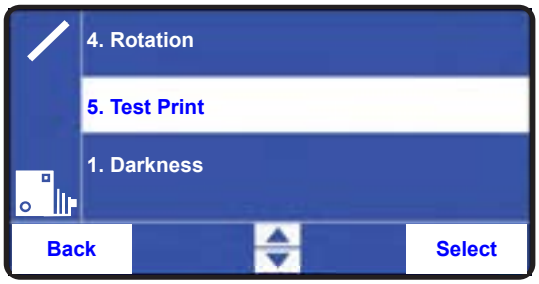
Press the ‘Select’ button to confirm the change

■ Test Print

Used to activate a test print of the current selected Image.

To access the test print function:

1 From the ‘Print Adjust’ menu screen select ‘Test Print’



If the machine type is ‘Intermittent’, a print will be activated immediately.

If the machine type is ‘Continuous’, the target material must be in motion for the action to take place

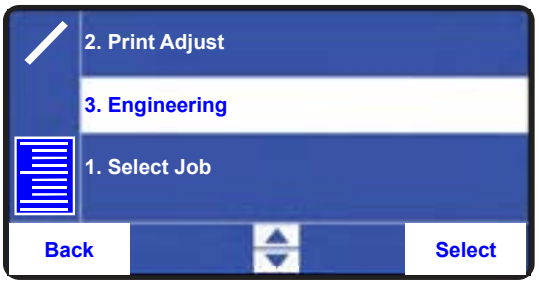
Engineering

The ‘Engineering’ menu is used to:

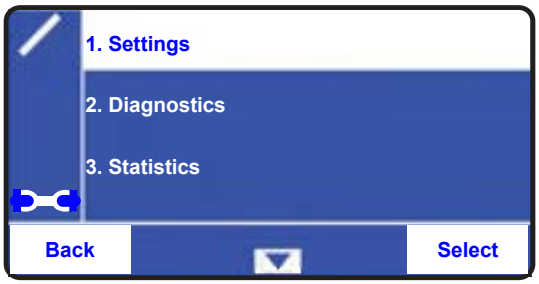
- Configure Printer Settings
- Set the Date and Time
- Select the LUI Language
- Configure Communications Settings
- View Diagnostic Features
- Select a Test Image
- Manually Operate the Printer
- Manage Files

To access the engineering menu:

1 From the main menu screen, select ‘Engineering’



2 The engineering menu screen is displayed



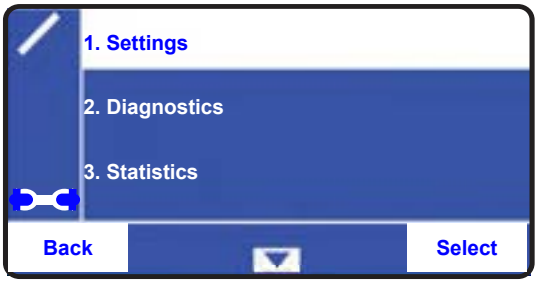
Use the up and down arrows to scroll to the required value, or enter the item number required at the numeric keypad

Press the ‘Select’ button to confirm the selection

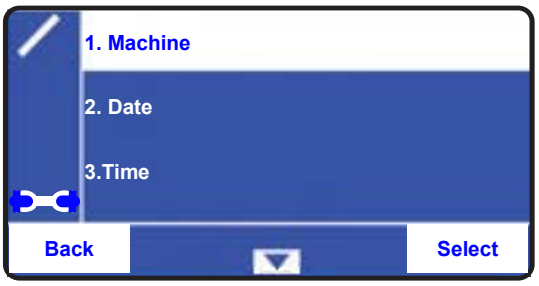
■ Settings

To access the settings menu:

1 From the ‘Engineering’ menu select ‘Settings’



2 The ‘Settings’ menu screen is displayed



Use the up and down arrows to scroll to the required value, or enter the item number required at the numeric keypad

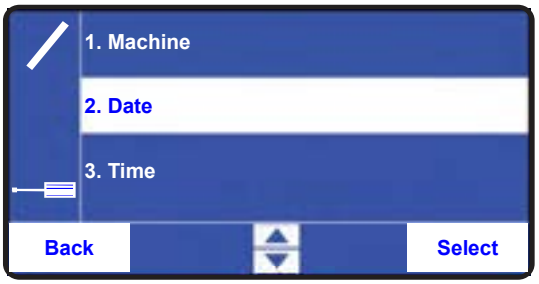
Press the ‘Select’ button to confirm selection

■ Date

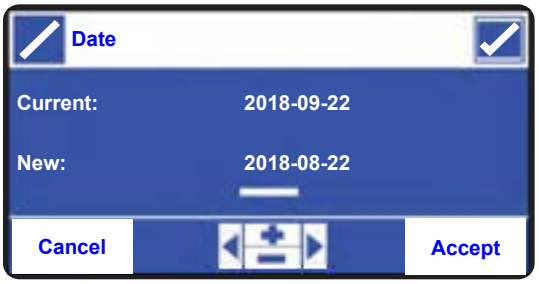
Used to configure the printer's real time clock date

To access the date menu:

1 From the 'Settings' menu, select 'Date'



2 The date menu screen is displayed



Use the left and right buttons to move the cursor.
Use the **+** and **-** buttons to increase or decrease the date, or alternatively enter the required value using the numerical keypad

Press the 'Accept' button to confirm the change

■ Time

Used to configure the printer's real time clock time

To access the time menu:

1 From the 'Settings' menu select 'Time'

2 The time menu screen is displayed.

Use the left and right buttons to move the cursor
Use the **+** and **-** buttons to increase or decrease the time, or alternatively enter the required value using the numerical keypad

Press the 'Accept' button to confirm the change

■ Select language

Used to change LUI language.

To access the language menu:

1 From the ‘Settings’ menu, select ‘Language’

2 The language menu screen is displayed.

Use the up and down buttons to change the language

Press the ‘Select’ button to confirm the selection

NOTE: *The screen will be unresponsive for a few seconds while the language is changing.*

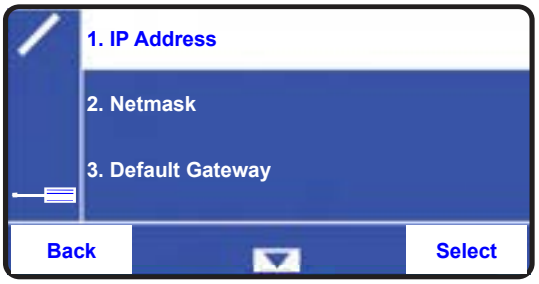
■ Communications

Used to configure the required communications settings.

To access the ‘Communications’ settings menu:

1 Select ‘Communications’ from the ‘Settings’ menu screen

2 The communications menu screen is displayed



Use the up and down arrows to scroll to the required value, or enter the item number required at the numeric keypad

Press the ‘Select’ button to confirm the selection

Setting	Description
IP Address **Range: LAN specific** **Default: 010.000.000.015**	Defines an IP address for the SmartDate X30. Consult your IT department before configuring an IP address
IP Subnet Mask **Range: LAN specific** **Default: 255.255.255.000**	Defines the Subnet Mask for your specific LAN
Default Gateway **Range: As required** **Default: 010.000.000.001**	Defines the IP Gateway for your specific LAN
NGPCL Character Set **Range: ASCII or Unicode** **Default: ASCII**	Defines the character set used for NGPCL communications

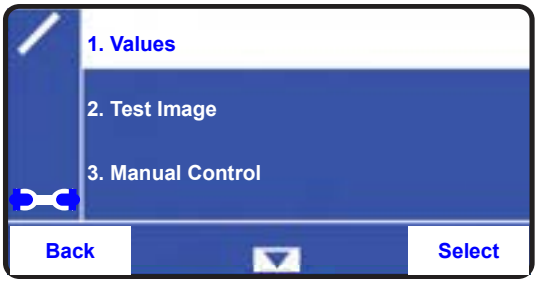
■ Diagnostics

Used to view information about the status of the printer and operate the manual functions.

To access the diagnostics menu:

1 From the ‘Engineering’ menu screen select ‘Diagnostics’

2 The diagnostics menu options are displayed



Use the up and down arrows to scroll to the required value, or enter the item number required at the numeric keypad

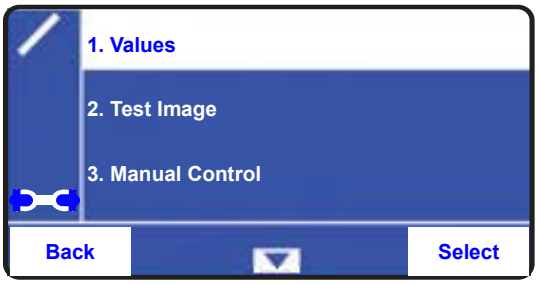
Press the ‘Select’ button to confirm the selection

■ Values

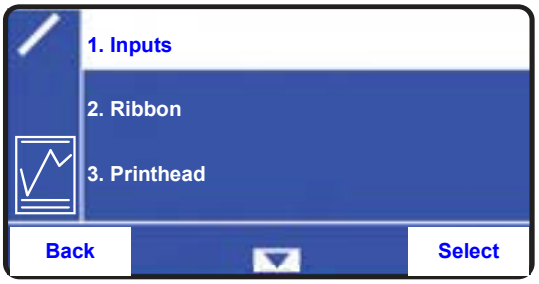
Used to view diagnostics information about the status of the printer.

To access the ‘Values’ menu:

1 From the ‘Diagnostics’ menu screen select ‘Values’



2 The values menu options are displayed.



Use the up and down arrows to scroll to the required value, or enter the item number required at the numeric keypad

Press the ‘Select’ button to confirm the selection

Printer Configuration

Information	Description
Inputs	The current status of the device inputs
Ribbon	Information about the current ribbon being used
Printhead	Information about the printhead fitted
ACM	Information about the ACM system
Printer Config	Information about the printer
Timings	Information about print cycle times
Print Go	Information about the print go signal
Internal	Information used by system integrators

■ Inputs

Information	Description
Encoder Speed	The speed of the encoder when used with a continuous printer in producing mode
Printhead Temp	The temperature of the printhead
RC Position	The ribbon control tensioner position
RC Position ADC	The ribbon control tensioner position raw value
PH Volts	The voltage of the current printhead fitted
Solenoid Current	The current used by the printhead solenoid
Printer Temp	The temperature of the printer
Cassette Switch Closed	The position of the cassette switch
USBMS Present	The USB memory stick status

■ Ribbon

Information	Description
Takeup Dia.	The diameter of the take-up reel
Supply Dia.	The diameter of the supply reel
Width	The width of the ribbon
Length	The original length of the ribbon
Thickness	The thickness of the ribbon
Remaining	The length of unused ribbon remainig

Printer Configuration

■ Printhead

Information	Description
SN	The serial number of the printhead
Initial Date	The programmed date on the printhead
Dead Dots	The number of damaged printhead dots
Print Count	The number of recorded prints
Ribbon KM	The length of ribbon used with this printhead
Min Ribbon Width	The minimum width of the ribbon used

■ ACM

Information	Description
Strength	The strength of the signal from the RFID tag
Maximum Strength	The maximum strength of the signal from the RFID tag
ACMFailurePct	Measures the number of unreadable RFID tags

■ Printer Config

Information	Description
Printhead Resistance	The resistance value of the printhead
Handedness	The handing of the printer
MAC	The MAC address of the printer
Printer State	The current state of the printer
Printer Type	The printer type (Continuous or Intermittent)

■ Timings

Information	Description
Print Cycle	The time taken for a complete print cycle
Printing	The time taken to print an image
Start Border	The time taken for the start border of the print
Image Draw	The time taken to compile the image to be printed
Image Refresh	The time taken to update the image

■ Print Go

Information	Description
PulseCount	The number of ‘Print Go’ triggers recieved
RejectCount	The number of ‘Print Go’ triggers rejected
IgnoreCount	The number of ‘Print Go’ triggers ignored

■ Internal

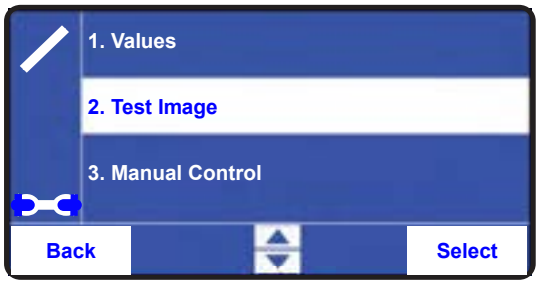
Information	Description
ACM	The RFID reader firmware version
Hardware	The printer PCB revision
Free RAM	The amount of free RAM remaining
Generic (x)	Internal use only

■ Test Image

Used to select the ‘Test Image’ pattern when checking print quality.

To access the ‘Test Image’ pattern:

1 From the ‘Diagnostics’ menu screen select ‘Test image’



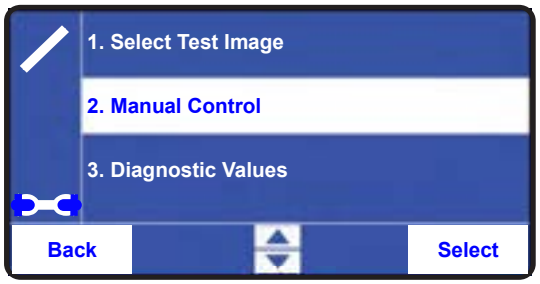
2 The test image is selected and will be printed when a ‘Print Go’ trigger is recieved. This is used to help diagnose print quality problems. Damaged printhead elements will not print and will appear as white lines through the image.

■ Manual Control

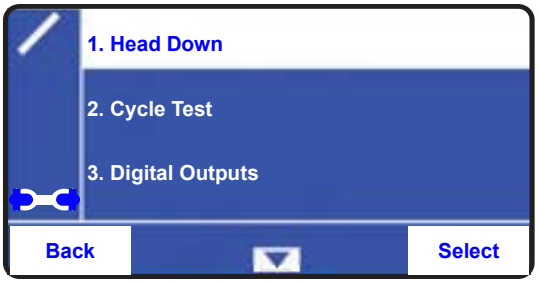
Used to activate the printhead mechanism or run a cycle test.

To access ‘Manual Control’

1 From the ‘Diagnostics’ menu screen select ‘Manual Control’



2 Confirm entry to the ‘Manual Control’ menu and the options are displayed

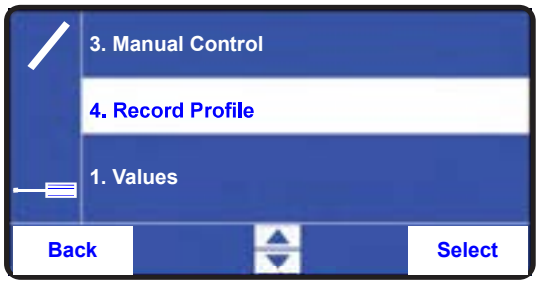


■ Record Profile

Used to configure the speed profile record feature options.

To access the ‘Record Profile’ menu

1 From the ‘Diagnostics’ menu screen select ‘Record Profile’



2 The profile recorder menu options are displayed

Use the up and down arrows to scroll to the required value, or enter the item number required at the numeric keypad

Press the ‘Select’ button to confirm the selection

Setting	Description
Trigger **Range: Record Now or Record Print** **Default: Record Now**	Defines the trigger to start the recording

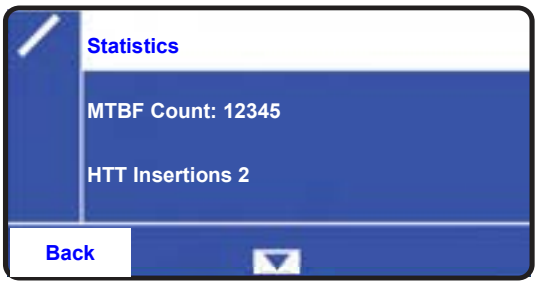
■ Statistics

Used to view statistical information about the Printer.

To access the ‘Statistics’ menu

1 From the ‘Engineering’ menu screen select ‘Statistics’

2 The ‘Statistics’ screen is displayed



Information	Description
MTBF Count	Mean Time Before Failure Count
HHT Insertions	Number of times the Hand Held Terminal has been inserted
P/H Count	Number of printheads that have been fitted
Ribbon Count	Number of new ribbons that have been fitted
Solenoid On Hours	The number of hours the printhead solenoid has been active

File Management

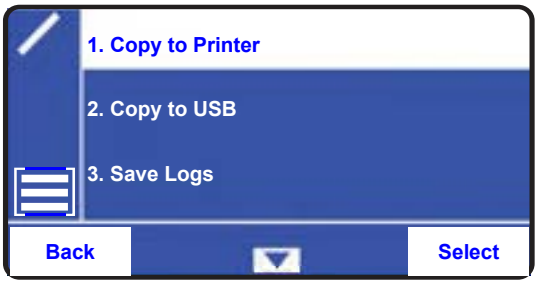
The ‘File Management’ is used to load files from a USB memory stick or manage existing files in the SmartDate X30 database.

Job files, language files and software upgrade files can be all be transferred using a USB memory stick.

To access the File Management menu

1. From the ‘Engineering’ menu screen select ‘File Management’

2. The file management screen is displayed



NOTE: *Not all of the options will be available if no USB stick is present.*

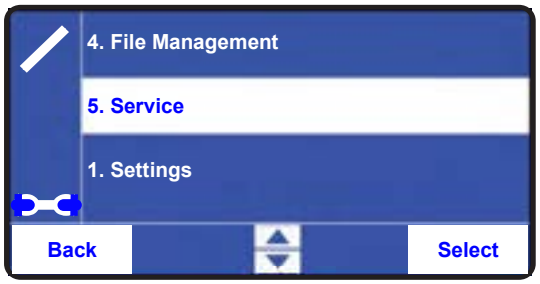
Information	Description
Copy to Printer	Copy job files from the USB memory stick to the printer
Copy to USB	Copy job files from the printer to the USB memory stick
Save Logs	Copy the log files from the printer database to the USB memory stick
Clear Database	Delete all job files from the printer database
Delete Job	Deletes a specifies job from the printer database

■ Service

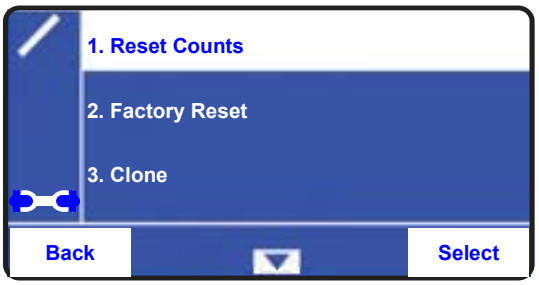
Used to perform service actions.

To access the service menu:

1 From the ‘Engineering’ menu screen select ‘Service’



2 The service screen is displayed.



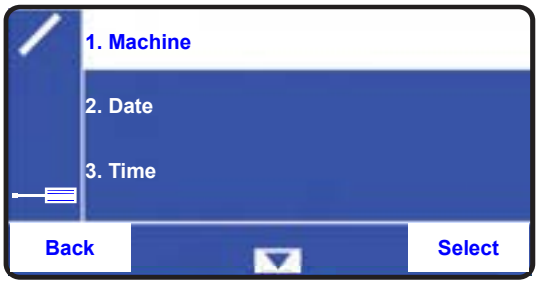
Information	Description
Reset Counts	Resets all counters
Factory Reset	Reset all settings to the factory default settings
Clone	Copies all printer settings to the USB memory stick
Restore	Copies all printer settings from the USB memory stick
Upgrade	Upgrade the firmware from the USB memory stick

■ Machine

Used to configure various printer settings.

To access the ‘Machine’ menu:

1 From the ‘Settings’ menu screen select ‘Machine’



2 The ‘Machine’ settings screen is displayed

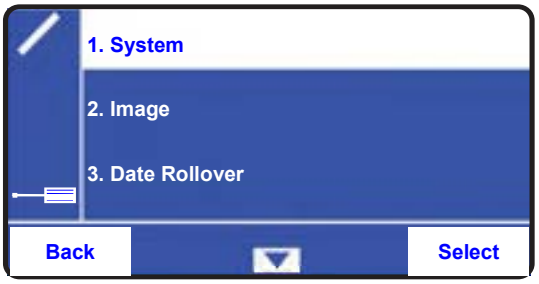
System

The systems settings are used to configure the following options.

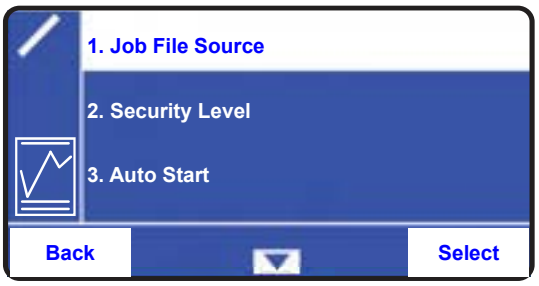
- The Job File Source
- The Security Level
- Auto Start
- Display Warnings

To access the system menu

1 From the ‘Machine’ settings menu screen select ‘System’



2 The system menu screen is displayed



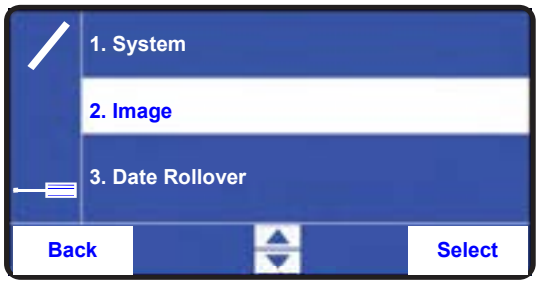
Information	Description
Job Source **Range: Local or USB** **Default: Local**	Defines the source of the Job files
Security **Range: Disabled or Enabled** **Default: Disabled**	Enables the password setting for the printer (access codes are configured using CoLOS Control)
Auto Start **Range: Disabled or Enabled** **Default: Disabled**	Sets whether the printer will start in producing mode after being powering up
Display Warnings **Range: Never, Home Screen Only or Always** **Default: Home Screen Only**	Defines if and how warnings are displayed

■ Image

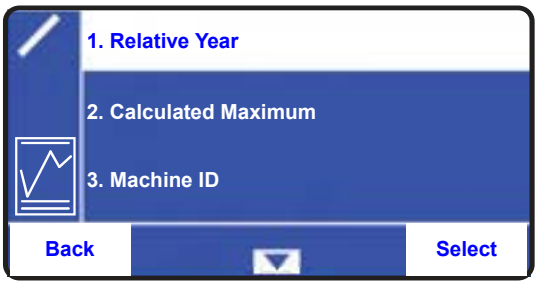
Used to configure date, time and machine ID settings for printing.

To access the ‘Image’ menu:

1 From the ‘Machine’ menu screen select ‘Image’



2 The image menu options are displayed



Use the up and down arrows to scroll to the required value, or enter the item number required at the numeric keypad

Press the right button to select the menu item

Information	Description
Relative Year Offset	Used to set a relative year offset for Japanese Emperor years. For example: 2018 will be printed as year 30
Calculated Maximum	Used to configure the action to be taken after the Data Queue has been exhausted
Machine ID	Used to set a unique identifier for the specific printer or production line

■ Date Rollover

Information	Description
Date Rollover Hour **Range: 0 to 11** **Default: 0**	Sets the hour at which the next day starts
Date Rollover Minute **Range: 0 to 59** **Default: 0**	Sets the minute of the hour at which the next day starts
Date Rollover Direction **Range: After Midnight or Before Midnight** **Default: After Midnight**	Sets whether the rollover calculation should be added or taken away from the midnight point

■ BBE Rollover

Information	Description
BBE Rollover Hour **Range: 0 to 11** **Default: 0**	Sets the hour at which the next day starts for any BBE fields
BBE Rollover Minute **Range: 0 to 59** **Default: 0**	Sets the minute of the hour at which the next day starts for any BBE fields
BBE Rollover Direction **Range: After Midnight or Before Midnight** **Default: After Midnight**	Sets whether the rollover calculation should be added or taken away from the midnight point for BBE fields

Print Features

Information	Description
Ribbon Save **Range: Normal, Interlace or Radial** **Default: Normal**	Enables ribbon save feature
Start Border **Range: 0 to 20mm** **Default: 3mm Intermittent** **Default: 4mm Continuous**	The distance the printhead travels on the substrate before starting to print
End Border **Range: 0 to 20mm** **Default: 0mm Intermittent** **Default: 0.5mm Continuous**	The distance the printhead travels on the substrate after completing the print before lifting the printhead
Ribbon Advance Distance **Range: 1-10mm (1-1000mm*100)** **Default: 1mm**	Sets the distance between each print on the ribbon

Print Signal

Information	Description
Debounce Time **Range: 0 to 5000ms** **Default: 10**	Sets the time the 'Print Go' trigger must be active before it is accepted as valid (Continuous printer)
Debounce Distance **Range: 0 to 5mm** **Default: 0**	Sets the distance the 'Print Go' trigger must be active before it is accepted as valid (Intermittent Printer)
Print Go Ignore **Range: 0 to 1000mm** **Default: 0**	Sets the distance following a valid 'Print Go' trigger before the next trigger is accepted (Intermittent Printer)
Print Trigger **Range: External, Internal or Combined** **Default: External**	Sets the print trigger source (Continuous printer)
Step Distance **Range: 0 to 2000mm**	Sets the distance between prints when using a 'Combined' print trigger
Repeat Count **Range: 0 to 10000**	Sets the number of additional prints when using a 'Combined' print trigger

■ Printhead

Information	Description
Pressure **Range: 0 to 50%** **Default: 30%**	Sets the pressure applied by the printhead solenoid to the printhead

Intermittent

Information	Description
Print Speed **Range: 100 to 600mm/s** **Default: 225mm/s**	Sets the print speed for intermittent printers.
Print Delay **Range: 0 to 5000ms** **Default: 0ms**	Sets a delay between the 'Print Go' signal and the start of the print cycle

■ Continuous

Information	Description
Minimum Print Speed **Range: 50 to 600mm/s** **Default: 50mm/s**	Sets the minimum print speed for continuous printers
Position Tolerance **Range: 0 to 10mm** **Default: 2mm**	Sets the priority between print position on the substrate versus ribbon usage
Low Speed Print Mode **Range: Reprint or Abort** **Default: Reprint**	This is a continuous printer option Defines the action taken if the substrate speed drops below the 'Low Speed Threshold' value

Encoder

Information	Description
Encoder Resolution Range: 2.8 to 150.00p/mm Default: 3.05p/mm	Sets the number of pulses per mm for an External encoder
Encoder Direction Range: Clockwise or Anti (Counter)-Clockwise Default: Clockwise	Sets the forward direction of a quadrature encoder

Print Adjust Options

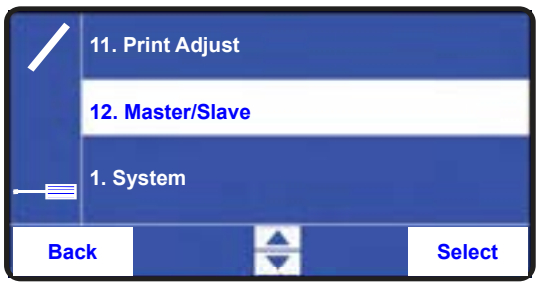
Information	Description
Registration Range: 0 to 35 (Int.) 0 to 600 (Cont.) Default: 0	Registration is the position of the print relative to the direction of the substrate. Increasing the registration will delay the printing action
Offset Range: 0 to 20 Default: 0	Offset is the position of the print relative to the Printhead. Increasing the offset will move the position of the print across the printhead
Maximum Print Width Range: 10 - 32 Default: 32	Sets the maximum print width
Rotation Range: 0 or 180 Default: 0	Rotates the image through 180°
Darkness Range: 80 to 140 Default: 100	Used to make sure the correct amount of energy is applied to remove the ink from the ribbon
Edge Boost Range: 0 to 100 Default: 60	Sets the amount of energy applied to the start of the print

■ Master/Slave

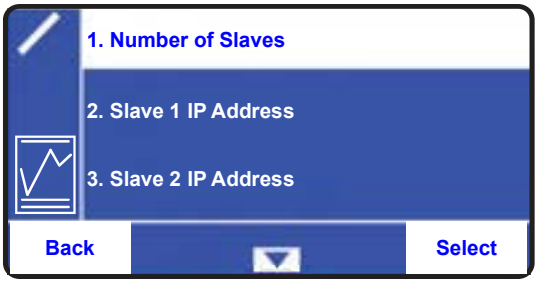
The ‘Master/Slave’ function allows up to 7 ‘Slave’ SmartDate X30 printers to be controlled from a single ‘Master’ SmartDate X30.

Depending on printer configuration, jobs selected on the master SmartDate X30 can be synchronized automatically to the slave printers.

1 From the ‘Machine’ menu screen select ‘Master/Slave’



2 The master/slave menu options are displayed.



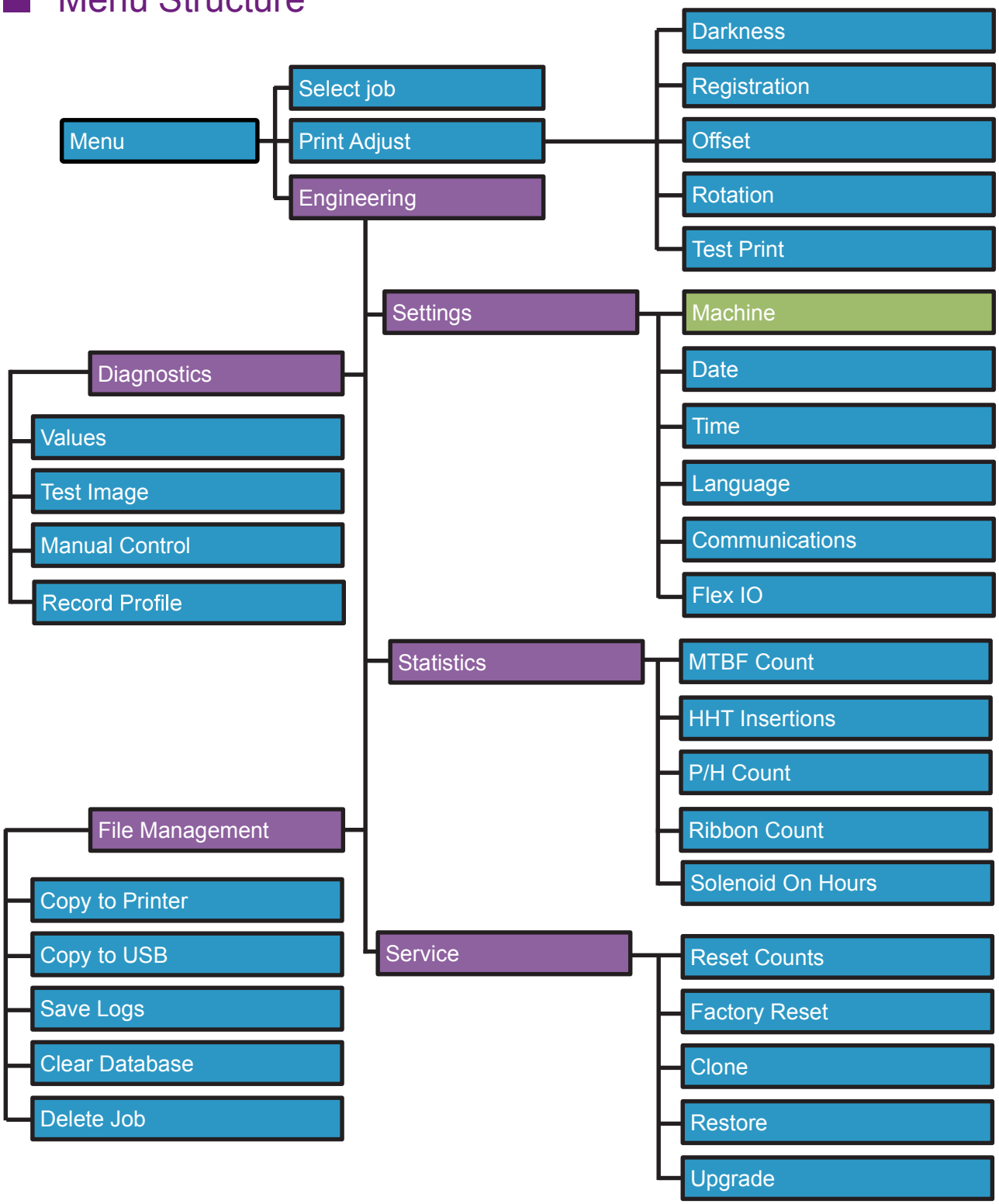
Use the up and down arrows to scroll to the required meny item or enter the item number required at the numeric keypad.

Press the’Select’ button to confirm selection

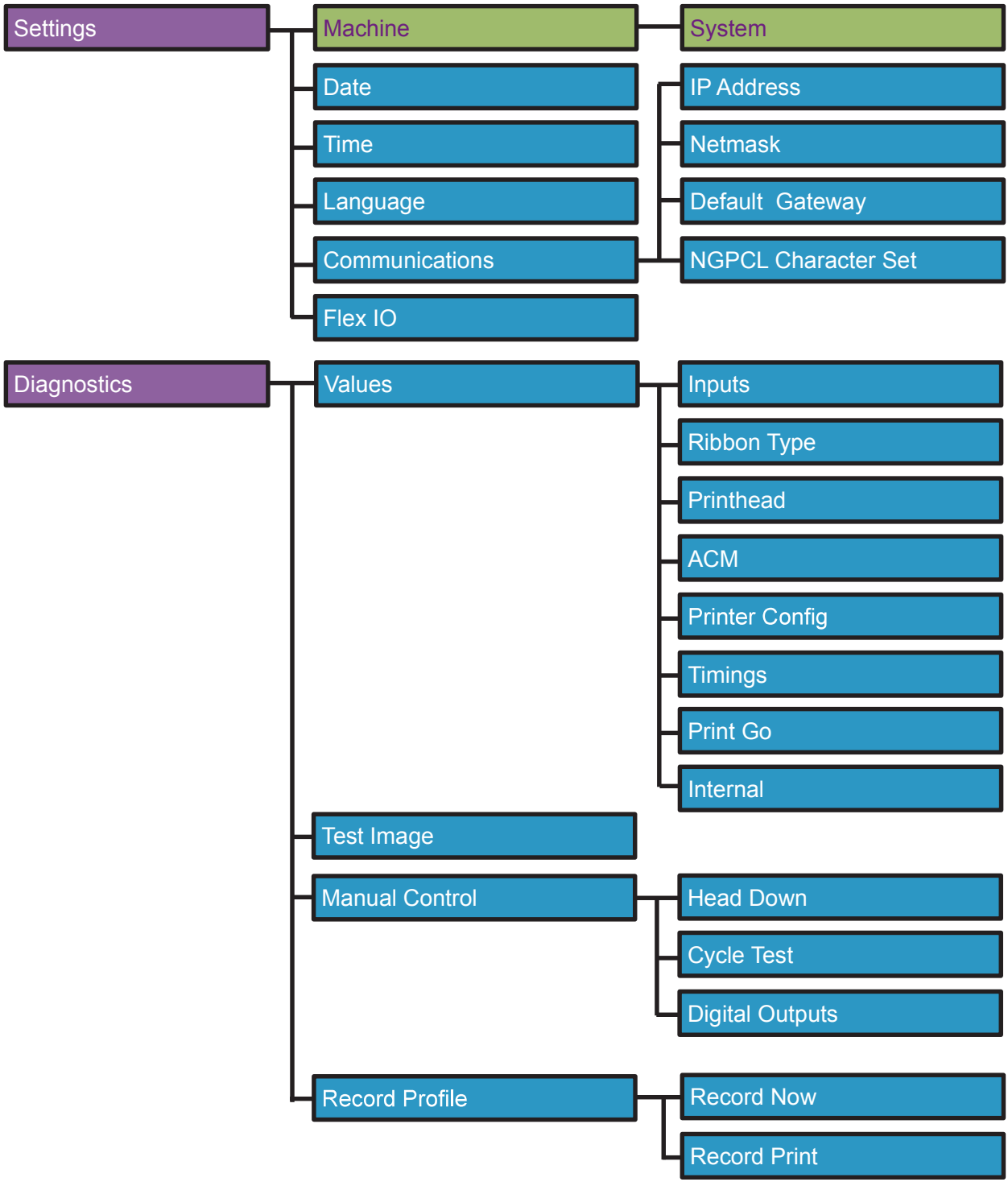
Printer Configuration

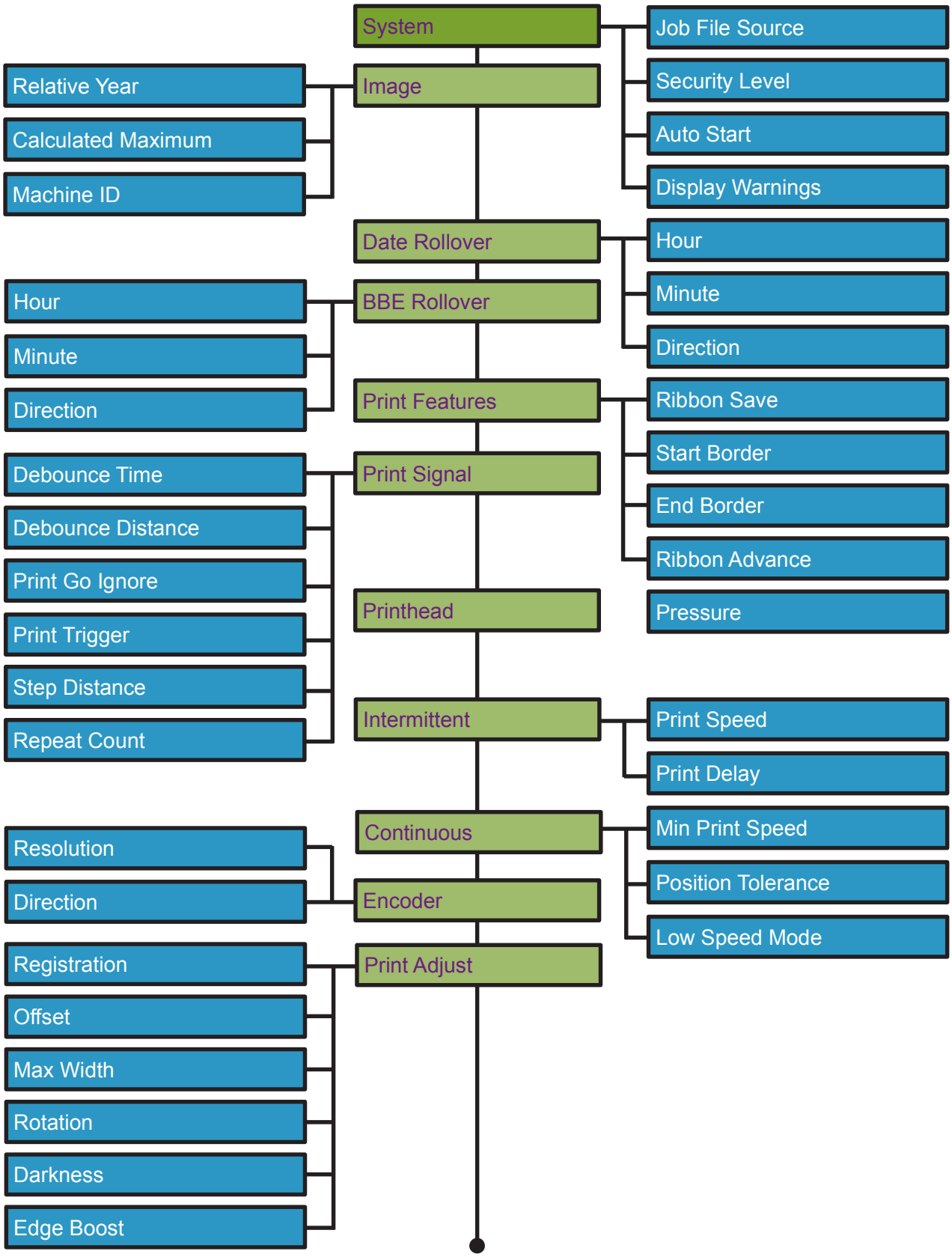
Information	Description
Number of Slaves **Range: 0 or 7** **Default: 0**	Sets the number of slave SmartDate printers to be controlled by the master SmartDate
Slave IP Address (x) **Range: Input by user** **Default:000.000.000.000**	The IP address of slave SmartDate printer (x)
Synchronise Sync Files **Range: Disabled or Enabled** **Default: Disabled**	Defines whether slave printer job files are synchronized with the master SmartDate
Synchronise Start/Stop **Range: Yes or No** **Default: No**	Defines whether the master Smartdate controls the producing state of the slave Smartdates
Synchronise Settings **Range: Off or Print Adjust** **Default: Off**	Defines whether the 'Print Adjust' settings of the slave SmartDates are synchronized with the master SmartDate

Menu Structure

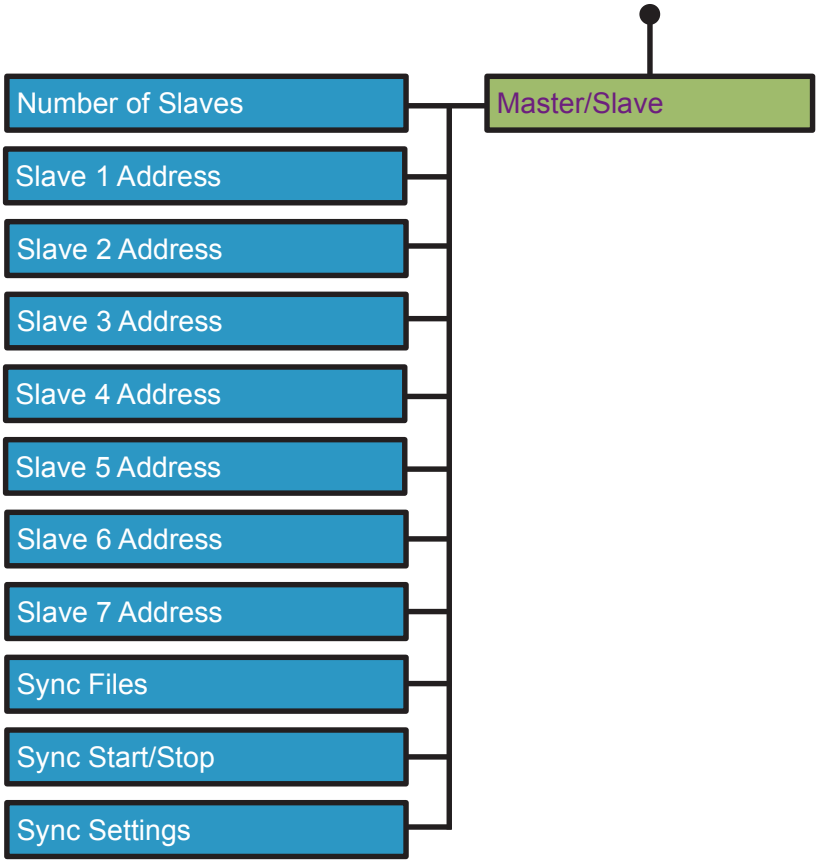


Printer Configuration




System
Job File Source
Security Level
Auto Start
Display Warnings
Image
Relative Year
Calculated Maximum
Machine ID
Date Rollover
Hour
Minute
Direction
BBE Rollover
Hour
Minute
Direction
Print Features
Ribbon Save
Start Border
End Border
Ribbon Advance
Print Signal
Debounce Time
Debounce Distance
Print Go Ignore
Print Trigger
Step Distance
Repeat Count
Printhead
Pressure
Intermittent
Print Speed
Print Delay
Continuous
Min Print Speed
Position Tolerance
Low Speed Mode
Encoder
Resolution
Direction
Print Adjust
Registration
Offset
Max Width
Rotation
Darkness
Edge Boost

Printer Configuration



Setup and Timing Issues

Setup and Timing Issues

Introduction

The following section provides general advice for ensuring that your SmartDate X30 printer works efficiently.

Topics covered in this section include:

- Printhead Gap
- Print Platen
- Ribbons
- Printer Settings
- Print Signals
- Print Quality Issues
- Moving the printed image
- Timing Issues

Setup Issues

Print Roller and Anvil Pad

The print roller for Model SmartDate X30c and print anvil pad for Model SmartDate X30i are wear parts and should be checked regularly for damage.

A damaged print roller will cause print quality problems. For example a flat spot on the print roller will appear as a repeated blank area on the test image.

A worn area on the print platen rubber may cause the print to be faded on one side.

Printhead Gap

This is the distance between the printhead in its home position and the contact point on the substrate. Adjustment to the print gap can be made by using the adjustment screw provided with the mounting bracket.

The gap between the printhead and the print platen or print roller is critical to the performance of the printer. A 2mm gap is recommended, use the Gap Distance tool provided for this purpose (see page 28).

Do not use any other object as you may damage the printhead.

Ribbon

The SmartDate X30 uses outside wound ribbon. Loading the ribbon incorrectly will cause a calibration error. Refer to the webbing diagram on the cassette.

The correct substrate/paper to ribbon match is also important for print quality. A range of ribbon types are available to match the application requirements.

Markem-Imaje ribbon is available in the following options.

– Wax/Resin

– Wax/High Resin

– Resin

For full details on ribbon please contact you local Markem-Imaje representative or visit the Markem-Imaje web site.

Printer Settings

Printer settings will affect the performance of the SmartDate X30 printer. The initial setup of the machine is normally performed by Markem-Imaje approved technicians, but if not, the following information should prove helpful.

Darkness

Darkness is adjusted by varying the amount of time energy is applied for each row of dots printed and altering the amount of cooling time allowed between rows.

Generally, increasing the Darkness thickens the print but can cause smudging if used excessively. Decreasing the darkness setting reduces the risk of smudging, but a value too small will cause poor print quality.

Some ribbon/substrate combinations may require a darkness setting other than the standard 100. If the print quality is poor refer to the 'Troubleshooting' section for diagnosis.

The darkness setting should be set in relation to the application requirements.

For example, higher print speeds may require an increased darkness setting to achieve good print quality. If the print speed is lowered the print darkness may need to be reduced accordingly.

To maximize printhead life, the darkness setting should be as low as the line speed and print quality requirements allow. Darkness levels set too high may also cause poor print quality and the ribbon to break.

NOTE: *The darkness level should be reset whenever a new printhead is fitted.*

Print Speed

The speed that printhead moves along the linear slide (Intermittent).

– If set too low, the substrate may start to move before printing has finished

– If too fast, print quality may be affected

The speed the ribbon moves on the print part of the cycle. (Continuous).

– An encoder is used to match the speed of the substrate

– The ribbon speed has to match the substrate speed before printing can occur. Substrate speed too high or too low may affect print quality

Print Signal Issues

Debounce Time

This is an Intermittent printer setting.

This is the time the ‘Print Go’ signal must be present before it is actioned. This avoids false triggering of the print signal if the signal is noisy (e.g ringing on a relay contact).

Try increasing the debounce time if warning 2101 is reported.

Default - 5ms

Print Delay

This is an Intermittent printer setting.

This setting is a delay after a valid ‘Print Go’ signal is recieved before the printhead is moved into the printing position.

Increasing this setting allows more time for substrate to settle before printing starts but will increase the print cycle time and reduce the pack rate possible.

Default - 0 ms

Moving the Printed Image

The position of print within the printing target area can be changed by altering the Registration and Offset values.

Registration

Altering registration on an Intermittent printer will cause the printhead to move to a new datum position. This ability is useful if small movements are required. This new datum position will remain until the registration is altered again. If larger position changes are required this method may not be suitable as increasing the registration value will reduce the length of print possible.

For example: The maximum print height is 40mm, if a 30 mm print is moved 15 mm by increasing the registration setting, the last 5mm of print cannot be printed. A warning message will be displayed when selecting the Image.

Offset

This allows fine adjustment of the print position across the printhead. This ability is useful if small movements are required. If larger position changes are required this method may not be suitable.

Timing issues

Timing issues can arise when setting up a new application or when changing the way an existing application works.

Distance Between Prints on the Ribbon

Two things can affect the distance between each print on the ribbon.

– The substrate accelerating or decelerating between the end of the registration and the start of print

– Adjustment to the ribbon tension made by the printer during a print cycle

Distance Between Prints on the Substrate

For the intermittent printer, the distance between the prints is set by the stopping position of the substrate.

For continuous printing, the distance between the prints on the substrate is affected by:

– The registration setting

– The debounce distance

The printer allows the substrate to move a set distance after receiving a ‘Print Go’ signal. This distance is consistent no matter what the substrate speed is.

Setup and Timing Issues

Troubleshooting

Troubleshooting

Introduction

This section is designed to provide information that will help you quickly solve problems which may stop your SmartDate X30 printer working efficiently.

Topics covered in this section include:

- Fault Messages
- Warning Messages
- Common Issues
- Drive System Issues
- Print Module Drive Problems
- Display Problems
- Print Quality Problems
- Job Selection Problems

Fault and Warning Messages

The messages are listed below along with potential causes and remedial actions.

Fault Messages

A fault will prevent the SmartDate X30 from printing and enable the fault output. Once a fault is activated, printing will not restart until all faults are cleared.

Fault Message 1001 - Power Supply Fault	
Possible Causes	Power supply components have failed
Remedial Action	Return the printer to the Markem-Imaje service centre
Fault Message 1002 - Printer Hardware Fault	
Possible Causes	A problem has occurred with the printer hardware
Remedial Action	Return the printer to the Markem-Imaje service centre
Fault Message 1004 - TPH Detect Failure	
Possible Causes	The printhead cable is loose The printhead cable is damaged The printhead is damaged
Remedial Action	Check the printhead and printhead cable for damage Replace the printhead
Fault Message 1005 - Software Fault	
Possible Causes	The software has experienced an error condition
Remedial Action	Repower the printer Contact Markem-Imaje if the fault is persistent
Fault Message 1006 - Software Assertiont	
Possible Causes	The software has experienced an error condition
Remedial Action	Repower the printer Contact Markem-Imaje if the fault is persistent

Fault Message 1010 - Unstable Electrical Supply	
Possible Causes	The incoming power supply has fallen below the voltage required for the printer to work
Remedial Action	Check the mains supply Fit a UPS to the mains supply

Fault Message 1109 - Calibration Failure	
Possible Causes	No ribbon fitted The ribbon is not webbed up correctly The supply spool is slipping The take up spool is slipping
Remedial Action	Check the ribbon Check the take up spool

Fault Message 1200 - Ribbon Fault - Movement not detected	
Possible Causes	The ribbon has broken during calibration The ribbon has broken during printing The ribbon tension sensor is faulty
Remedial Action	Reweb the ribbon Use the diagnostic screen to check the ribbon tension sensor input signal

Fault Message 1201 - Ribbon Fault - Tension lost	
Possible Causes	The ribbon tension sensor is damaged The ribbon tension roller is damaged
Remedial Action	Check the ribbon sensor and roller for damage Use the diagnostic screen to check the tension sensor input signal

Fault Message 1202 - Solenoid Fault	
Possible Causes	The connector to the solenoid has become loose The connector or wiring is damaged The solenoid is damaged
Remedial Action	Check the solenoid by using the Manual control function to operate it Check the Diagnostics screen solenoid output to see if it toggles on/off Change the solenoid

Fault Message 1203 - Carriage Overrun	
Possible Causes	The printhead carriage has been driven beyond it's working area
Remedial Action	Check the printhead carriage is not being resticted and is moveing freely
Fault Message 1204 - Printhead Voltage Fault	
Possible Causes	Faulty printhead Faulty printer PCB
Remedial Action	Check the printhead and ribbon cable for damage Try fitting a different printhead Replace the printer PCB
Fault Message 1208 - Ribbon Fault - End of Ribbon	
Possible Causes	All of the ribbon has been used up
Remedial Action	Remove cassette, fit a new ribbon Reinsert cassette to clear the fault
Fault Message 1300 Cassette Open	
Possible Causes	The Cassette has not been fully closed The Cassette closed sensor is faulty
Remedial Action	Close the Cassette Check the Diagnostics screen to see if the Cassette closed sensor toggles on/off Check the Cassette sensor for damage and change if faulty
Fault Message 1311 - Calculated Max Value Reached	
Possible Causes	The maximum number of prints allowed has been reached
Remedial Action	No further prints will be possible with this job and a new job must be selected before printing can continue
Fault Message 1312 - Job Deselected	
Possible Causes	A job has been deselected by an external input signal
Remedial Action	Designed behavior, select a new job to clear the fault

Fault Message 1400 - Corrupt File system	
Possible Causes	The database has become corrupted
Remedial Action	Use the 'Restore to Factory' function and redownload the Job files
Fault Message 1401 - Failed to restore selected image	
Possible Causes	Job/Font file missing
Remedial Action	Redownload the Job Select another Job
Fault Message 1402 - Failed to update selected job	
Possible Causes	Corrupt image
Remedial Action	Select a different job
Fault Message 1404 - Calendar File Exhausted	
Possible Causes	The calender file reached its limit
Remedial Action	Load new calendar file or select a job that does not require a calendar file
Fault Message 1409 - Failed to restore Flexio map	
Possible Causes	Flexio map corrupt/missing
Remedial Action	Create/download appropriate Flexiomap
Fault Message 1410 - Failed to select job from USB on power up	
Possible Causes	The job could not be selected from the USB memory stick
Remedial Action	Check USB memory stick has all required Job files Check USB memory stick does not have unnecessary files
Fault Message 1411 - Failed to apply settings from USB on power up	
Possible Causes	The setting could not be selected from the USB memory stick
Remedial Action	Check USB memory stick has correct settings file Check USB memory stick does not have unnecessary files

Fault Message - 1500 Printer Temperature Too High	
Possible Causes	High ambient temperature The pack rate is too high
Remedial Action	Disconnect the printer power and allow it to cool down Reduce the line speed
Fault Message 1502 - Printer Overheat	
Possible Causes	The print darkness level is too high The printhead is damaged The printhead thermistor is damaged
Remedial Action	Reduce the darkness level Replace the printhead
Fault Message 1651 - Slave 1 has faults	
Possible Causes	A fault has been raised by Slave 1
Remedial Action	Clear fault on Slave 1 and restart
Fault Message 1652 - Slave 2 has faults	
Possible Causes	A fault has been raised by Slave 2
Remedial Action	Clear fault on Slave 2 and restart
Fault Message 1653 - Slave 3 has faults	
Possible Causes	A fault has been raised by Slave 3
Remedial Action	Clear fault on Slave 3 and restart
Fault Message 1654- Slave 4 has faults	
Possible Causes	A fault has been raised by Slave 4
Remedial Action	Clear fault on Slave 4 and restart
Fault Message 1655 - Slave 5 has faults	
Possible Causes	A fault has been raised by Slave 5
Remedial Action	Clear fault on Slave 5 and restart

Fault Message 1656 - Slave 6 has faults	
Possible Causes	A fault has been raised by Slave 6
Remedial Action	Clear fault on Slave 6 and restart
Fault Message 1657 - Slave 7 has faults	
Possible Causes	A fault has been raised by Slave 7
Remedial Action	Clear fault on Slave 7 and restart
Fault Message 1661 - Slave 1: Out of ribbon	
Possible Causes	Slave 1 has no ribbon left
Remedial Action	Fit new ribbon to Slave 1 and restart
Fault Message 1662 - Slave 2: Out of ribbon	
Possible Causes	Slave 2 has no ribbon left
Remedial Action	Fit new ribbon to Slave 2 and restart
Fault Message 1663 - Slave 3: Out of ribbon	
Possible Causes	Slave 3 has no ribbon left
Remedial Action	Fit new ribbon to Slave 3 and restart
Fault Message 1664 - Slave 4: Out of ribbon	
Possible Causes	Slave 4 has no ribbon left
Remedial Action	Fit new ribbon to Slave 4 and restart
Fault Message 1665 - Slave 5: Out of ribbon	
Possible Causes	Slave 5 has no ribbon left
Remedial Action	Fit new ribbon to Slave 5 and restart
Fault Message 1666 - Slave 6: Out of ribbon	
Possible Causes	Slave 6 has no ribbon left
Remedial Action	Fit new ribbon to Slave 6 and restart

Fault Message 1667 - Slave 7: Out of ribbon	
Possible Causes	Slave 7 has no ribbon left
Remedial Action	Fit new ribbon to Slave 7 and restart
Fault Message 1700 - Unrecognised ribbon	
Possible Causes	Non-Markem-Imaje ribbon fitted or ACM failure limit reached
Remedial Action	Fit new Markem-imaje ribbon Fit new ribbon from a different batch

Warning Messages

A warning is indicated when there is something is wrong with the process but will not imediately stop the SmartDate X30 printing

Faults take precedence over warnings on the user interface display

– The warning output will indicate ‘warning’ whenever a warning is active
– The fault output will continue to indicate ‘no fault’ when there are warnings but no faults

Warning Message 2004 - Printhead Damage Detected	
Possible Causes	Damage has been detected on the printhead
Remedial Action	Check the printed image and replace the printhead if required
Warning Message 2005 - Possible Damage To Image	
Possible Causes	Damage has been detected in the printing area of the printhead
Remedial Action	Check the printed image and replace the printhead if required
Warning Message 2100 - Image Not Ready	
Possible Causes	The printer was unable to print the image due to a timing issue
Remedial Action	Reduce the pack rate speed or reduce the number of updating fields on the image
Warning Message 2101 - Unexpected Print Signal Received	
Possible Causes	The printer was unable to print the image due to a speed or timing issue. (Continuous printers)
Remedial Action	Reduce the pack rate speed or reduce the number of updating fields on the image
Warning Message 2103 - Cropped Print	
Possible Causes	The length of the image plus the amount of registration exceeds the distance that the print module can travel in an Intermittent printer
Remedial Action	Reduce the amount of registration.

Warning Message 2105 - Discarded Print	
Possible Causes	The printer has auto-aborted a print in Low-speed reprint mode
Remedial Action	Increase the substrate speed.
Warning Message 2107 - Substrate Overspeed	
Possible Causes	The substrate is traveling faster than the maximum printing speed possible
Remedial Action	Reduce the substrate speed
Warning Message 2108 - Substrate Underspeed	
Possible Causes	The substrate is traveling slower than the minimum printing speed possible
Remedial Action	Increase the substrate speed
Warning Message 2109 - Low Ribbon	
Possible Causes	The ribbon is nearing the end of the roll
Remedial Action	Prepare a new roll of ribbon ready to replace the existing one

Warning Message 2200 - Corrupt File	
Possible Causes	A file was found to be corrupt and has been deleted
Remedial Action	Power cycle the printer
Warning Message 2201 - Settings Corrupt	
Possible Causes	The printer settings have become corrupted
Remedial Action	By clearing this message the settings will be set to default values
Warning Message 2205 - Calendar file nearly exhausted	
Possible Causes	The calender file has almost reached its limit
Remedial Action	Load a new calendar file or select a job that does not require a calendar file
Warning Message 2208 - File System Full	
Possible Causes	There is no memory left to add any job files
Remedial Action	Delete any unrequired files from memory
Warning Message 2209 - Firmware Upgraded	
Possible Causes	The firmware upgrade has been succesfully completed and the settings have been restored to their default values
Remedial Action	n/a
Warning Message 2211 - Firmware Upgrade Failed	
Possible Causes	The firmware upgrade process failed because the process was interrupted or the firmware file is corrupt
Remedial Action	Try upgrading the firmware again If the problem persists use a new copy of the upgrade file
Warning Message 2212 - New Configuration File Downloaded	
Possible Causes	A configuration file was succesfully downloaded
Remedial Action	Power cycle the printer to select and activate the the new configuration

Warning Message 2218 - System Settings Changed	
Possible Causes	System settings have been updated
Remedial Action	Power cycle the printer to activate the the new settings
Warning Message 2219 - Corrupt Language File	
Possible Causes	A corrupted language file was selected
Remedial Action	Replace the language file and retry selection
Warning Message 2220 - Corrupt Security File	
Possible Causes	A corrupted security file was selected and deleted
Remedial Action	Replace the security file and power cycle the printer
Warning Message 2221 - Low Memory	
Possible Causes	The availble memory in the printer is low
Remedial Action	Power cycle the printer and report to Markem-Imaje or local distributor if the problem persists
Warning Message 2300 - Printer High Temperature	
Possible Causes	The printer temperature is reaching an unacceptable level
Remedial Action	Disconnect the power to the Printer and allow the printer to cool down
Warning Message 2302 - Printhead Under Temperature	
Possible Causes	The printhead temperature has not yet reached a working level
Remedial Action	The printer will automatically initiate a preheat cycle before printing can commence
Warning Message 2451 - No Connection To Slave 1	
Possible Causes	Communications to Slave 1 printer have been broken or can not be established
Remedial Action	Check network connection to Slave 1 printer Check Slave 1 printer is powered on

Warning Message 2452 - No Connection To Slave 2	
Possible Causes	Communications to Slave 2 printer have been broken or can not be established
Remedial Action	Check network connection to Slave 2 printer Check Slave 2 printer is powered on
Warning Message 2453 - No Connection To Slave 3	
Possible Causes	Communications to Slave 3 printer have been broken or can not be established
Remedial Action	Check network connection to Slave 3 printer Check Slave 3 printer is powered on
Warning Message 2454 - No Connection To Slave 4	
Possible Causes	Communications to Slave 4 printer have been broken or can not be established
Remedial Action	Check network connection to Slave 4 printer Check Slave 4 printer is powered on
Warning Message 2455 - No Connection To Slave 5	
Possible Causes	Communications to Slave 5 printer have been broken or can not be established
Remedial Action	Check network connection to Slave 5 printer Check Slave 5 printer is powered on
Warning Message 2456 - No Connection To Slave 6	
Possible Causes	Communications to Slave 6 printer have been broken or can not be established
Remedial Action	Check network connection to Slave 6 printer Check Slave 6 printer is powered on
Warning Message 2457 - No Connection To Slave 7	
Possible Causes	Communications to Slave 7 printer have been broken or can not be established
Remedial Action	Check network connection to Slave 7 printer Check Slave 7 printer is powered on

Warning Message 2461 - Job Is Different To Slave 1	
Possible Causes	A different job to that selected on the Master has been selected on Slave 1 printer
Remedial Action	Select the correct job on Slave 1 Printer
Warning Message 2462 - Job Is Different To Slave 2	
Possible Causes	A different job to that selected on the Master has been selected on Slave 2 printer
Remedial Action	Select the correct job on Slave 2 Printer
Warning Message 2463 - Job Is Different To Slave 3	
Possible Causes	A different job to that selected on the Master has been selected on Slave 3 printer
Remedial Action	Select the correct job on Slave 3 Printer
Warning Message 2464 - Job Is Different To Slave 4	
Possible Causes	A different job to that selected on the Master has been selected on Slave 4 printer
Remedial Action	Select the correct job on Slave 4 Printer
Warning Message 2465 - Job Is Different To Slave 5	
Possible Causes	A different job to that selected on the Master has been selected on Slave 5 printer
Remedial Action	Select the correct job on Slave 5 Printer
Warning Message 2466 - Job Is Different To Slave 6	
Possible Causes	A different job to that selected on the Master has been selected on Slave 6 printer
Remedial Action	Select the correct job on Slave 6 Printer
Warning Message 2467 - Job Is Different To Slave 7	
Possible Causes	A different job to that selected on the Master has been selected on Slave 7 printer
Remedial Action	Select the correct job on Slave 7 Printer

Warning Message 2471 - State Is Different To Slave 1	
Possible Causes	The production state is different to Slave printer 1
Remedial Action	Check and clear faults in the Slave printer and set the producing state to the same as the Master Printer
Warning Message 2472 - State Is Different To Slave 2	
Possible Causes	The production state is different to Slave printer 2
Remedial Action	Check and clear faults in the Slave printer and set the producing state to the same as the Master Printer
Warning Message 2473 - State Is Different To Slave 3	
Possible Causes	The production state is different to Slave printer 3
Remedial Action	Check and clear faults in the Slave printer and set the producing state to the same as the Master Printer
Warning Message 2474 - State Is Different To Slave 4	
Possible Causes	The production state is different to Slave printer 4
Remedial Action	Check and clear faults in the Slave printer and set the producing state to the same as the Master Printer
Warning Message 2475 - State Is Different To Slave 5	
Possible Causes	The production state is different to Slave printer 5
Remedial Action	Check and clear faults in the Slave printer and set the producing state to the same as the Master Printer
Warning Message 2476 - State Is Different To Slave 6	
Possible Causes	The production state is different to Slave printer 6
Remedial Action	Check and clear faults in the Slave printer and set the producing state to the same as the Master Printer
Warning Message 2477 - State Is Different To Slave 7	
Possible Causes	The production state is different to Slave printer 7
Remedial Action	Check and clear faults in the Slave printer and set the producing state to the same as the Master Printer

Warning Message 2481 - Slave 1: Low Ribbon	
Possible Causes	The ribbon in the Slave 1 printer will soon run out
Remedial Action	Prepare to replace ribbon in Slave 1 Printer
Warning Message 2482 - Slave 2: Low Ribbon	
Possible Causes	The ribbon in the Slave 2 printer will soon run out
Remedial Action	Prepare to replace ribbon in Slave 2 Printer
Warning Message 2483 - Slave 3: Low Ribbon	
Possible Causes	The ribbon in the Slave 3 printer will soon run out
Remedial Action	Prepare to replace ribbon in Slave 3 Printer
Warning Message 2484 - Slave 4: Low Ribbon	
Possible Causes	The ribbon in the Slave 4 printer will soon run out
Remedial Action	Prepare to replace ribbon in Slave 4 Printer
Warning Message 2485 - Slave 5: Low Ribbon	
Possible Causes	The ribbon in the Slave 5 printer will soon run out
Remedial Action	Prepare to replace ribbon in Slave 5 Printer
Warning Message 2486 - Slave 6: Low Ribbon	
Possible Causes	The ribbon in the Slave 6 printer will soon run out
Remedial Action	Prepare to replace ribbon in Slave 6 Printer
Warning Message 2487 - Slave 7: Low Ribbon	
Possible Causes	The ribbon in the Slave 7 printer will soon run out
Remedial Action	Prepare to replace ribbon in Slave 7 Printer
Warning Message 2491 - Slave 1 Has Warnings	
Possible Causes	Slave 1 printer has a warning message
Remedial Action	Check and clear the warning on the Slave 1 Printer

Warning Message 2492 - Slave 2 Has Warnings	
Possible Causes	Slave 2 printer has a warning message
Remedial Action	Check and clear the warning on the Slave 2 Printer
Warning Message 2493 - Slave 3 Has Warnings	
Possible Causes	Slave 3 printer has a warning message
Remedial Action	Check and clear the warning on the Slave 3 Printer
Warning Message 2494 - Slave 4 Has Warnings	
Possible Causes	Slave 4 printer has a warning message
Remedial Action	Check and clear the warning on the Slave 4 Printer
Warning Message 2495 - Slave 1 Has Warnings	
Possible Causes	Slave 5 printer has a warning message
Remedial Action	Check and clear the warning on the Slave 5 Printer
Warning Message 2496 - Slave 6 Has Warnings	
Possible Causes	Slave 6 printer has a warning message
Remedial Action	Check and clear the warning on the Slave 6 Printer
Warning Message 2497 - Slave 7 Has Warnings	
Possible Causes	Slave 7 printer has a warning message
Remedial Action	Check and clear the warning on the Slave 7 Printer
Warning Message 2500 - Printer Hardware Warning	
Possible Causes	A fault has been detected in the Printer
Remedial Action	Contact Markem-Imaje or distributor for advice

Common Issues

Listed below are a number of possible faults and suggested corrective actions.

No Power to the Printer

– In-line power cable is not connected. Check that the mains plug is correctly inserted into the mains socket

– Check the mains supply to the printer. There will be a fuse or MCB installed to protect the mains cable at source.

No Encoder Signal

– Check that the encoder is rotating freely

– Check that the encoder is sending a signal back to the printer. Use the diagnostics screen to check the encoder input signals

No Information Is Printed

If the printer appears to be operating correctly but no data is printed, check the following:

– A valid image selected

– The print speed and darkness values are at appropriate levels for the thermal ribbon and substrate

– The printhead is in full contact and aligned with the print platen/roller across its full width

– The correct ribbon loaded with the inked surface away from the printhead

– The ribbon is being driven correctly

– The ribbon is correctly webbed through the peel roller

– The encoder signal is providing the correct speed information on continuous printers

– The printhead is not faulty

The Printhead Does Not Move Out

The Printhead in/out motion is driven by a solenoid. If the printhead does not move out, use ‘Manual Control’ to test the operation of the solenoid.

Check the following:

– The printhead is free to rotate in the printhead carriage

– The solenoid is operating (use the manual control)

– If the fault persists, replace the solenoid and/or printer PCB

Drive System

Ribbon Drive

– If the print darkness setting is too high or the print speed too low, the ribbon can be weakened and break. This can be eliminated by reducing the darkness or increasing the speed

– If the ribbon take up is not winding the waste ribbon correctly, check for interference between the accumulated wasted ribbon and the printer body

– If the ribbon is slipping, check that the ribbon cores on the supply and take up spools are being gripped. Look for debris on the inside of the core. This may indicate the supply and waste ribbon spools may need to be replaced

– Check that the drive couplings for the ribbon drive have not come loose. This can easily be checked by trying the coupling by hand

Ribbon Creasing

Ribbon creasing is generally due to the ribbon attempting to ‘track’ across the Printhead.

The most common causes are:

– Bent ribbon guide rollers. This may occur if the cassette is dropped. It is not possible to bend a pin back into position. Remove and replace the guide roller

– Bent peel roller. Remove and replace the peel roller

– Poor print platen/roller alignment can cause ribbon creasing as the substrate tries to pull the ribbon across the printhead

Ribbon Breaking or Scuffing Prints

Continuous printer
If there are problems with ribbon breaking or scuffing prints, it is possible that the printhead gap is set too small. The printhead will move out as the ribbon begins to accelerate. The printhead will then make contact with the ribbon before it is up to speed.

– Set the printhead gap using the supplied tool

Intermittent printer
The printhead may be starting to print before the substrate/labels have stopped moving. The target material must be stationary before printing occurs.

– Increase the print delay

■ Ribbon Coning (Continuous Printers)

If there is a problem with the waste ribbon coning on the take up reel, check the following:

– Make sure the printhead is aligned correctly with the print roller. (See Installation) If incorrectly aligned this will cause tracking problems
– Make sure the ribbon is tracking parallel on the printer rollers and is positioned correctly
– Make sure the guide rollers are not bent or damaged
– Ensure that the Printhead and Peel roller are clean. Ink deposits can also contribute to ribbon coning

■ Peel Roller

– If a peel roller is difficult to spin due to a build up of material debris between the inner roller body and shaft, change the roller
– If the peel roller is very worn and running loose on the shaft, change the roller

■ Printhead Not Returning Home

Intermittent printer
This is normal behaviour if the registration setting has been increased from the default value. The printhead module will return to the default start position if the registration is set to 0.

□ Printhead Module Carriage Drive

In intermittent printing, the carriage drive may stall if the printer is under excessive load.

If the carriage does not drive, check the following:

– The ribbon is loaded correctly
– There is no mechanical interference stopping the carriage moving
– The condition of the drive belt and drive pulleys
– The condition of the linear slide
– The printhead module moves feely along its slide (Disconnect the power to be able to do this)
– The stepper motor connections are correct and secure

If the fault persists, replace the printer PCB.

Print Quality

Faded print

Good print quality depends on the following:

– Quality and compatibility of the substrate and ribbon being used
– Print darkness settings
– Printhead pressure and print speed combination
– Condition of the machine being used to print
– Installation quality
– Ribbon storage conditions

The ‘Test Pattern’ function is the best way of examining print quality and checking for damage to the printhead dots. The printhead should be kept clean by using isopropanol wipes and never be touched with any abrasive material or metallic objects.

Recommendations:

– Clean the printhead and platen
– Increase the darkness
– Reduce the print speed
– Review ribbon choice

Print rubs off

The resistance to prints being rubbed off depends on the ribbon/substrate being used. Markem-Imaje Xpert ribbon has a higher resin content and gives better protection against prints rubbing off, but is usually more difficult to print with. Try using Xpert ribbon grade if affected by this problem but bear in mind the possible limitation of print speed.

Elongated or compressed print

Intermittent printer
The printhead is printing on the substrate when it is still moving. If the problem is at the start of the print, increase the ‘Print Delay’ setting. If the problem is at the end of the print, increase the print speed.

Continuous printer
Check that the encoder is not slipping on the roller.

Printing the Same Image Twice

Check the sensor/signal source to make sure that it is not triggering unwanted ‘Print Go’ triggers. In particular, it is possible for ‘Print Go’ signals triggered by relay contacts to include unwanted electrical noise. If using an intermittent printer, increase the ‘Debounce Time’ or the ‘Debounce Distance’ for continuous printers to filter out these unwanted triggers.

Missing Prints

The print cycle is too long with the likely cause for this being a timing issue.

The print cycle is longer than the time needed to be ready for the following print. The printer must complete its print cycle before it can process the next ‘Print Go’ trigger.

Intermittent printer
Increase the dwell time of the host machine, allowing the printer more time to return the printhead carriage to its home position. Reduce the print cycle time by increasing the print speed. As any ‘Print Delay’ will increase the print cycle time, this should be set to the minimum value possible.

Continous printer
Reduce the throughput of the host machine by running the substrate at a slower speed. As any ‘Registration’ will increase the print cycle time, this should be set to the minimum value possible.

Print Quality Checklist

Wherever print quality issues are seen, always check the printhead gap and in the case of the continuous printer, the printhead position with respect to the print roller. Optimum print quality may require adjustments to the print darkness and printhead pressure settings. Adjustments may be positive or negative from the default values.

The following are examples of common problems with print quality and the steps to take to resolve the issue.

Problem:

The print is light across the complete image

Solution:

1. Increase printhead 'Darkness' in 2% increments
2. In slow continuous applications, move printhead position after TDC
3. Increase printhead 'Pressure' in increments of 2%

Problem:

The leading edge of the print is not sharp

Solution:

1. Increase 'Edge Boost' in 2% increments
2. Increase 'Start Border' setting in 0.5mm increments

Problem:

Faded or missing print on one side

Solution:

1. In slow continuous applications, move printhead position after TDC
2. Increase printhead 'Pressure' in increments of 2%

Problem:

Missing the start of the image

Solution:

1. In slow, continuous applications, move printhead position after TDC
2. Increase 'Ribbon Advance' in 0.2mm increments
3. Increase 'Start Border' setting in 0.5mm increments

Troubleshooting

Problem:

Line(s) through the print

Solution:

1. Clean the printhead
2. Use the ‘Offset’ setting to move the print away from the dead dot
3. Replace the printhead

Problem:

Poor print peel

Solution:

1. Check the ribbon is not ‘flaking’
2. Reduce the printhead ‘Darkness’ setting in 2% decrements
3. In slow, continuous applications, move printhead position after TDC
4. Increase printhead ‘pressure’ in increments of 2%
5. Or reduce printhead ‘pressure’ in decrements of 2%

Problem:

The print is bleeding

Solution:

1. Reduce the printhead ‘Darkness’ setting in 2% decrements
2. Reduce printhead ‘Pressure’ in decrements of 2%
3. In slow, continuous applications, move printhead position after TDC

Problem:

The ribbon is creasing

Solution:
1. Check alignment of the printer with respect to the print roller (Continuous only)
2. Reduce the printhead ‘Darkness’ setting in 2% decrements
3. In slow, continuous applications, move printhead position after TDC
4. Reduce printhead ‘Pressure’ in decrements of 2%

Job Selection

Selecting a Job

A valid job or test pattern must be present in the printer memory for the printer to print. When selecting a job, any relevant Image or Logo files must be present in the database.

Job corruption

Job files can occasionally become corrupted. Text fields may not display correctly or the job may fail to be selected. Redownload the job and check the print. If the problem persists, clear the database and peform a ‘Factory Reset’.

Database

A job must be in the local or USB memory stick databases to be able to be selected. Only jobs displayed on the LUI when using the ‘Select Job’ function are available for selection.

Display Issues

Back light only lit

If the LUI LCD screen is lit but the text or icons are just visible, check the LCD contrast. Adjust the contrast by pressing the button left of the 0 on the LUI numeric keypad. If necessary replace the hand-held terminal.

LCD only or blank display

Replace the hand-held terminal or USB cable.

Maintenance

Maintenance

Introduction

This section is designed to provide information about how to keep your SmartDate X30 printer in good working order. Also included are instructions for basic maintanence procedures. These procedures must be performed by competent personel only and in accordance with local laws.

Maintenance must only be performed with the printer disconnected from the mains power supply.

Topics covered in this section include:

– General Cleaning and Care
– Maintenance
– Care of the Printhead
– Part Replacement

Cleaning and Care

To ensure that the SmartDate X30 printer operates correctly, the entire unit should be regularly cleaned. Particular attention should be given to the printer, especially if food product is able to fall into the unit.

– Clean inside the printer body. Since there are electronic components inside this casing, DO NOT use water to clean the unit. Isopropanol cleaning wipes can be used for this purpose

– To clean debris from the inside of the printer body, Markem-Imaje recommend the use of a soft bristle brush

Quick/Regular Checks

To maintain consistent high quality performance from the SmartDate X30, these checks should be performed at least once per week.

– Check the ribbon is tracking through the cassette correctly

– Pull the ribbon through by hand and check there is no ribbon creasing across its width

– Check the peel roller for build-up of ink. Remove using Isopropanol wipes

– Check the condition of the bracket print roller or platen. To maintain print quality, the print roller or platen should be smooth and free from debris. Replace if necessary

– Check the condition of the mains cable, replace if damaged

– Check the condition of the interconnecting and other cables, replace if damaged

– Make sure the cable retaining screws are tightened

Monthly Checks

Check the condition of the peel roller. Remove from the machine and look for debris on the inside of the roller

– Check the condition of the guide rollers

– Check the bearings are not loose and are smooth running and the guide rollers are parallel to each other

– Check the condition of timing belt and pulleys

Care of the Printhead

The printhead is robust and will perform well over its lifetime. However, as with all electromechanical components, it will be subject to wear and tear. Careful installation, correct operation and regular maintenance will maximize the life of the printhead.

– Use full width ribbon wherever possible. Ribbon is smoother than substrate, protects the printhead from wear and is requirement of the printhead warranty policy

– Use the minimum darkness settings as possible that produces a good quality print. Higher darkness settings reduces printhead life

– Use the minimum pressure possible that produces a good quality print. Higher pressure reduces printhead life

– Clean the printhead regularly. The frequency of cleaning will depend on the application, but at least once per shift is recommended

Cleaning the Printhead

The printhead should be cleaned at regular intervals depending on use, operating environment, and choice of thermal ribbon.

– Remove the Cassette and allow the printhead to cool to normal room temperature before proceeding in order to prevent the possibility of thermal shock damage

– Use a Markem-Imaje printhead cleaning wipe to remove any residue from the printhead as shown

Be careful not to damage the printhead during cleaning. Abrasive materials or tools such as screwdrivers should not be used for cleaning the printhead.

Replace the ribbon and check the print quality. If print quality is poor or dots are not printing, the printhead may need to be replaced.

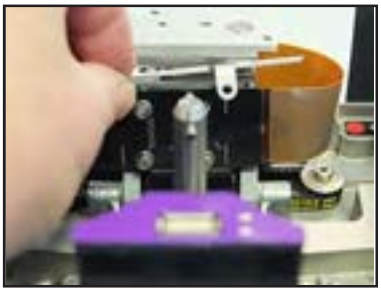
Replacement Procedures

Printhead

1

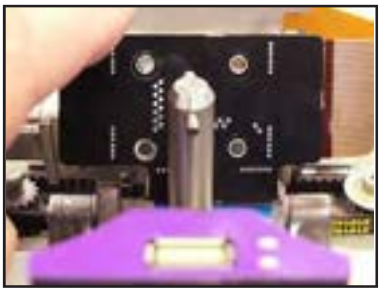
Remove the four retaining screws from the printhead interface PCB.

2



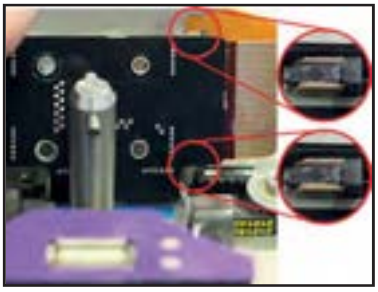
Remove the interface PCB cover and place to the side.

3



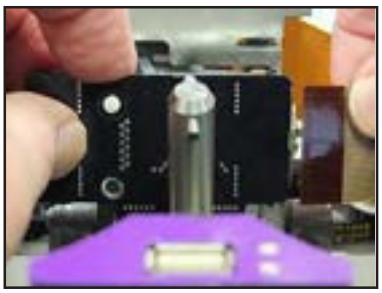
Pull the PCB upwards to allow access to the ribbon connectors.

4



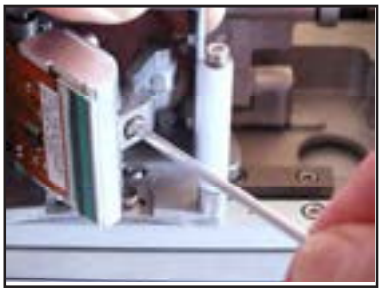
Slide the ribbon clamps to the open position.

5



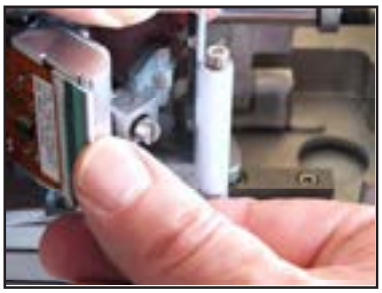
Remove the printhead ribbon from the PCB

6



Rotate the printhead quick release screw 90° counter-clockwise

7

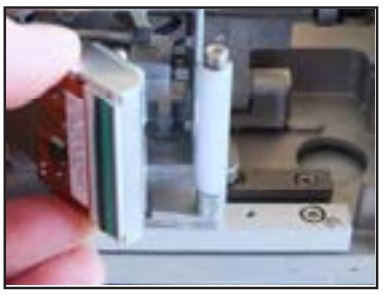


Push the printhead backwards and remove from the module

8

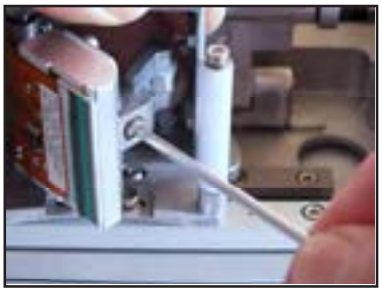
Use a printhead wipe to clean off any debris from the gimble pin

9



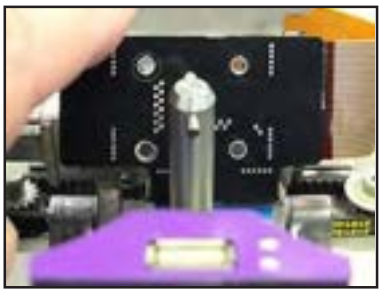
Fit a replacement printhead and push into the locking position

10



Push the quick lock screw forward and rotate clockwise to secure

11



Connect the printhead ribbon to the interface PCB use the ribbon clamps to secure

12

Connect the interface PCB and the cover and secure

NOTE: *When fitting a new printhead ribbon cable ensure that the black connectors are fully extended before pushing in the ribbon. Secure fully after fitting.*

Peel Roller

1

Remove the retaining screw from the end of peel roller

2

Carefully remove the peel roller assembly ensuring not to drop any components

3

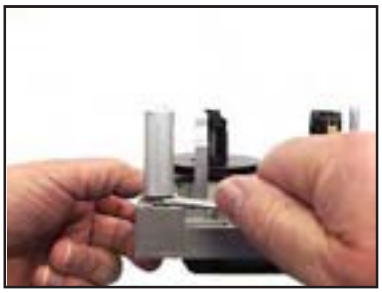
Apply Loctite 222 to the replacement peel roller assembly screw hole, wiping away any excess before fitting the peel roller

4

After securing, rotate the roller to ensure it is moving freely

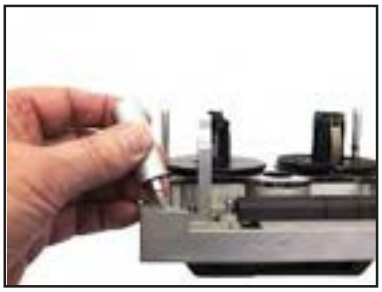
Ribbon Movement Roller

1



Use a 7mm wrench to unscrew the movement roller from the cassette

2



Remove the ribbon movement roller assembly from the cassette

3

Apply Loctite 222 to the replacement movement roller assembly screw hole before fitting the replacement roller

4

After securing, rotate the roller to ensure it is moving freely

Ribbon Tension Roller

1

Remove the two retaining screws from the ribbon tension spring cover.

2

Remove the tension spring cover and place to the side.

3

Unscrew the spring retaining screw.

4

Use a 10mm wrench to unscrew the tension roller assembly from the cassette.

5

Remove the tension roller assembly from the cassette.

6

Before fitting a replacement assembly add Loctite 222 to the screw hole.

7

Fit a new tension roller assembly and secure.

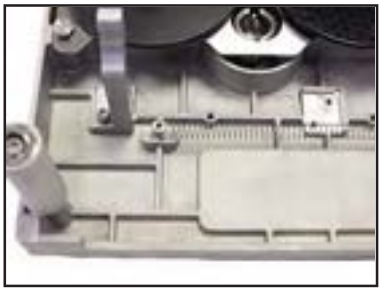
8

Add Loctite 222 to the spring retaining screw hole.

9

Replace the spring retaining screw and secure.

10



Hook the tension roller assembly spring around the retaining screw ensuring that the spring is not over-stretched.

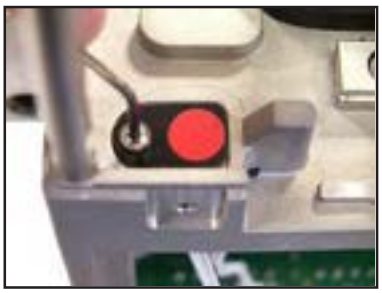
11

Replace the spring cover and secure.

Ribbon Movement and Tension Sensors

If necessary remove the printer side cover for easier access.

1



Use a 1.5mm hex key to remove the sensor retaining screw.

2

Remove the sensor from the printer body.

3

Disconnect the sensor from the wire connector.

4

Fit a replacement sensor and secure.

Drive Belt

1

Rotate the printhead securing screw 90° counter-clockwise.

2

Push the printhead away from the peel roller.

3

Remove the printhead from the print module.

4

Place the printhead to the side.

5

Note the print module printhead angle position for SmartDate X30 is 4

6

Remove the two retaining screws from the print module

7

Remove the print module from the print module carriage plate

8

Remove the four retaining screws from the print module carriage plate

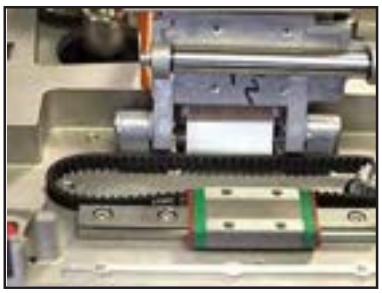
9

Remove the carriage plate from the linear bearing slide.

10

Use a 2.5mm hex key to remove the belt pulley

11



Remove the drive belt and fit a replacement

12

Add Loctite 222 to the belt pulley screw hole

13

Replace the belt pulley and secure

14

Replace the printhead carriage and secure

15

Replace the printhead module setting the printhead angle adjust to position 4

16

Replace the printhead

17

Push the printhead forward and turn the securing screw through 90° clockwise

Printer PCB

1

Undo the four retaining screws and remove the cover from the printer body

2

Place the printer so the PCB can be accessed

3

Locate the printhead ribbon PCB connector

4

Release the black ribbon clamp from the ribbon connector

5

Remove the printhead ribbon from the connector.

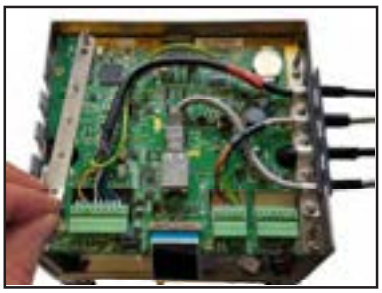
6

Locate the second ribbon connector at the opposite side of the PCB and repeat the operation.

7

Use a 2.5mm hex key to remove the cable clamp plate screws.

8



Remove the cable clamp plate from the printer.

9

Repeat the operation for the second clamp plate.

10

Remove the two remaining screws from the PCB.

11

Disconnect all connectors and remove the PCB.

Printer Solenoid

1

Remove the printer PCB and locate the solenoid

2

The solenoid is screwed directly into the printer body. When fitting a replacement, use Loctite 222 to secure the solenoid to the printer body

Technical Specifications

Technical specifications

Machine Specification

Print Area	SmartDate X30 - Intermittent printer 32mm x 40mm SmartDate X30 - Continuous printer 32mm x 50mm
Substrate Area	Unlimited.
Print Speed	SmartDate X30 - Intermittent printer 100 - 600mm/s SmartDate X30 - Continuous printer 50 - 600mm/s
Max Pack Rate	SmartDate X30 - Intermittent printer 185 ppm @ 225mm/s - 10mm image 101 ppm @ 225mm/s - 40mm image SmartDate X30 - Continuous printer 200 ppm @ 600mm/s - 10mm image (180mm pack length) 180 ppm @ 600mm/s - 40mm image (200mm pack length)
Printhead Resolution	12 dots/mm (300 dpi)
Printhead Gap	0.5mm - 2mm
Print Method	Thermal transfer.
Power Supply	110-230V AC 50 - 60 Hz 24V DC
IP Rating	n/a
Environmental	Operating environment of: 0°C to 40°C (32°F to 104°F)
Noise Levels	Test Standard BS EN ISO 3746:1996 SmartDate X30 Intermittent printer 199 ppm with a 10 mm Image (600 mm/s) <70 dB (A) SmartDate X30 Continuous printer 299 ppm with a 10 mm Image (160 mm bag) (600 mm/s) 70 dB (A)
Printer Dimensions	228mm length x 183mm width x 169mm height Allow a minimum of 100 mm above the printer for extension of the handle and ribbon cassette removal
Printer Weight	Intermittent printer - 5.3kg Continuous printer - 5.0kg

Ribbon	Maximum ribbon length 450 metres Maximum ribbon width 33 mm Minimum ribbon width 22 mm
Ribbon Grades	White - Xtra Black - Xtra, Xceed, Xpert
Font Styles	Most ‘True Type’ fonts
Font Sizes	Scalable to specific point sizes
Orientation	Any mix of orientation
Graphics	Lines, boxes and logos (*.bmp format)
Special Functions	Automatic real time, date, batch and shift Information. Automatic ‘Best Before End’ offset calculation and coding. Incremental alphanumeric text and barcodes
Local SmartDate X30 Memory	20Mb
Machine Interface	Inputs: ‘Print’ input signal status Outputs: Interlock Output User Configurable I/O
Operator Interface	The user interface screen comprises of an LCD screen and a 18 button keypad interface. The buttons are ‘soft labelled’ on the screen when usable
Computer Interface	Ethernet
Design Software	Markem-Imaje CoLOS Create Pro for Windows design package
Network Software	Markem-Imaje CoLOS Control for Windows for network, data transfer, remote operation and machine monitoring and data logging operations
Options	
USB	USB-A

Technical specifications

User Manual - Revision

The revision AA index corresponds to the first edition of this manual.
The revision index changes with each update.

Date published	Revision index documentation
09/2017	AA

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