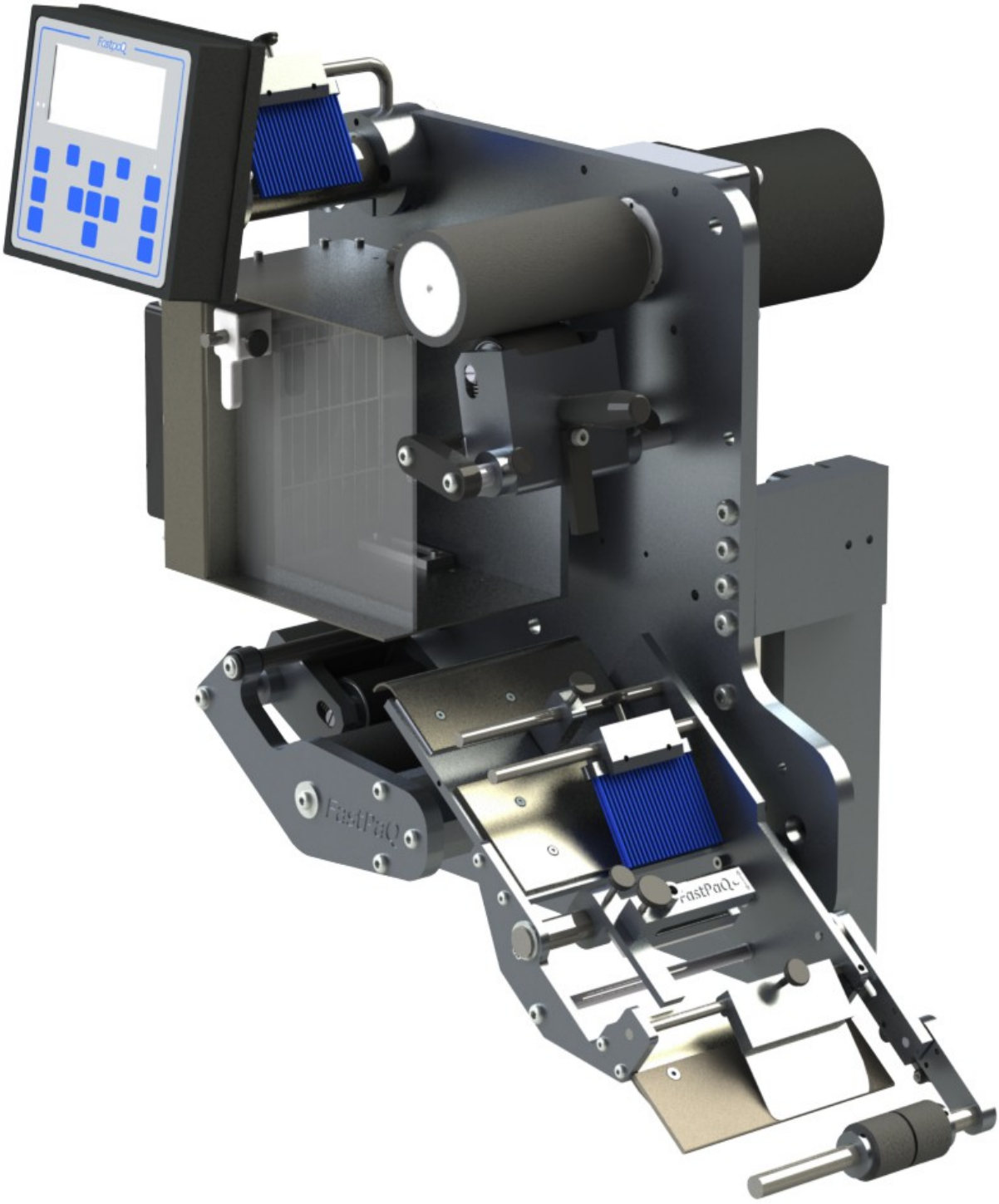
FastPaQ VHS/UHS labeller
Operating Manual



Applies to software Version 3.00

VHS/UHS labeller

Operating manual

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Chapter 1 Safety instructions

The intended use of the labeller is to apply self-adhesive labels to products or continuous lengths of material. Use of this equipment in any other fashion may lead to serious personal injury.

The safety guidelines provided in this chapter are intended to educate technicians and operators on all safety issues so that the labeller is maintained and operated in a safe manner.

1. Read these instructions.
2. Keep these instructions.
3. Heed all warnings.
4. Follow all instructions.
5. Protect the power cord and other cables from being walked on or damaged.
6. Refer all servicing to qualified service personnel. Servicing is required when the labeller has been damaged in any way or does not operate normally.

Dress Appropriately! Reduce the risk of injury from moving parts by securing loose sleeves and other clothing. Do not wear loose jewellery or neck-ties near the machine.

Avoid Pinch Points! Exposed pinch points include the drive-roller and loop roller and their corresponding nip rollers.

Wear hearing protection! Hearing protection must be worn when the labeller is operating.

This labeller is capable of producing sound pressure levels exceeding 85 db(A). This is the sound pressure level corresponding to the maximum permissible level which is by law (in some countries) allowed to affect a person's hearing for the duration of a working day (8hours).

1.1 Electrical safety guidelines

This section explains the safety guidelines related to electrical power supply and electrical cables.

Lethal voltages are present within this equipment when it is connected to the mains electrical supply. Only trained and authorized personnel must carry out service and repairs.

The labeller must be connected to an AC power supply that has a protective ground conductor and the power supply must be according to IEC requirements or applicable local regulations.

Never open the electrical cabinet without first disconnecting it from the mains supply.

Do not use the labeller if there is any interruption in the protective ground conductor or if the protective ground conductor is disconnected. Failure to follow this warning can cause an electrical shock.

Do not use the labeller if there is any damage to any of the cables that run between the electrical cabinet and the labelling head. The cables to the motors contain potentially lethal voltages. Failure to follow this warning can cause an electrical shock.

Chapter 2 The VHS / UHS labeller

The VHS /UHS labeller is used to automatically apply self-adhesive labels to products. As each product passes by the labeller it will automatically dispense a label onto it. The products are typically carried by a conveyor. The labeller can also apply labels to continuous lengths of material with each label dispense initiated by a sensor that detects marks on the material and provides signals to the labeller accordingly.

The labeller is particularly suitable for applications with high labelling rates or high accuracy requirements as it is capable of very high dispense speeds and label placement accuracy of +/- 0.4mm. The accuracy of the labeller makes it ideal for the application of even very small labels where placement accuracy is often critical.

The VHS /UHS labeller is designed to cope with the demands of 24/7 non-stop production as it is mechanically rugged and has virtually no wear parts, while the compact, modular design allows integration into the tightest of production lines.

The labeller is easy to use and comes equipped with a straight-forward, operator-friendly control interface. Label recognition and label-web positioning are accomplished with the press of a single button.

With simple installation and easy operation, the VHS / UHS labellers cut down on installation and training costs, and with no need for a pressurised air-supply and virtually no wear parts they are economical to operate and maintain.

Chapter 3 Mechanical overview and threading

The VHS/UHS series labellers consists of up to four separable units - the dispense unit, the loop unit, the unwind unit and the rewind unit as shown below in Figure 1.1. The loop unit provides a zero-tension supply of labels to the dispense unit. The label rolls are mounted on the unwind unit and the waste backing material is rewound onto the rewind unit.

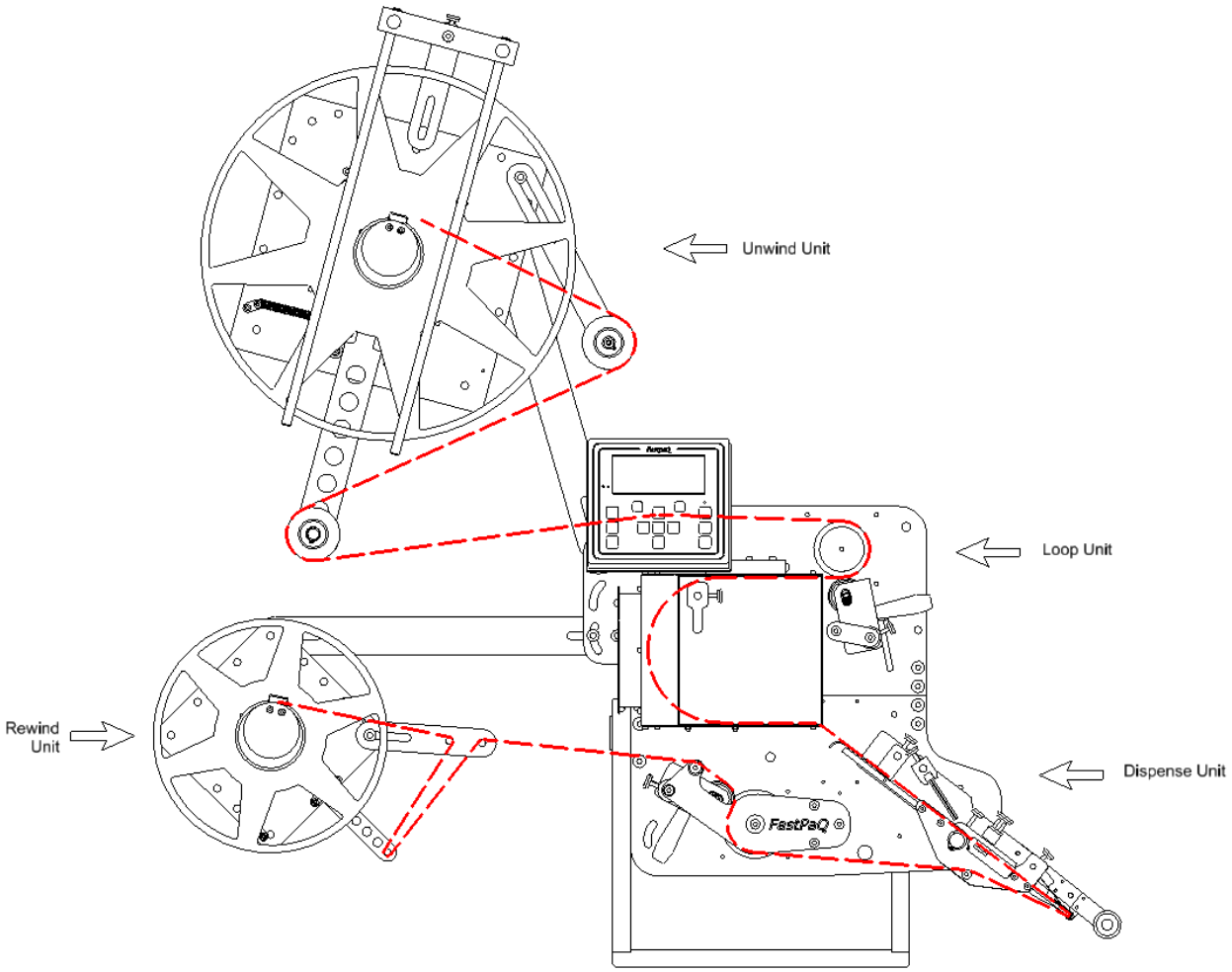


Figure 1.1

The units can be joined together to form a single compact labelling machine but where space is very limited the various units can be separated and positioned to suit the space available.

Example configurations are shown below in Figure 1.2

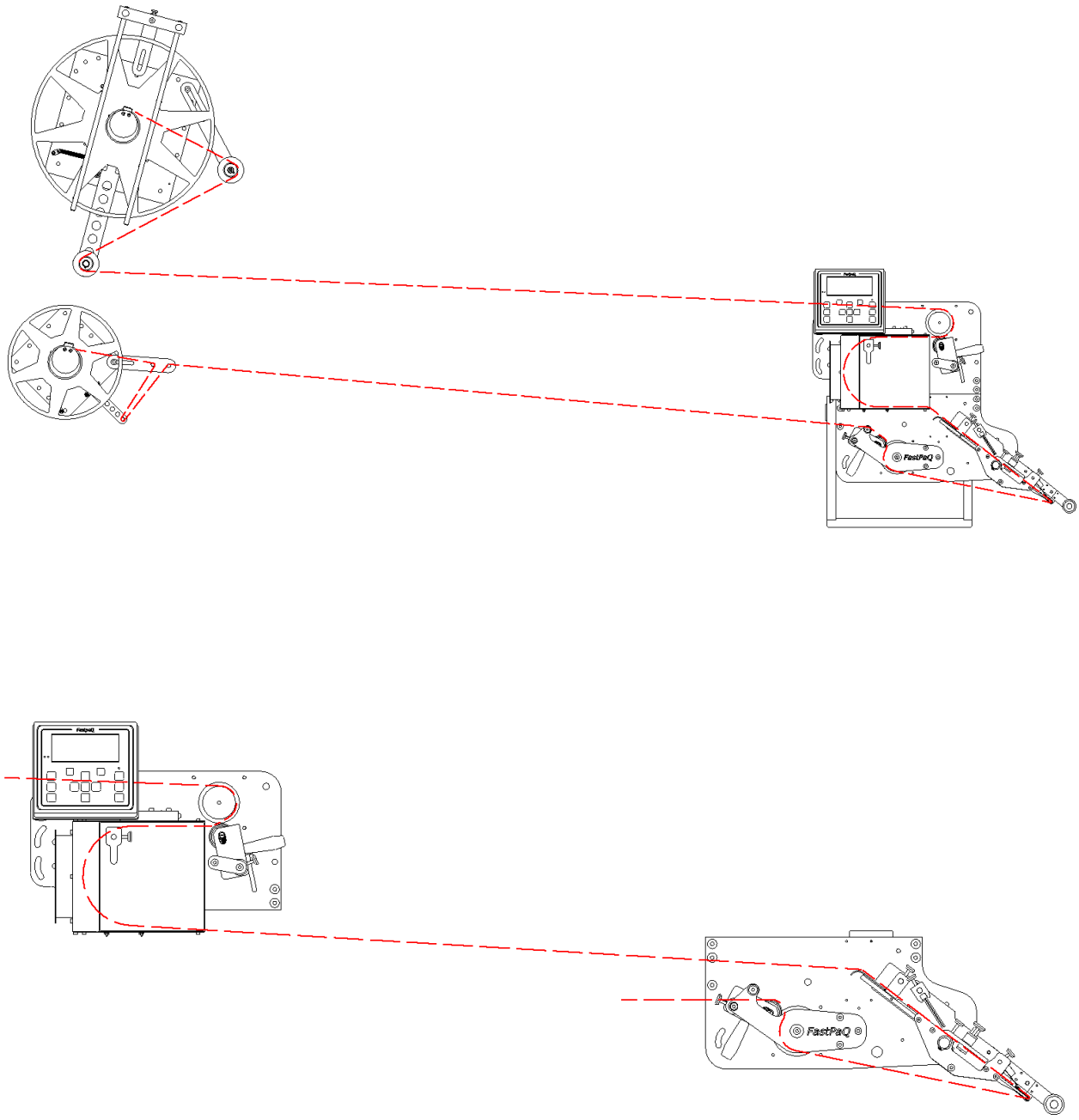


Figure 1.2

3.1 Threading the label web

The threading of the label web through the labeller is shown below in Figure 1.3

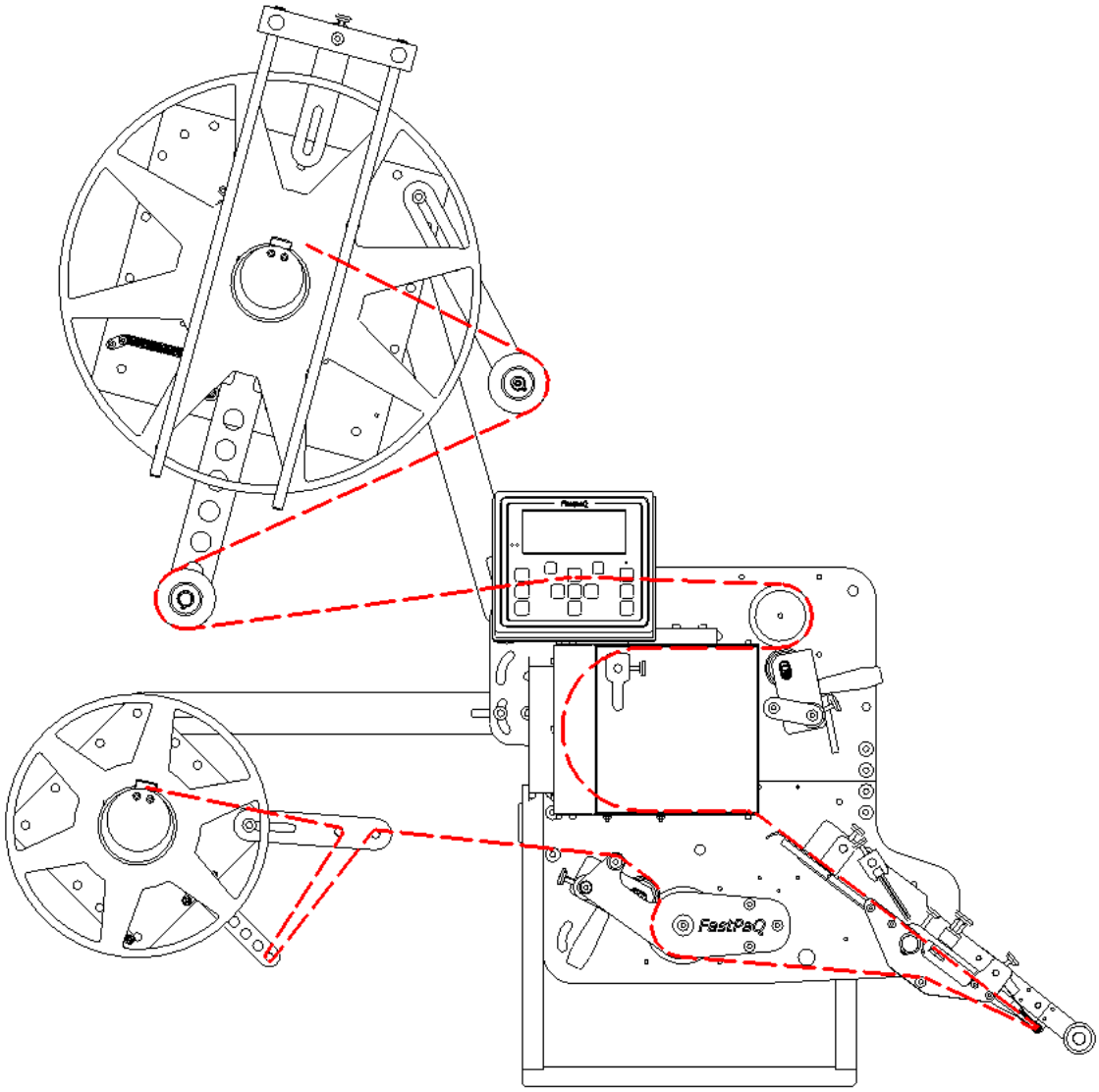


Figure 1.3

3.2 Mounting a label roll

To mount a label roll onto the unwind unit simply pull the handle on the unwind collapsible core, slide the roll onto the core as far back as it will go and push the handle to lock the label roll into position. This is shown in Figure 1.4 below.

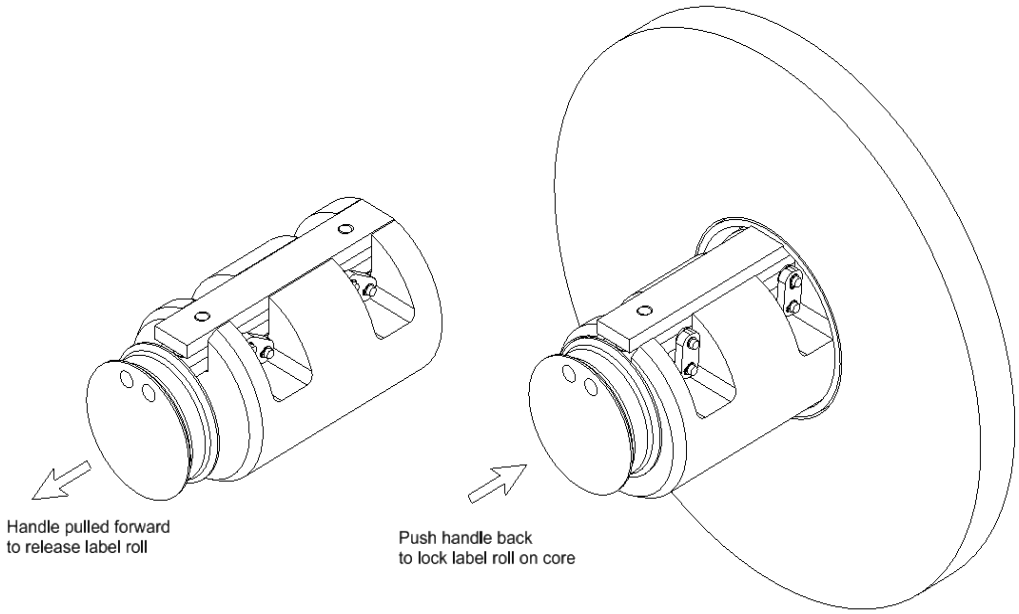


Figure 1.4

The label roll support assembly prevents the label web from falling off the roll. Wider label rolls do not require support and in this case the label roll support assembly can be removed. See Fig 1.5 below.

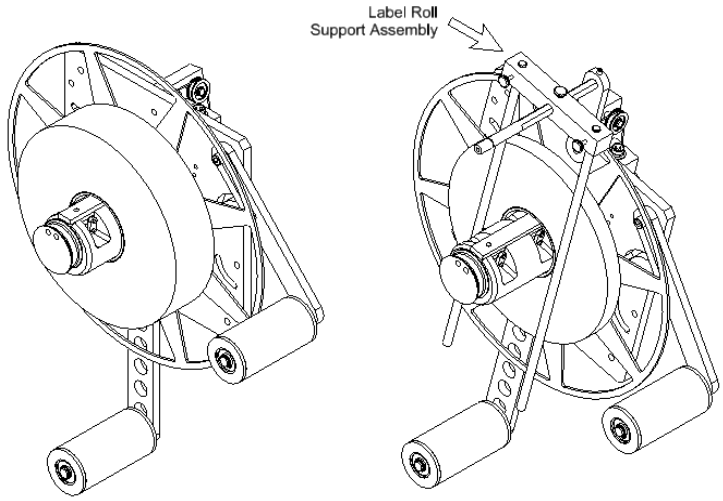


Figure 1.5

When the label roll support assembly is not needed it can be disassembled and stored.

3.3 Threading the loop and dispense units

When threading the labeller make sure that the nip rollers are positioned so that they are in contact with the full width of the label web and that the web passes through the label-sensor fork. If the label web is wider than the nip rollers make sure the nip rollers are positioned centrally over the web.

The web guides on the dispensing arm and on the display post of the loose-loop unit should be positioned so that the label web is prevented from drifting across the peel-tip during labelling.

The pressure plates on the dispensing arm should be pressed down firmly onto the web. The thumb-wheels on the dispense arm pressure plate assemblies should be no more than finger tight so that the pressure plates can be lifted off the web when threading.

If a tensioning brush is fitted to the loop unit, it only needs to apply sufficient pressure to keep the web in position.

To facilitate threading, the drive-roller and rewind core become free to rotate by hand when the labeller is switched “Offline”. When the labeller is switched “Online” the drive-roller and rewind core cannot be rotated by hand. The labeller is switched between “Online” and “Offline” by pressing the ENABLE key.

3.4 Attaching the backing material to the rewind unit

To attach the waste backing material to the rewind unit simply push the handle on the rewind collapsible rewind core to expand it and attach the end of the waste backing material to the collapsible rewind core using sticky tape or a label that has been removed from the web. See Figure 1.6 below.

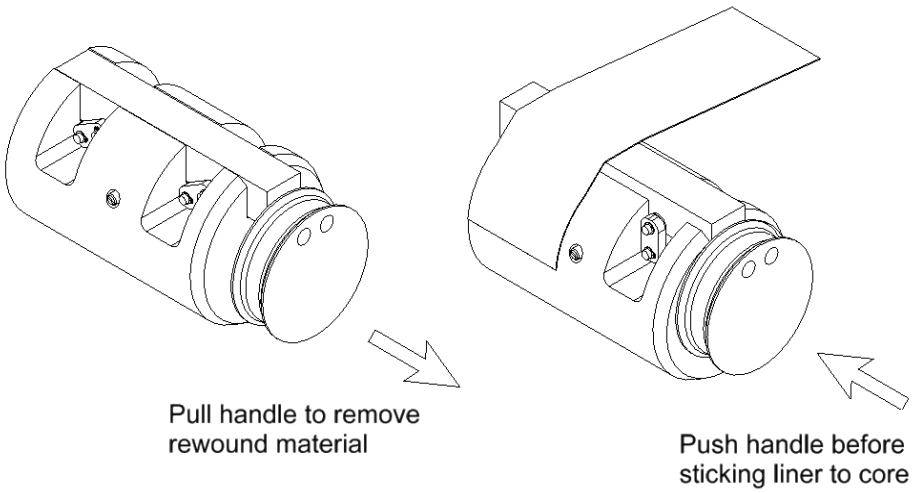


Figure 1.6

3.5 Using fan-fold labels

When using fan-fold labels rather than label rolls only the dispense and loop units are needed as shown below in Figure 1.7. The waste backing material can be fed into a vacuum take-away system or to a mechanical take-away unit. The combination of a fan-fold label supply and a vacuum or mechanical take-away system allows for non-stop labelling as the production line does not need to be stopped each time the label roll is exhausted.

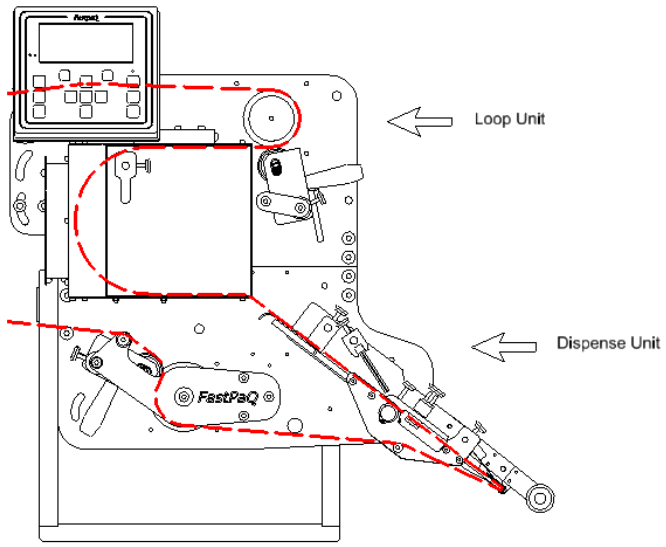


Figure 1.7

Where a zero-tension supply of labels can be provided to the dispense unit directly it is possible to label without using the loose-loop unit. A typical arrangement using a third-party dual unwind unit is shown below in figure 1.8

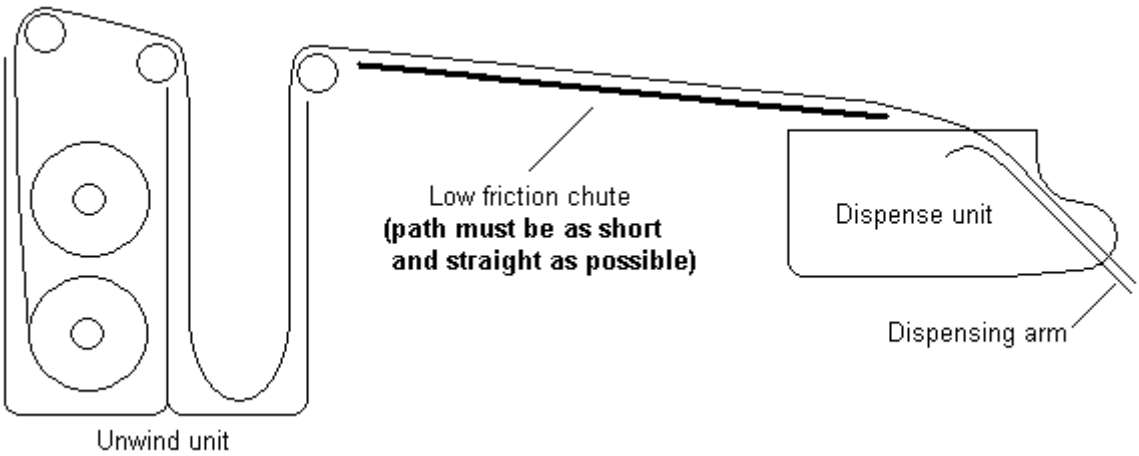


Figure 1.8

Do not guide the label web using rollers rather than a low friction chute as the inertia of the rollers will cause severe drag on the web as it is accelerated at the start of each label dispense.

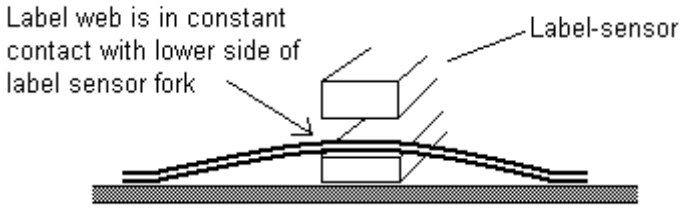
Anything other than a short supply path to the dispense unit will cause tension in the web since all the label web between the supply and the dispense unit must be accelerated to the label dispense speed as each label is dispensed. For the same reason the loose-loop unit should be mounted within a few feet of the dispense unit when the two units are not joined together.

Any tension in the label-web at the in-feed of the dispense unit will affect labelling accuracy.

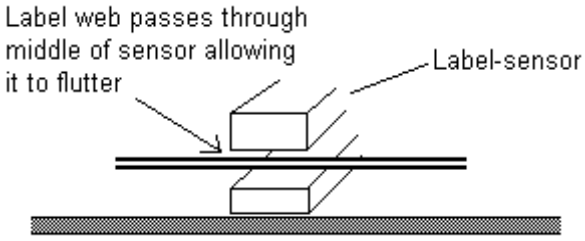
3.6 Using a non-standard dispensing arm

To cope with the requirements of a particular application a special dispensing arm may be fitted to the labeller, for instance a longer dispensing arm may be fitted to allow labelling into confined spaces. In this case the peel-tip supplied with the standard dispensing arm should be fitted to the special dispensing arm. The supplied peel-tip is manufactured to be extremely hard-wearing and provides very low friction. Using another peel-tip may cause excessive tension in the web leading to web-breakages and/or labelling inaccuracy.

When fitting a label sensor to a special dispensing arm make sure that the label web is in constant contact with the lower side of the label sensor fork, so as to avoid the web fluttering in the label sensor. If the web can flutter inside the label sensor then the label edges may not be detected accurately leading to labelling inaccuracy. Web flutter is especially likely to cause problems when using capacitive type label sensors. The correct and incorrect web-paths through the label-sensor are shown below in Figure 1.9



Correct web path through label-sensor



Incorrect web path through label-sensor

Figure 1.9

3.7 Routine maintenance

The HS series labellers are rugged and require very little maintenance. Routine maintenance consists only of keeping the labeller clean and free from the build-up of labels and label adhesive.

The rollers should be checked regularly to ensure that no labels or label glue have built up on them. Simply peel off any labels by hand and remove any remnants of adhesive if necessary with a suitable solvent such as isopropanol. **NEVER** use a knife or other sharp instrument to remove labels from any of the rubber rollers as this will damage them and void the warranty.

If the FastPaQ infra-red label-sensor is being used it is important to make sure that the lenses inside the label-sensor fork are kept clean. The lenses can be wiped clean using a soft cloth impregnated with a solvent suitable for removing label adhesive such as isopropanol.

The two fan filters on the electrical control box should be checked occasionally for build-up of dust and cleaned/renewed as necessary.

Any tensioning brushes should be flipped around occasionally as over time the brush filaments bend in position, reducing the pressure they apply.

Refer to Appendix B for further information.

Chapter 4 Keypad/Display

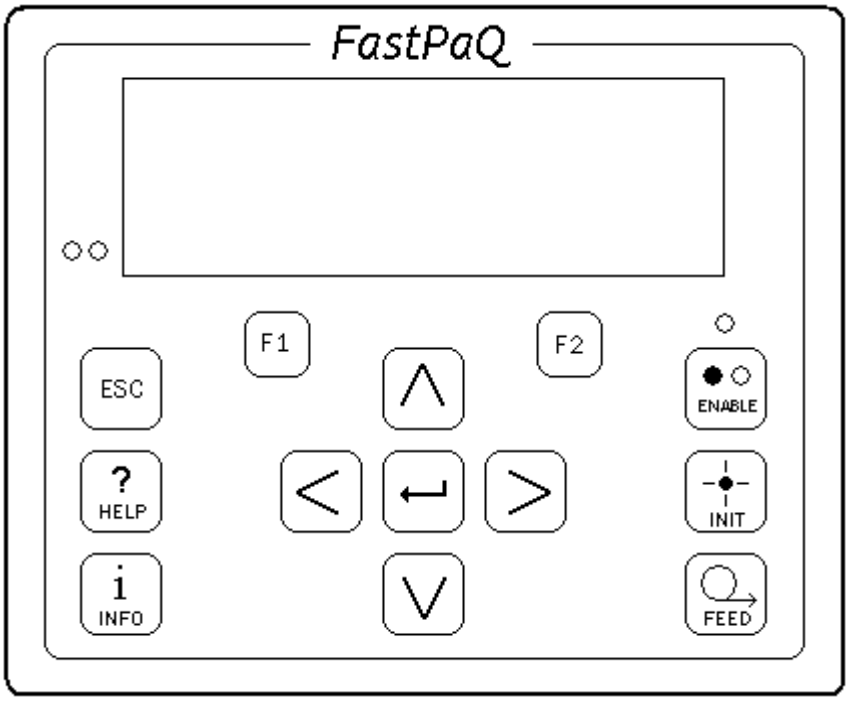


Figure 2.1

The FastPaQ keypad/display unit is shown above in Figure 2.1.

The keypad/display unit has 13 keys, a large illuminated LCD display and three LED's which indicate the status of the labeller.

The display can show up to four lines of information. Both the level of illumination and contrast level of the display can be adjusted to suit the operating environment.

The LED above the ENABLE key is illuminated green when the labeller is "Online" and extinguished when the labeller is "Offline".

There are two LED's to the left of the display. One LED illuminates red to indicate an error condition, the other illuminates amber to indicate a warning condition.

4.1 Display modes

Operator, Advanced or Service menu display

Figure 2.2

The display for the Operator, Advanced or Service menus is shown above in Figure 2.2.

The top line of the display shows whether the labeller is online or offline. Either one or two asterisks will be visible at the left of the top line if the labeller is in the Advanced or Service menus respectively. A question mark will be shown at the right of the top line if a help message is available.

The middle two lines of the display show the currently selected menu point and its value.

The bottom line of the display shows any warning or error messages.

Job display

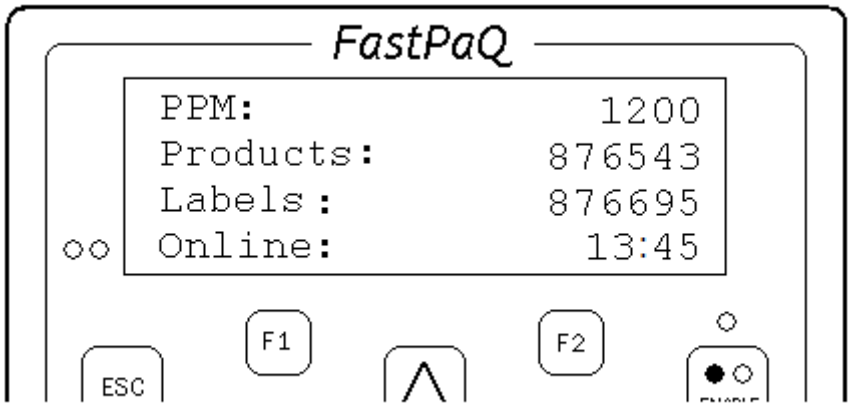


Figure 2.3

The job display is shown above in Figure 2.3.

The top line of the display shows the number of products being labelled per minute..

The second line of the display shows the total number of products labelled since the job product-counter was last reset.

The third line of the display shows the total number of labels dispensed since the job label-counter was last reset.

The bottom line of the display shows the time the labeller has been online since the job time-online counter was last reset.

PPM display

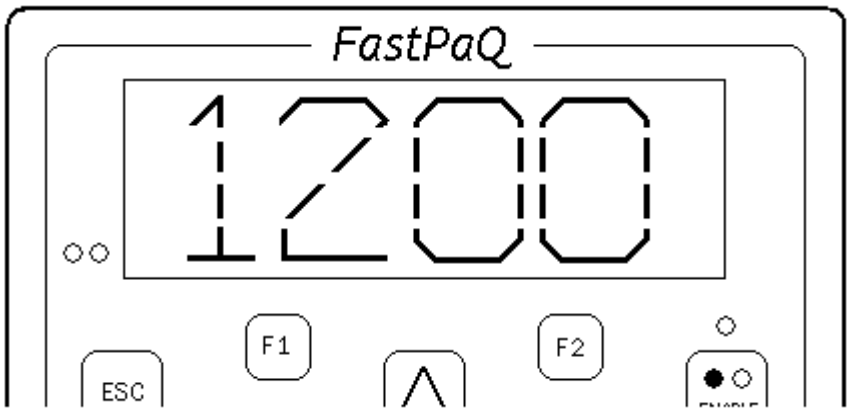


Figure 2.4

The PPM (products-per-minute) display is shown above in Figure 2.4.

The entire display is occupied with a number indicating the number of products being labelled per minute.

4.2 Keys

There are a total of 13 keys on the keypad as described below:

ENABLE key 

Each press of the ENABLE key toggles the labeller between “Online” and “Offline” modes. The green LED above the ENABLE key illuminates when the labeller is online and the labeller will attempt to label any products which pass the product-sensor. When the labeller is offline the green LED will be extinguished and the labeller will ignore the product-sensor and not label any products.

In “offline” mode the dispense, loop and rewind rollers can be rotated by hand to facilitate threading of the labeller.

INIT key 

Pressing the INIT key starts the labeller's initialization process. This is explained fully in the chapter "initialization”.

FEED key 

Each press of the FEED key causes the labeller to feed a label.

ESC key 

The ESC key has several functions:

The ESC key is used to clear an error or warning condition.
The ESC key is used to exit (escape from) a menu level and drop to the preceding menu level.
The ESC key is used to cancel an adjustment to a parameter so restoring its original value.

HELP key 

If the [?] symbol appears at the top right of the display pressing the HELP key will cause a help

message to be scrolled across the bottom line of the display. Pressing the HELP key again will return to the original display.

INFO key 

The INFO key is used to select the job and PPM information displays
Press the INFO key once to show the job display. Press again to show the PPM display. Each further press of the INFO key toggles between the job and PPM displays

The INFO key does not operate if a menu item is being adjusted.

ENTER key 

The ENTER key is used to select menu items and confirm adjustments as described in the chapter “Menus and Operation”.

UP-ARROW / DOWN-ARROW KEYS 

The UP-ARROW and DOWN-ARROW keys are used to scroll up and down the menus and to increase and decrease the value of various menu items.

LEFT-ARROW / RIGHT-ARROW keys 

The LEFT-ARROW and RIGHT-ARROW keys are used to move the display cursor to the left and right during the adjustment of various menu items.

After pressing the LEFT-ARROW and RIGHT-ARROW keys simultaneously, a keypad code can be entered to gain access to the “Advanced” and “Service” menu levels.

FUNCTION keys 

The F1 key is used to “lock” the label-sensor setting and the label pitch setting. The F2 key is used to access any optional labeller functions.

Chapter 5 Menus and Operation

The labeller has three menus - the Operator menu, the Advanced menu and the Service menu.

The Operator menu contains the most regularly used settings for the labeller's basic adjustments.

The Advanced menu contains many of the less often used settings. The Advanced menu is password protected.

The Service menu contains settings that are used during initial configuration of the labeller and by service engineers. The Service menu is password protected.

The Operator, Advanced and Service menu items are shown below in figure 3.1.

Operator menu
Position of label on product
Dispense speed*
Line speed*
Label pre-dispense*
Load saved settings

Advanced menu
Label-sensor setting
Label-sensor status
Label pitch
Label-sensor to peel-tip distance*
Label pre-dispense*
Position of label on product
Label 2 position
Label 3 position
Dispense speed*
Line speed*
Products skipped between labels
Low label roll diameter
Label-sensor edge*
Product-sensor edge
High accuracy mode*
Labels from sensor to peel-tip*
Asynchronous mode*
Continuous mode
Height compensation*
Air assist
Product-sensor inhibit
Tandem distance
Consecutive missing labels count
Missing label speed
Reset job counters
Save settings
Load saved setting
Delete saved settings
Display backlight
Display contrast

Service menu
Loop unit
Rewind unit
Printer unit
Dispense direction
Language
Units
Speed matching
Encoder resolution*
Encoder pulse multiplier*
Dispense speed*
Line speed*
Rewind dancer position
Motor acceleration
Run mode
Auto-cycle
Power-up
Total label count
Total product count
Distance dispensed
Mains voltage
Cabinet temperature
Dispense motor temp*
Dongle
Mainboard version
Restore factory defaults

Figure 3.1

* The menu items marked with an asterisk may or may not appear in the menus depending on the options installed or the value of other menu items . For instance the "Encoder resolution" menu item only appears if the "Speed matching" menu item is set to "ON"

5.1 Navigating the menus

How to navigate between the various menus is shown below in Figure 3.2.

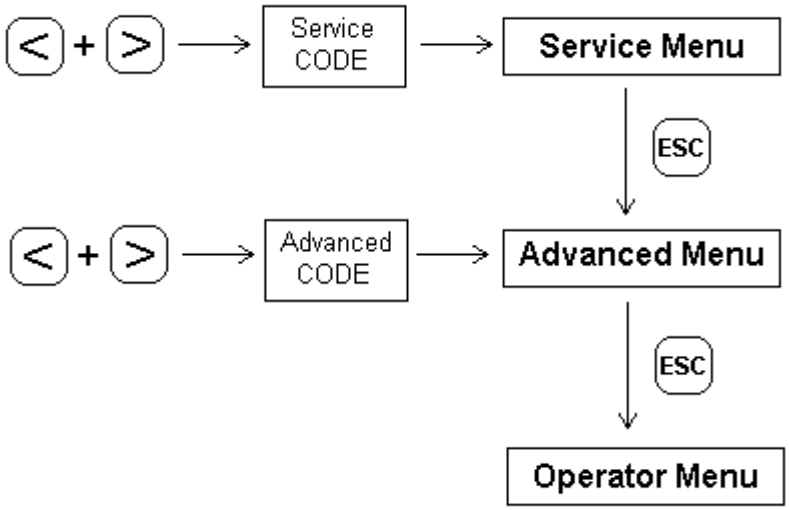


Figure 3.2

When in the Service menu, press the ESC key to drop to the Advanced menu. Press the ESC key again to drop to the Operator menu.

If both the LEFT and RIGHT arrow keys are pressed simultaneously the labeller will request a keypad code sequence. Enter the Advanced code or Service codes given in Appendix A to move to the desired menu. If an incorrect code is entered the labeller will remain in the current menu.

When the menu item "*Position of label on product*" is displayed, pressing the < or > keys will result in adjusting its value, therefore scroll to another menu item before entering the code key combination.

5.2 Adjusting menu items

To adjust a particular menu item, first scroll through the appropriate menu using the UP and DOWN arrow keys until the desired item is displayed.

Press the ENTER key and the display cursor will appear below the item's value as shown below in Figure 3.3.

Figure 3.3

The UP and DOWN arrow keys are used to increase or decrease the value of the number above the cursor. The LEFT and RIGHT arrow keys move the cursor to the left and right.

Once the item has been adjusted to the desired value, press the ENTER key to confirm the change. Pressing the ESC key instead of the ENTER key will return the item to its original value.

When the cursor is displayed the code key combination (< + >) is ignored.

When the menu item "*Position of label on product*" is displayed, pressing the < or > keys will result in adjusting its value, therefore scroll to another menu item before entering the code key combination.

Some menu items do not have numeric values but textual settings as shown below in figure 3.4.

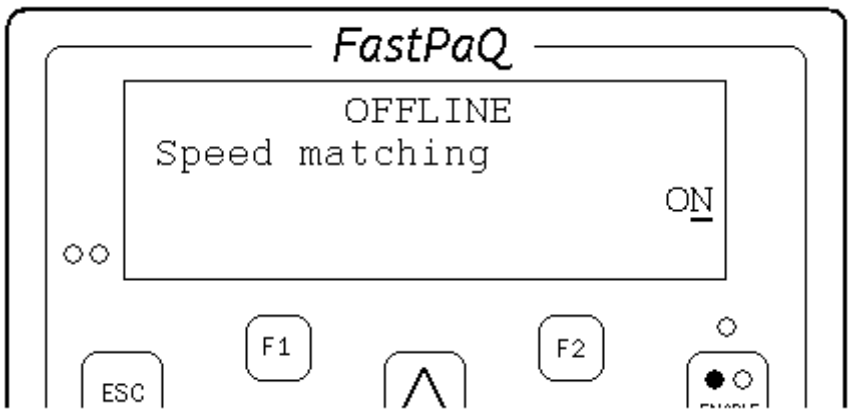


Figure 3.4

The UP and DOWN arrow keys can be used to change the displayed setting. The LEFT and RIGHT arrow keys are ignored.

5.3 Error and warning messages

The labeller displays any error or warning messages on the bottom line of the display.

When an error message is displayed the red LED to the left of the display will illuminate and the labeller will stop labelling. The labeller will not respond to any key on the keypad except the ESC and HELP keys when there is an error condition. Pressing the ESC key will clear the error condition and the keypad can then be used as normal. Pressing the HELP key will display further information regarding the particular error message displayed.

When a warning message is displayed the amber LED to the left of the display will illuminate but the labeller will continue labelling. Pressing the ESC key will clear the warning condition. Pressing the HELP key will display further information regarding the particular warning message displayed.

Chapter 6 Label initialization

The labeller can automatically determine the label length and label pitch and position the label web so that the next label is ready to be dispensed. This process is known as initialization.

Initialising using the FastPaQ label-sensor

To start the initialization process simply press and hold the INIT key. The labeller will slowly feed the label web forward whilst it adjusts the label-sensor. The INIT key should not be released until a gap between labels has passed through the label-sensor. Any exposed section of the backing material can be considered a gap between labels so that if a section of the web with no labels is already inside the label-sensor at the start of the initialization process then the INIT key can be released almost immediately.

Initialising using a third-party label-sensor

If a third party label-sensor such as a capacitive type label-sensor is fitted then before the INIT key is pressed the label-sensor will need to be adjusted to distinguish between labels and backing material according to the instructions provided by the label-sensor manufacturer. The parameter *Label-sensor setting* **must** be set to zero when using a third party label-sensor. To start the initialization process simply press the INIT key and release immediately.

Initialization failure

The labeller will generate an error message if it cannot complete the initialization process; this may happen if the label web is not threaded properly on the labeller or if the label-sensor lenses are dirty. For some label webs it may not be possible for the labeller to initialise automatically. In this case the correct values for the menu items *Label sensor setting* and/or *Label pitch* must be set manually as described in Chapter 7.

If a third party label-sensor is fitted it must be adjusted correctly to distinguish between labels and backing material and the menu item *Label-sensor setting* must be set to zero.

Chapter 7 Menu setting descriptions

Position of label on product

This setting is used to adjust the position of the label on the product.

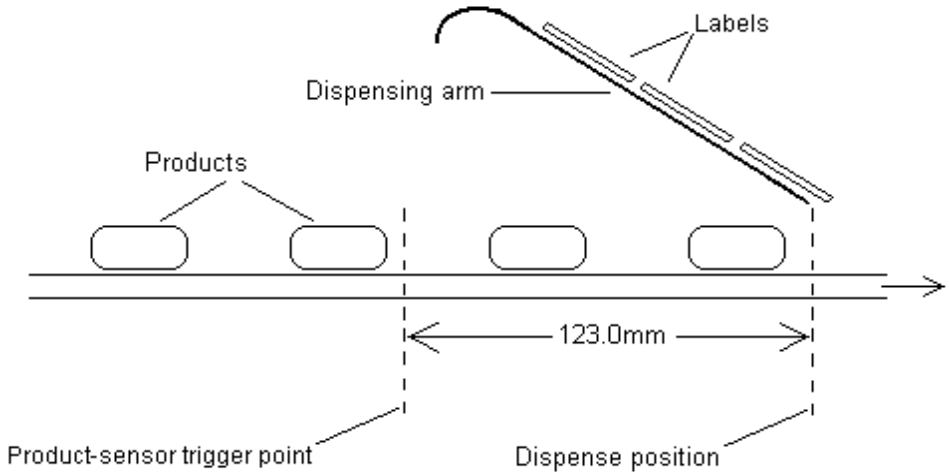
The value displayed shows the distance from the product-sensor to the dispense position.*

Increasing the value of *Position of label on product* places the label further back on the product.
Decreasing the value of *Position of label on product* places the label further forward on the product.

* The distance from the product-sensor to the dispense position is the distance that the product moves from the moment that the product-sensor is triggered to the moment that the labeller starts to dispense the label.

Example:

If *Position of label on product* is adjusted to 123.0 then the dispense position is 123.0mm from the product-sensor.



Note:

If using speed-matching mode, the setting *Encoder resolution* must be adjusted correctly otherwise the value displayed by the *Position of label on product* setting will not match the actual distance from the product-sensor to the dispense position.

Dispense speed

This setting is only visible in the menus when the labeller is operating in fixed-speed mode.

This setting is used to adjust the speed with which the labels are dispensed by the labeller.

The label dispense speed should be approximately the same as the product speed. If the dispense speed is higher than the product speed then the labels may wrinkle as they are pushed onto the slower moving products. If the dispense speed is lower than the product speed then the labels may not be able to adhere well to the faster moving products and label placement accuracy may suffer

Increasing the value of *Dispense speed* will increase the speed with which the labels are dispensed. Decreasing the value of *Dispense speed* will decrease the speed with which the labels are dispensed.

Example:

If *Dispense speed* is adjusted to 123.0 then the dispense speed will be 123.0 m/min.

Line speed

This menu point is only visible in the menus when the labeller is operating in speed-matching mode.

This menu point shows the line (conveyor) speed and is for information only so cannot be adjusted.

Example:

If the conveyor is moving at 123.0 m/min then *Line speed* will display 123.0.

Note:

The setting *Encoder resolution* must be adjusted correctly otherwise the value displayed by *Line speed* will not match the actual line speed.

Label pre-dispense

After a label dispense the label web will stop moving forward when the next label to be dispensed arrives at the peel-tip. The *Label pre-dispense* setting is used to adjust the position of the leading edge of the label relative to the peel-tip.

The value displayed shows the how far the leading edge of the label sticks out (i.e. is pre-dispensed) beyond the peel tip. When the *Label pre-dispense* setting is set to zero the label will stop with its leading edge exactly in line with the peel tip.

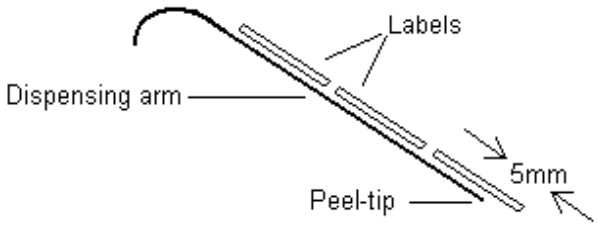
If the value of *Label pre-dispense* is increased, the label will stop with its leading edge positioned further forward from the peel-tip.

If the value of *Label pre-dispense* is decreased, the label will stop with its leading edge positioned further back towards the peel-tip.

It is recommended that *Label pre-dispense* is set to at least 5mm to allow the label web to decelerate after a label has been dispensed past the peel tip. If *Label pre-dispense* is set too low then the label may not have been fully dispensed before the label web starts decelerating. The label web may then be pulled forward by the label which is attached to the faster moving product, causing erratic label edge detection by the label-sensor. For dispense speeds above 100m/min the value of *Label pre-dispense* should be increased further.

Example:

If *Label pre-dispense* is adjusted to 005.0 then the leading edge of the next label to be dispensed will stop 5.0mm beyond the peel tip.



Notes:

The setting *Label sensor to peel-tip distance* must be adjusted correctly otherwise the value displayed by the *Label pre-dispense* setting will not match the actual position of the leading edge of the label relative to the peel-tip.

Label pre-dispense is set automatically when the labeller is operating in asynchronous mode.

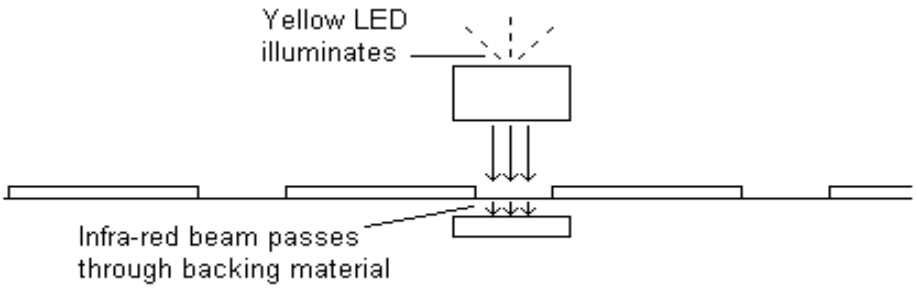
Label-sensor setting

This setting can be used to adjust the FastPaQ infra-red label-sensor

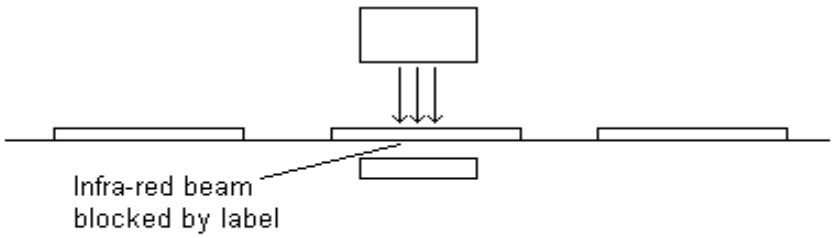
If the FastPaQ infra-red label-sensor is *not* in use then this setting *must* be set to zero

A higher *Label-sensor setting* value increases the intensity of the infra-red light emitted by the FastPaQ infra-red label-sensor. A lower setting will decrease the intensity of the infra-red light.

When the infra-red light passes through the label backing material and is detected by the infra-red detector in the label-sensor than the label-sensor registers a “gap” between labels and the yellow LED on the label-sensor illuminates. When the infra-red light is blocked by a label then the label-sensor registers a “label” and the yellow LED is extinguished.



Gap inside label-sensor



Label inside label-sensor

When using the FastPaQ infra-red label-sensor, *Label-sensor setting* is usually adjusted automatically by the labeller during the process of "initialization". If initialization is not successful then *Label-sensor setting* can be set manually.

To set *Label-sensor setting* manually, first position the label web so that only the backing material (with no labels) is inside the label-sensor. Removing a label completely from the web may make this easier to achieve.

If the yellow LED is illuminated, reduce the setting of *Label-sensor setting* until the LED is extinguished.

Next, slowly increase the value of *Label-sensor setting* until the LED illuminates.

Note the value at which the LED illuminates and increase this value by 10*.

Manual adjustment is now completed. If the label web is passed through the label-sensor the yellow LED should illuminate as each gap between labels passes through the label-sensor.

Normally the labeller will try to determine the correct value for *Label-sensor setting* automatically during the initialization process. To lock *Label-sensor setting* so that it will not be affected by the initialization process press the F1 key instead of the ENTER key after adjusting *Label-sensor setting* to the correct value.

When *Label-sensor setting* is locked at its current value a small padlock symbol will appear to the left of the displayed value.

Example:

If the LED illuminates with a *Label-sensor setting* of 26 then increase the value of *Label-sensor setting* to 36.

*Note:

For manual adjustment an increase in the value of 10 will work for most label materials, however if the labels have a very low opacity to infra-red light then a lower value should be used. If the backing material has a strongly varying opacity a higher value should be used. To verify that the adjustment is correct, completely remove a label from the web and check that the yellow LED remains illuminated while the exposed backing material is passed slowly through the label-sensor. Confirm that the yellow LED remains extinguished while a section of the web with a label is passed slowly through the label-sensor.

Label sensor status

This menu point shows whether the label-sensor is detecting a label or only backing material (gap between labels).

This menu point is for information only and cannot be adjusted.

Example:

If the label sensor detects a label then the display shows “Label”

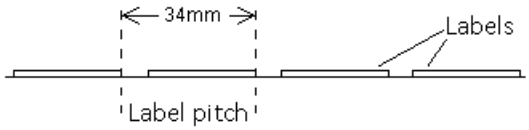
Label pitch

This setting can be used to set the distance between the leading edges of consecutive labels on the label web.

Usually the correct value for *Label pitch* is determined automatically by the labeller during the initialization process. If the value is not correctly determined during the initialization process then it can be set manually.

To set *Label pitch* manually, firstly measure the distance from the leading edge of one label on the web to the leading edge of the next label on the web (if preferred the distance between the trailing edges of the labels can be measured).

Next, adjust *Label pitch* to the distance measured. *Label pitch* is displayed in millimetres so if the distance measured was 34mm the setting should be adjusted to the value 034.



Normally the labeller will try to determine the correct value for *Label pitch* automatically during the initialization process. To lock *Label pitch* so that it will not be affected by the initialization process press the F1 key instead of the ENTER key after adjusting *Label pitch* to the correct value.

When *Label pitch* is locked at its current value a small padlock symbol will appear to the left of the displayed value.

Note:

Setting *Label pitch* to a multiple of the actual label pitch will cause multiple labels to be dispensed on each product or each time the FEED key is pressed

Label-sensor to peel-tip distance

This setting should be set to the distance from the label-sensor to the peel tip.

To adjust this setting first make sure that the setting *Label pre-dispense* is set to zero.

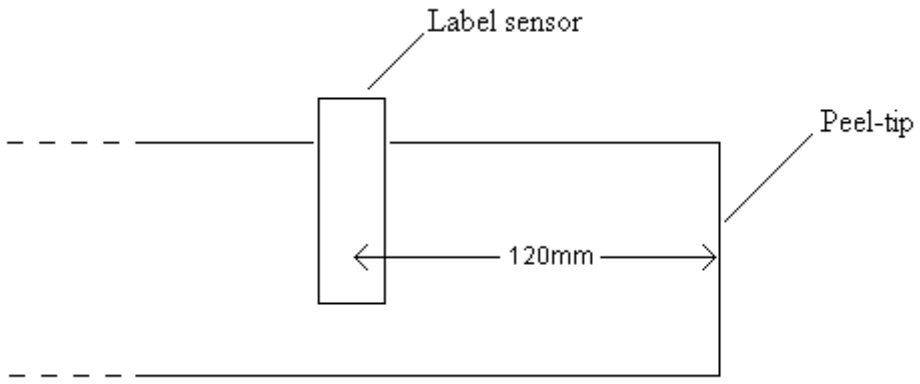
Next measure the distance from the centre of the label-sensor to the peel tip and set *Label sensor to peel tip distance* to this distance.

Dispense a label by pressing the FEED key and check that the next label to be dispensed has stopped with its leading edge in line with the peel tip.

If the leading edge of the label is behind the peel tip increase the setting of *Label sensor to peel tip distance.* If the leading edge of the label is sticking out beyond the peel tip decrease the setting of *Label sensor to peel tip distance.*

Example:

If the distance from the centre of the label-sensor to the peel tip is measured as 120mm then the setting *Label sensor to peel tip distance* should be set to 120.0



Note:

The setting *Label sensor to peel-tip* distance must be adjusted correctly otherwise the value displayed by the *Label pre-dispense* setting will not match the actual pre-dispense of the labels relative to the peel-tip.

Label 2 position

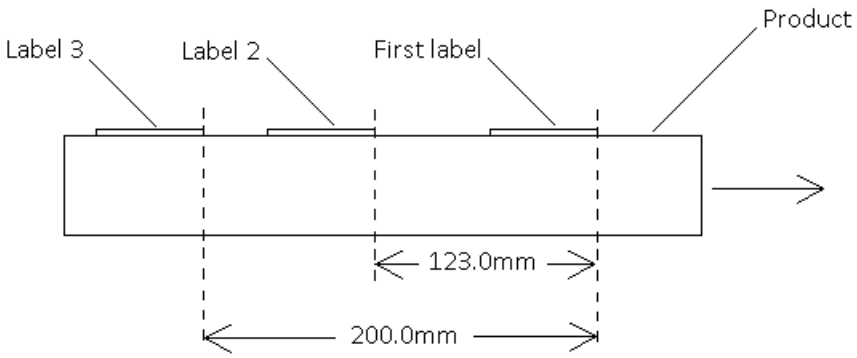
The labeller can apply more than one label to the same product.

Label 2 position is the position of Label 2 relative to the first label (i.e. the leading edge of Label 2 relative to the leading edge of the first label).

If *Label 2 position* is set to zero then Label 2 will not be applied.

Example:

If *Label 2 position* is adjusted to 123.0 then the leading edge of Label 2 will be 123.0mm behind the leading edge of the first label.



Note:

If *Label 2 position* is set so that the leading edge of label 2 would overlap the first label or Label 3 then Label 2 will not be applied and the warning message “UNLABELLED PRODUCT” will appear in the display.

Label 3 position

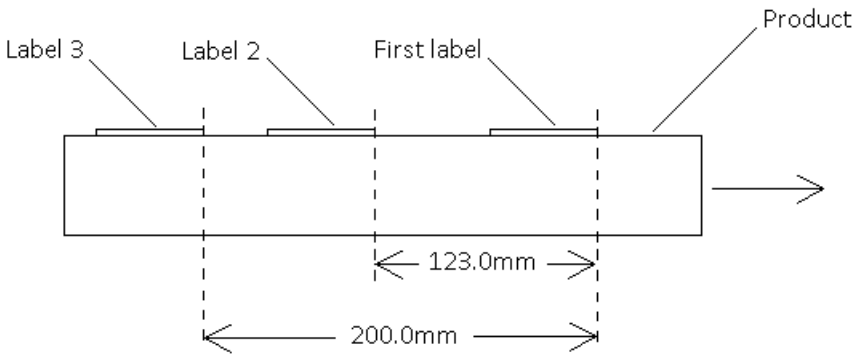
The labeller can apply more than one label to the same product.

Label 3 position is the position of Label 3 relative to the first label (i.e. the leading edge of Label 3 relative to the leading edge of the first label).

If *Label 3 position* is set to zero then Label 3 will not be applied.

Example:

If *Label 3 position* is adjusted to 200.0 then the leading edge of Label 3 will be 200.0mm behind the leading edge of the first label.



Note:

If *Label 3 position* is set so that the leading edge of label 3 would overlap the first label or Label 2 then Label 3 will not be applied and the warning message “UNLABELLED PRODUCT” will appear in the display.

Products skipped between labels

This setting allows only a proportion of the products to receive a label. Setting *Products skipped between labels* to zero will mean every product receives a label.

Example:

If *Products skipped between labels* is set to 10 then for every product that receives a label there will be 10 products that do not receive a label.

Low label roll diameter

When the unwind unit is used, a warning is generated when the label roll diameter has decreased to the value set in *Low label roll diameter.* If no warning indication is desired, reduce the value of *Low label roll diameter* to its minimum value or disconnect the cable between the unwind unit and the electrical control cabinet

Example:

If *Low label roll diameter* is set to 085 then a warning will be generated when the label roll diameter has decreased to 85mm

Label-sensor edge

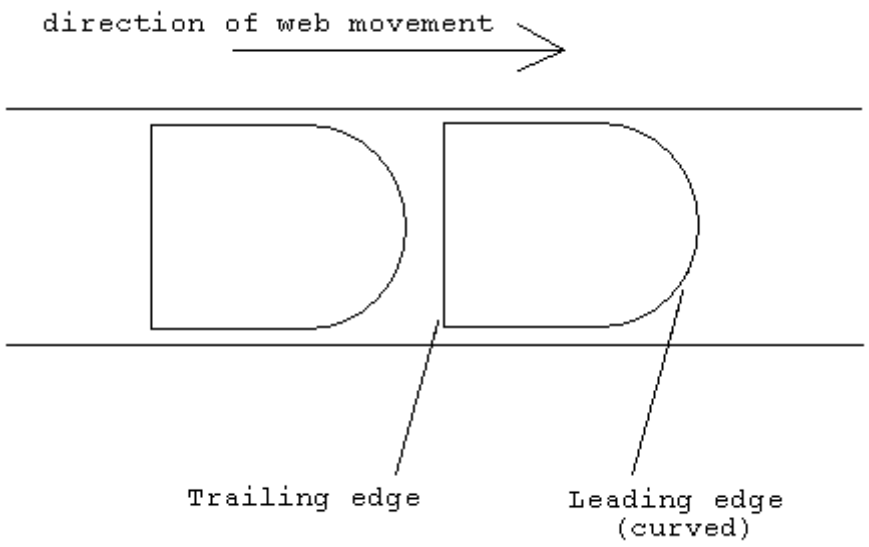
This setting can be used to determine whether the labeller will detect the leading edge or trailing edge of the labels.

This setting is useful when the labels have curved leading or trailing edges. To improve accuracy it is recommended that this setting is adjusted so that the labeller will detect the edge of the labels that is most perpendicular to the direction of web movement.

Label-sensor edge has two possible settings: “Lead” and “Trail”

Example:

In the following example the labels have a curved leading edge but a trailing edge that is perpendicular to the direction of web movement. *Label edge* should therefore be set to “Trail”



Product-sensor edge

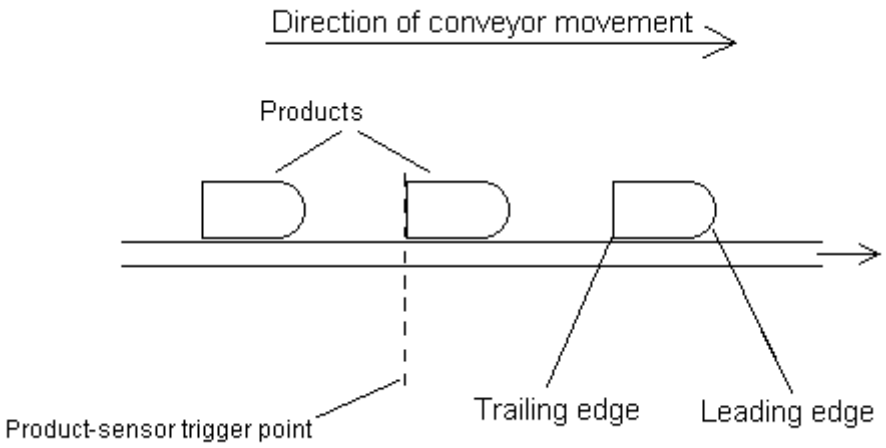
This setting can be used to determine whether the product-sensor triggers on the leading edge or trailing edge of the products.

This setting is useful when the products have curved leading or trailing edges. To improve accuracy it is recommended that this setting is adjusted so that the labeller will detect the edge of the products that is most perpendicular to the direction of web movement.

Product-sensor edge has two possible settings: “Lead” and “Trail”

Example:

In the following example the products have a curved leading edge but a trailing edge that is perpendicular to the direction of web movement. *Product-sensor edge* should therefore be set to “Trail”



High accuracy mode

This setting can be used to increase labelling accuracy. It is only present in the menu if the optional high-accuracy mode software is installed in the labeller.

The setting *High-accuracy mode* is used to turn “High-accuracy mode” on or off.

When high-accuracy mode is turned on the labeller stops the web with the trailing edge of a label very precisely in the middle of the label-sensor. This precision stop position results in an improvement in the precision of the label placement on the product.

The settings *Label sensor to peel tip distance* and *Label pre-dispense* are not used in high accuracy mode and the setting *Labels from sensor to peel-tip* is used instead.

High accuracy mode has two possible settings: “ON” and “OFF”

Note:

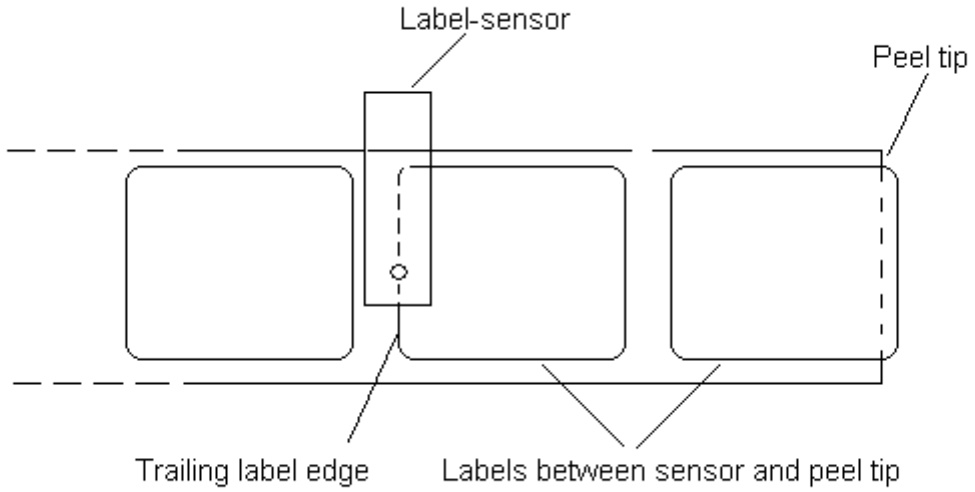
The amount of label pre-dispense can be adjusted by adjusting the physical position of the label-sensor on the dispense arm.

Labels from sensor to peel-tip

This setting should be set to the number of labels between the label-sensor and the peel tip. It is only present in the menu if the optional high-accuracy mode software is installed in the labeller and the setting *High-accuracy mode* is set to “ON”.

Example:

If there are two labels between the label-sensor and peel tip *Labels from sensor to peel-tip* should be set to 2.



Note:

The amount of label pre-dispense can be adjusted by adjusting the physical position of the label-sensor on the dispense arm.

Asynchronous mode

The setting *Asynchronous mode* is used to turn “asynchronous mode” on or off. It is only present in the menu if the optional asynchronous mode software is installed in the labeller and the setting *Speed matching* is set to “ON”.

When asynchronous mode is turned off, it is not possible to apply labels to products that are moving faster than the maximum dispense speed of the labeller.

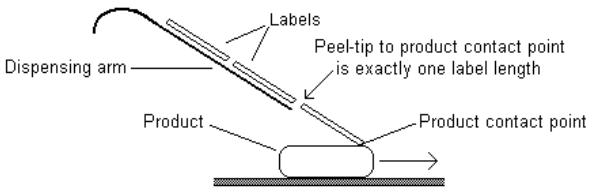
When asynchronous mode is turned on, it is possible to apply labels to products regardless of the product speed. Asynchronous mode is particularly useful for labels which are too short to be accelerated to the product speed even though the product speed is below the maximum dispense speed of the labeller.

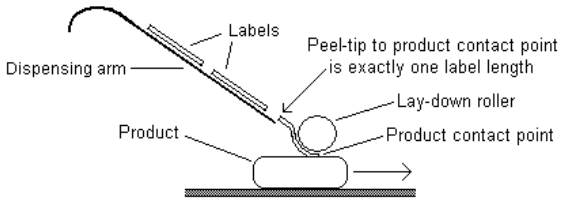
Asynchronous mode will not operate if the label pitch is more than 100mm. If the setting *Label pitch* is at a value greater than this then the labeller will not operate in asynchronous mode regardless of the setting of *Asynchronous mode.*

When the labeller is operating in asynchronous mode the setting *Label pre-dispense* is automatically adjusted to the optimum value. The optimum value is typically a little less than half the label pitch.

This setting has two possible settings: “On” and “Off”

For asynchronous mode to operate correctly the distance from the peel-tip to the product must equal the label length exactly as shown in the figure below.





Continuous mode

The setting *Continuous mode* is used to turn “Continuous mode” on or off.

When continuous mode is turned on and the labeller is online the labeller will continuously dispense the label web at the speed of the conveyor.

Height compensation

This setting allows accurate label-placement even when the height of the product varies. It is only present in the menu if the optional height compensation software is installed in the labeller. The optional height compensation software is supplied along with a device that monitors the height of the products.

If the labelling position shifts forwards as the height of the product increases then the value of this setting should be increased. If the labelling position shifts backwards as the height of the product increases then the value of this setting should be decreased.

Height compensation can be adjusted between 1 and 99.

Air assist

From the start of each label dispense the labeller will activate an air-stream until the label has moved the distance in the setting *Air assist.*

Example:

If *Air assist* is set to 20 then the air-stream will be activated until 20mm of label has been dispensed.

Note:

The “Air-assist” electrical output of the labeller must be connected to a device controlling the air-stream

Product-sensor inhibit

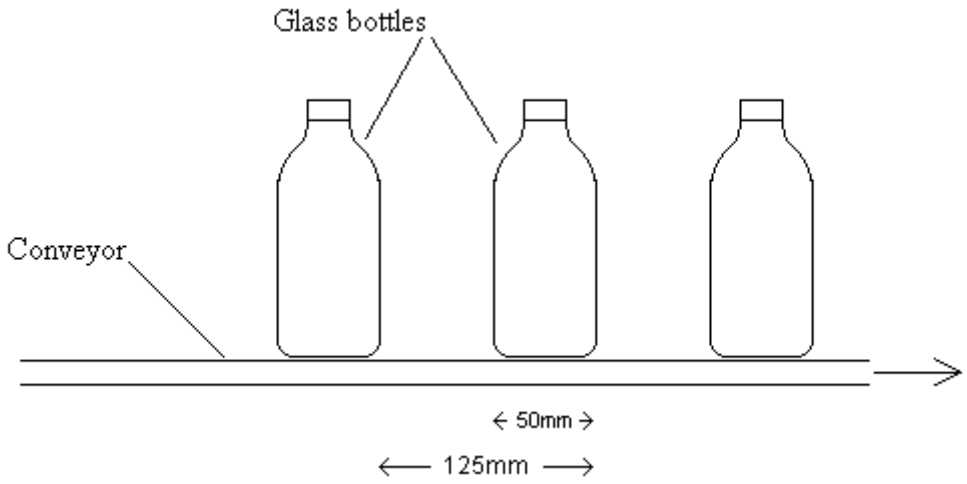
After a product has triggered the product-sensor the product-sensor will be inhibited for the distance displayed in this setting.

If the product is made of a transparent material such as glass the product-sensor may be triggered several times while a single product passes in front of it. Multiple triggering of the product-sensor can be avoided by setting *Product-sensor inhibit* to at least the length of the product.

Example:

In the following example the products to be labelled are glass bottles with a diameter of 50mm *Product-sensor inhibit* should therefore be set to at least 050

The product pitch (distance from the leading edge of one product to the leading edge of the following product) is 125mm". To allow the next product to be detected correctly *Product-sensor inhibit* should be set to a value less than 125.



Tandem distance

Two labellers can operate in “Tandem mode”. The tandem mode software is included with all labellers but a cable needs to be purchased to link the electrical cabinets of the two labellers so that tandem mode can be used.

When using a single labeller the setting *Tandem distance* should be set to zero.

When operating in tandem mode the two labellers take turns to label the products. When one labeller runs out of labels the other labeller takes over the labelling allowing the label rolls to be changed on the first labeller. Each time labelling switches from one labeller to another all the products will receive a label as normal. There are no unlabelled products or double-labelled products. This means that the line never has to be stopped to allow the rolls to be changed.

The upstream labeller (the one that the products reach first) must have *Tandem distance* set to 0000.

For the downstream labeller *Tandem distance* should be set to the distance between the product-sensors of the two labellers. If a single product-sensor is used to trigger both labellers then *Tandem distance* is set to the distance between the peel-tips of the two labellers.

When a labeller generates a "Low-label" warning the other labeller will automatically take over the labelling.

The non-active labeller can be forced to take over the labelling at any time by pressing the F2 key on the active labeller.

The green LED on the keypad of the active labeller is illuminated continuously whereas the green LED on the keypad of the inactive labeller flashes, indicating that it is ready to take over labelling when the active labeller runs low on labels.

Examples:

If the distance between the product-sensors of the two labellers is 460mm then *Tandem distance* should be set to 0460

If the distance between the product-sensors of the two labellers is 21.5 inches then *Tandem distance* should be set to 21.50

If only one product-sensor is used for both labellers and the distance between the peel-tips of the two labellers is 510mm then *Tandem distance* should be set to 0510

If only one product-sensor is used for both labellers and the distance between the peel-tips of the two labellers is 33.24 inches then *Tandem distance* should be set to 33.24

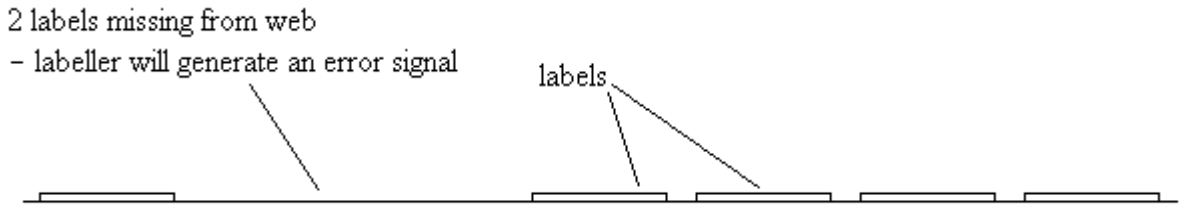
Consecutive missing labels count

This setting defines the number of consecutive missing labels allowed on the web. If the number of consecutive missing labels exceeds this value then the labeller will generate an error message on the display and no further labelling can take place until the error is message is cleared by the operator.

Setting *Consecutive missing labels count* to zero will mean that an error message will be generated if any labels at all are missing from the label web.

Example:

If the labeller should generate an error signal and stop labelling when 2 or more consecutive labels are missing from the web then the setting *Consecutive missing label count* should be set to 02.



Missing label speed

When a length of the label web with one or more missing labels reaches the peel-tip, the labeller will automatically feed past the missing labels and bring the next label to the peel-tip ready for dispensing. The setting *Missing label speed* defines how fast the labeller will feed past any missing labels. Usually this setting should be set to a high value so that the labeller will quickly feed past any missing labels before the next product reaches the dispensing position.

Example:

If the labeller should feed past missing labels at a speed of 150m/min then the setting *Missing label speed* should be set to 0150.

Note:

The labeller will generate an error signal and stop labelling if the number of consecutive labels missing from the web reaches the value set in the setting *Consecutive missing labels count*.

Reset job counters

Reset job counters is used to reset the values stored in the job counter to zero.

The job counters are displayed by pressing the “Info” button on the keypad.

Save settings

The current values of the labeller's settings can be saved to memory and then recalled as required.

This setting is used to save the current values of the labeller's settings to memory.

To save the labeller set-up, press the ENTER key and use the UP and DOWN arrow keys to allocate a number to the current set-up. Only unused set-up numbers are displayed so that previously saved set-ups cannot be accidentally overwritten.

Load saved settings

The current values of the labeller's settings can be saved to memory and then recalled as required.

This setting is used to load a previously saved labeller setup. The labeller's settings will be restored to the values they had when the labeller set-up was saved.

To load a saved set-up from memory press the ENTER key and use the UP and DOWN arrow keys to select the desired set-up. If no set-ups have been saved to memory the message "All memories are empty" will be displayed.

Delete saved settings

The current values of the labeller's settings can be saved to memory and then recalled as required.

This setting is used to delete a previously saved labeller setup.

To delete a set-up from memory, press the ENTER key and use the UP and DOWN arrow keys to select the desired set-up. If no set-ups have been saved to memory, the message "All memories are empty" will be displayed.

Display back-light

This setting is used to adjust the intensity of the display backlighting.

Increasing the value of this setting increases the back-light intensity.

Decreasing the value of this setting decreases the back-light intensity.

Display contrast

This setting is used to adjust the contrast of the display.

Increasing the value of this setting increases the contrast of the display.

Decreasing the value of this setting decreases the contrast of the display.

Loop unit

Set *Loop unit* to "ON" to turn on the loop unit.

Set *Loop unit* to "OFF" to turn off the loop unit.

Rewind unit

Set *Rewind unit* to "ON" to turn on the rewind unit.

Set *Rewind unit* to "OFF" to turn off the rewind unit.

Printer unit

Set *Printer unit* to "ON" to turn on the printer unit.

Set *Printer unit* to "OFF" to turn off the printer unit.

Dispense direction

Set *Dispense direction* to the direction of dispense (conveyor movement). If the conveyor is moving to the right then select the right arrow. If the conveyor is moving to the left then select the left arrow.

If *Dispense direction* is set correctly then when *Position of label on product* is displayed in the operator menu pressing the left arrow key " < " will move the label placement position to the left on the product and pressing the right arrow key " > " will move the label placement position to the right. An incorrect setting will cause the label placement position to move in the opposite direction to the arrow key.

Language

This setting allows the selection of various languages for the user interface.

Units

This setting is used to select whether the labeller will display metric units or inches.

Units has two possible settings: "Metric" and "Inches"

Speed matching

This setting is used to turn the speed-matching function on or off.

When *Speed matching* is turned off the labeller will dispense labels at the speed set in *Dispense speed.*

When *Speed matching* is turned on the labeller will automatically match the dispense speed to the speed of the conveyor. An encoder must be installed so that speed-matching can operate.

Speed matching has two possible settings: "On" and "Off"

Note:
For speed-matching to operate correctly the setting *Encoder resolution* must be set correctly.

Encoder resolution

This setting is only available in the menu when the setting *Speed matching* is set to “On”.

Encoder resolution should be set to the number of pulses generated by the encoder per millimetre of conveyor movement.

The labeller can operate with an encoder that provides between 1.0 and 16.0 pulses per millimetre of conveyor movement.

In the setting *Units* is set to “Inches” the labeller can operate with an encoder that provides between 25.0 and 400.0 pulses per inch of conveyor movement

The correct encoder resolution setting can be calculated if the number of pulses generated per revolution of the encoder is known as well as the diameter of the encoder measuring wheel. If the encoder is linked to the conveyor via a gear mechanism then the gear ratio must be taken into account.

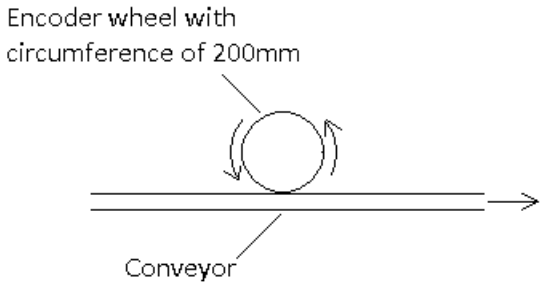
When the encoder is driven by a measuring wheel mounted directly on the conveyor then the correct setting for *Encoder resolution* is given by:

$$\frac{\text{(Pulses per encoder revolution)}}{C}$$ where C = the measuring wheel circumference

Example:

An encoder that generates 600 pulses per revolution is driven by a measuring wheel of 200mm circumference, mounted directly on the conveyor.

The correct setting for *Encoder resolution* is 600 / 200) = 003.0



Note:

The number of pulses generated per revolution of the encoder will be multiplied by the value set in the setting *Encoder pulse multiplier.* If an encoder that generates 600 pulses per revolution is used and *Encoder pulse multiplier* is set to “2x” then the encoder will effectively generate 1200 pulses per revolution.

Encoder pulse multiplier

This setting is only available in the menu when the setting *Speed matching* is set to “On”.

The number of pulses generated per revolution of the encoder will be multiplied by the value set in *Encoder pulse multiplier.*

The settings “2x” and “4x” can only be used with a dual-phase encoder
The setting “1x” can be used with either a single-phase or dual-phase encoder

Example:

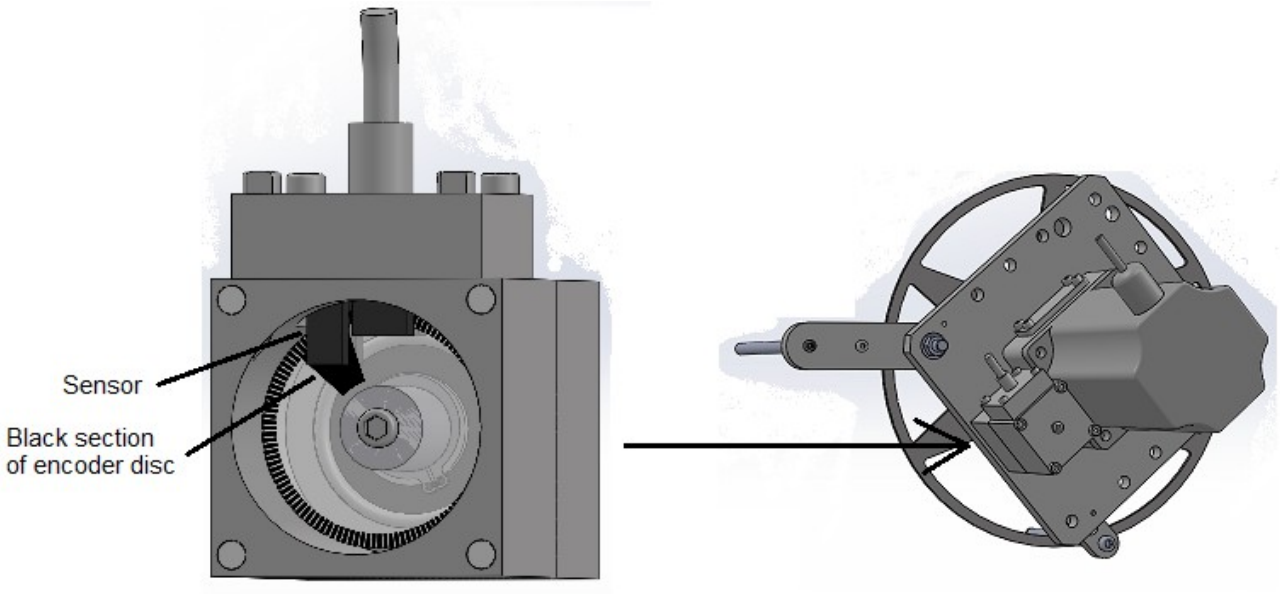
If an encoder that generates 600 pulses per revolution is used and *Encoder pulse multiplier* is set to “2x” then the encoder will effectively generate 1200 pulses per revolution.

Rewind dancer position

This menu point indicates the position of the rewind dancer arm. The value displayed should be between 65 and 70 when the dancer arm is at its end position and zero when the dancer arm is in its home position. The end position is the position where the dancer arm is fully extended and the home position is the position where the dancer arm has almost reached the rewind fixed arm.

This menu point is for information only and cannot be adjusted.

The value displayed by this menu point depends on how the rewind encoder disc is oriented inside the rewind dancer assembly. When the rewind dancer arm is in the home position, the black section on the encoder disk should be inside the sensor as shown below. The rewind encoder disc may need reorienting slightly so that the menu point *Rewind dancer position* displays between 65 and 70 when the dancer arm in its end position and zero at its home position.



Rewind dancer assembly
(section view)

Motor acceleration

This setting controls how rapidly the dispense motor accelerates and decelerates. For most situations *Motor acceleration* should be set to “Medium”. If the labels are relatively short and the dispense speed is high then *Motor acceleration* should be set to “High”. For lower labelling speeds *Motor acceleration* can be set to “Low”.

Setting *Motor acceleration* to “Low” or “Medium” can slightly improve labelling accuracy and reduce mechanical stresses on the labeller.

Run mode

This setting is used to allow the labeller to run without labels for testing.

For normal operation *Run mode* should be set to “With labels”.

For testing purposes *Run mode* can be set to “Without labels” in which case the labeller will ignore the label sensor and dispense the distance set in the setting *“Label pitch”* with each press of the FEED key or each time the product sensor is triggered.

If *Run mode* is set to “Without labels” the labeller can be operated when there is no label web at all threaded through it and in this case the nip rollers should be opened to avoid wearing the rubber rollers.

Run mode has two possible settings: “With labels” and “Without labels”.

Auto-cycle (cycles per minute)

This setting is used to auto-cycle the labeller to determine what labelling rate can be achieved for a given label pitch and dispense speed.

Before using the auto-cycle function the labeller should first be initialised using the label web to be tested and the desired label dispense speed set in *Dispense speed.*

The labeller will start to auto-recycle (dispense labels automatically) at the selected dispense speed as soon as the ENTER key is pressed if the labeller is “Online”. The auto-cycling can be started and stopped by toggling the labeller between “Online” and Offline” or by entering and exiting the *Auto-cycle (cycles per minute)* setting using the ENTER key.

The displayed value is the labelling rate in labels/minute. The value displayed can be raised to increase the labelling rate or lowered to decrease the labelling late. If the value set in *Auto-cycle (cycles per minute)* is raised above the maximum labelling rate achievable for the adjusted dispense speed then the number of labels dispensed per minute will noticeably reduce.

Power-up

This setting control whether the labeller will be online or offline when powered-up.

If *Power-up* is set to “Offline” then the labeller will be off-line after power-up.
If *Power-up* is set to “Online” then the labeller will be on-line after power-up.

Total label count

This menu point shows the total number of labels dispensed by the labeller since manufacture.

This menu point is for information only and cannot be adjusted.

Example:

If the labeller has dispensed 12,345,678 labels since installation, then *Total label count* will display 12345678.

Total product count

This menu point shows the total number of products labelled by the labeller since manufacture.

This menu point is for information only and cannot be adjusted.

Example:

If the labeller has labelled 9,876,543 products since installation then *Total product count* will display 9876543.

Distance dispensed

This menu point shows the total length of label web dispensed by the labeller since manufacture.

This menu point is for information only and cannot be adjusted.

Example:

If the labeller has dispensed 890,123 km of label web since installation then *Distance dispensed* will display “890123 km”.

Mains voltage

This menu point shows the mains voltage supply to the labeller.

The mains voltage is displayed as a percentage of the nominal mains voltage. The labeller can operate with a mains voltage deviation of ±20% from nominal.

For a nominal 120V mains supply that means that the labeller can operate with an actual mains voltage as low as 96V or as high as 144V. If the labeller is wired for 240V mains supply then the labeller can operate with an actual mains voltage from 192V to 288V.

If the mains voltage goes outside of ±20% from nominal then the labeller will generate a warning signal.

If the mains voltage drops by 50% the labeller will generate an error signal and stop labelling. In this case check that the mains supply can supply sufficient current to the labeller.

This menu point is for information only and cannot be adjusted.

Example:

If the mains supply to the labeller is only 90% of the nominal value then *Mains voltage* will display “90%”.

Cabinet temperature

This menu point shows the air temperature inside the labeller cabinet.

The temperature inside the labeller cabinet should be below 50° Celsius.

If the temperature inside the cabinet reaches 55° Celsius then the labeller will generate a warning signal. If the temperature inside the cabinet reaches 60° Celsius the labeller will generate an error signal and stop labelling. In either case check that the cabinet cooling fan is operating and that the fan filters are not clogged..

This menu point is for information only and cannot be adjusted.

Example:

If the temperature inside the labeller cabinet is 45° Celsius then *Cabinet temperature* will display “45°C”.

Dispense motor temperature

Dispense motor temperature only appears in the menu on UHS labellers.

This menu point shows the temperature of the dispense motor.

This menu point is for information only and cannot be adjusted.

If the motor temperature becomes excessive the labeller will generate an error signal and stop labelling. In this case check that the motor fan is operating.

Example:

If the temperature of the dispense motor is 80° Celsius then *Dispense motor temperature* will display “80°C”.

Dongle

This menu point shows the serial number of the dongle installed on the labeller's main circuit board.

This menu point is for information only and cannot be adjusted.

Example:

If the serial number of the installed dongle is 000000ACD0C5 then the *Dongle* setting will display “000000ACD0C5”.

Mainboard version

This menu point shows the version of the main circuit board installed in the electrical control cabinet

This menu point is for information only and cannot be adjusted.

Restore factory defaults

This menu point is used to restore the labeller's settings to their default values.

To restore the labeller's settings to their default values select *Restore factory defaults* and adjust the value displayed to "YES". Pressing the ENTER key will set the labeller's settings to their default values. If the ENTER key is pressed whilst "NO" is displayed, the labeller's settings will be unchanged.

Note:

The settings *Total label count, Total product count* and *Distance dispensed* cannot be reset using this setting

Chapter 8 Asynchronous operation

The labeller has two operating modes: *synchronous mode* and *asynchronous mode*.

When operating in synchronous mode the label dispense speed is the same as the product speed; in asynchronous mode the product speed can be much higher than the label dispense speed.

Asynchronous operation is necessary when the product speed exceeds the maximum dispense speed of the labeller. It may also be necessary when dispensing short labels onto fast moving products as the maximum attainable dispense speed is reduced for short labels (since there is less time for the labels to be accelerated to the speed of the product).

Asynchronous mode is an optional feature that can be ordered at the time of labeller purchase or purchased separately at a later date.

8.1 Basic setup

During asynchronous operation the products move faster than the labels and so the labels must not be in contact with the product and the label web at the same time. The peel-tip to product distance must therefore be adjusted so that the label leaves the web at the peel-tip just as it arrives at the product contact point as shown below in Figure 6.1

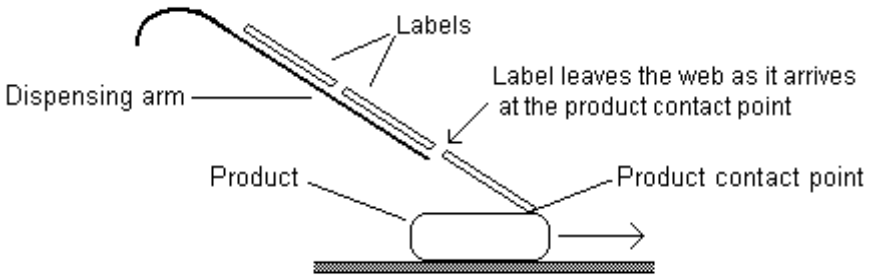


Figure 6.1

Normally a lay-down roller would be used to ensure that the label adheres properly to the faster moving product. In this case the peel-tip to product distance must still be adjusted so that the label leaves the web at the peel-tip just as it arrives at the product contact point as shown below in Figure 6.2

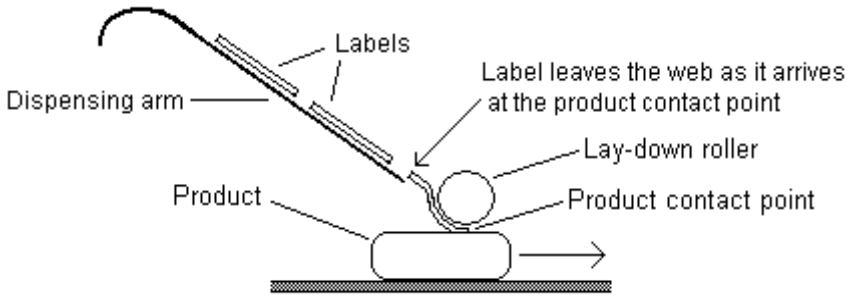


Figure 6.2

8.2 Label pre-dispense

The optimum value for the parameter *Label pre-dispense* is determined automatically when the labeller is operating in asynchronous mode and cannot be adjusted. The optimum value is calculated by the labeller using the values set in the parameters *Label length* and *Label pitch.*

8.3 Ensuring labelling accuracy in Asynchronous mode

Adjusting the peel-tip to product distance

The peel-tip to product distance must be adjusted so that the label leaves the web at the peel-tip just as it arrives at the product contact point. If the peel-tip to product distance is less than this then the label will be in contact with both the product and the web at the same time and the web will be pulled forward by the faster moving product which may cause erratic label edge detection. If the peel-tip to product distance is too great then the label will be completely dispensed before it has even reached the product.

Adjusting the label pitch and label length

For asynchronous operation the labeller must determine the correct value for the parameters *Label length* and *Label pitch*. If the correct value for these parameters cannot be determined automatically during initialization then they must be adjusted manually.

If the correct values for *Label length* and *Label pitch* have been determined correctly during initialization then it may be sensible to lock the values of these parameters using the F1 key as described in chapter 5 so that they are not redetermined during successive initializations.

Using a lay-down roller

When operating in asynchronous mode it is generally advisable to use a lay-down roller to guide the label to the product. This is particularly the case with film labels which have very little rigidity and are unlikely to follow a consistent path towards the product unless guided.

A lay-down roller will also ensure the label adheres consistently to the product at the roller/product pinch-point

Adjusting the dispense angle

When applying labels directly to the product (i.e. without a lay-down roller) then the angle of the dispense arm to the direction of movement of the product is important. If the dispense angle is too low then because of aerodynamic effects the label may “float” above the product rather than moving straight to the desired product contact point.

Film labels and other labels with a plastic coating may also carry some electrostatic charge and this may push the label away from or pull it towards the product causing the product contact point to vary from label to label. This effect will be much more pronounced for small dispense angles. It is recommended that the dispense angle is at least 30° when the label is dispensed directly onto the product.

Chapter 9 Errors and warnings

The labeller displays any error or warning messages on the bottom line of the display.

When an error message is displayed an LED to the left of the display illuminates red and the labeller switches "Offline". The labeller will not respond to any key on the keypad except the ESC and HELP keys when there is an error condition. Press the ESC key to clear the error condition or press the HELP key to display further information.

When a warning message is displayed an LED to the left of the display illuminates amber. Press the ESC key to clear the warning condition or press the HELP key to display further information.

The labeller has electrical outputs for driving a Red/Amber/Green lamp-stack. The lamps will mirror the LED's on the labeller's keypad-display unit.

A complete list of the labeller's error and warning messages is given below:

Error messages

DRIVE NIP OPEN
LOOP NIP OPEN
MOTOR DRIVER FAULT
NO GAP SEEN
MISSING LABELS
CONVEYOR REVERSED
LABEL QUEUE OVERFLOW
PROD. QUEUE OVERFLOW
POWER FAIL!
CABINET OVERHEAT!
MOTOR OVERHEAT!
INITIALIZATION FAIL
LOOP ERROR
REWIND ERROR
WEB END

Warning messages

UNLABELLED PRODUCT
LOW LABEL ROLL
LABEL EDGE
SPEED TOO HIGH
LOW MAINS VOLTAGE
HIGH MAINS VOLTAGE
CABINET TOO HOT
KEY EXPIRED
ENCODER ALARM

9.1 Error messages

DRIVE-NIP OPEN

This error is generated if the labeller attempts to dispense a label when the drive nip-roller is not closed. This error is not generated when the parameter *Run mode* is set to "Without labels".

LOOP-NIP OPEN

This error is generated if the labeller attempts to dispense a label when the loop nip-roller is not closed. This error is not generated when the parameter *Run mode* is set to "Without labels".

MOTOR DRIVER FAULT

This error is generated if the dispense motor driver detects a fault condition. This may be caused by incorrect or loose connections or by the motor driver overheating. The motor driver itself will indicate a fault condition by illuminating one or more of its on-board red LED's. The driver will only overheat if it is not fixed properly to its mounting plate or if there is insufficient heat-conductive paste between the motor driver heat-sink and the mounting plate . If the driver mounting and wiring connections are found to be satisfactory then the driver unit should be returned for repair.

ATTENTION!
The motor driver board carries high voltage - never touch the motor driver while the labeller is connected to the mains supply. Never touch the driver if any of its LED's are illuminated.

NO GAP SEEN

This error is generated when the labeller has not detected a label gap after dispensing a complete label pitch. This can be caused by an incorrectly adjusted label-sensor, a web-break, a label web threading problem or because label backing material has become wrapped around the drive roller.

MISSING LABELS

When a section of web with a missing label reaches the peel-tip the labeller will automatically feed the web forward to bring the next label to the peel-tip. The labeller can feed past multiple missing labels. This error will be generated when the number of consecutive labels missing from the web reaches the value set in the parameter *Consecutive missing label count*.

CONVEYOR REVERSED

This error can only be generated when the labeller is used in speed-matching mode. If the labeller determines that the conveyor is moving in the reverse direction then this error will be generated. A small amount of reverse conveyor movement is allowed to prevent this error condition being generated by conveyor jitter when the conveyor is nominally stationary. If this error is generated when the conveyor is moving in the forward direction then switch the encoder phases A and B in the encoder plug. In mainboards V2.0 and above a jumper can be switched between jumper locations J7 and J8 instead of switching the encoder phases in the encoder plug.

LABEL QUEUE OVERFLOW

The labeller can track up to 30 labels from the label-sensor to the peel-tip. If the labeller determines that there are more than 30 labels between the label-sensor and the peel-tip then this error will be generated.

If this error is generated when there are not more than 30 labels between the label-sensor and peel-tip then either the parameter *Label pitch* is set too low or the parameter *Label-sensor to peel-tip distance* is set too high. The parameter *Label pitch* may have been set too low by the labeller itself during an unsuccessful automatic label initialization.

PROD. QUEUE OVERFLOW

The labeller can track up to 30 products from the product-sensor trigger point to the dispense position. If the labeller determines that there are more than 30 products between the product-sensor trigger point and the dispense position then this error will be generated.

If this error has been generated when there are not more than 30 products between the label-sensor and the intended dispense position then the product detector may be generating multiple signals for a single product. If this is the case set the parameter *Product-sensor inhibit* to a value that is at least as great as that of the product length. Alternatively the parameter *Position of label on product* or the parameter *Encoder resolution* may be set too high.

POWER FAIL!

This error is generated if the mains input voltage falls below about half its nominal value. This means that for a nominal 120V mains supply this error will be generated if the mains voltage falls below about 60V. If this error occurs frequently then the mains supply should be reviewed.

CABINET OVERHEAT!

This error is generated if the temperature inside the control cabinet exceeds 60 Celsius.
If this error occurs make sure that the cabinet cooling fan is operating and that the fan-filter is not clogged.

MOTOR OVERHEAT!

This error is generated if the motor temperature becomes excessive. If this error occurs check that the motor fan is operating.

INITIALIZATION FAIL

The labeller will generate an error message if it cannot complete the initialization process; this may happen if the label web is not threaded properly on the labeller or if the label-sensor lenses are dirty. For some label webs it may not be possible for the labeller to initialise automatically. In this case the correct values for the parameters *Label sensor setting* and/or *Label pitch* must be set manually.

If a third party label-sensor is fitted it must be adjusted correctly to distinguish between labels and backing material and the parameter *Label-sensor setting* must be set to zero.

LOOP ERROR

When the labeller is switched "Online" the loop roller will rotate until the label web blocks the loose-loop sensor. If the loose-loop sensor has not been blocked after 3 seconds this error will be generated. If this error is generated even though the loose-loop box is full check the adjustment of the potentiometer on the loose-loop sensor itself.

REWIND ERROR

When the labeller is switched "Online" after powering up the rewind will rotate until the rewind dancer arm reaches the home position. If the rewind dancer arm has not been detected as being in the home position after 2 seconds this error will be generated. To allow the rewind unit to detect web breaks this error will also be generated if the rewind dancer arm stays at its end position for 2 seconds. This error will also be generated if the rewind rotates multiple times when the dispense roller is not rotating.

If this error is generated incorrectly then check the adjustment of the rewind encoder disc using the parameter *Rewind dancer position*.

WEB END

If a web-end sensor is fitted to the labeller this error will be generated when the label roll is empty.

9.2 Warning messages

UNLABELLED PRODUCT

This warning is generated if the labeller cannot dispense a label onto a product that has reached the dispense position. This may occur if the labeller is feeding past a section of web with missing labels; increasing the value of the parameter *Missing label speed* will reduce the likelihood of this occurring. This warning may also be generated if a single product has caused multiple triggering of the product-sensor; if this is the case make sure the product-sensor is adjusted properly and to eliminate multiple triggering of the product-sensor set the parameter *Product-sensor inhibit* to a value that is at least as great as that of the product length.

LOW LABEL ROLL

When the unwind unit is used a warning is generated when the label roll diameter has decreased to the value set in *Low label roll diameter.*

LABEL EDGE

The label-sensor can be set to detect either the leading or trailing edges of the labels. This warning is generated if the label sensor to peel-tip distance is too small to allow label trailing edge operation. If this is the case the labeller will automatically switch to using label leading edge detection.

SPEED TOO HIGH

This warning can only be generated in speed-matching mode with the parameter *Asynch mode* set to “OFF”. If the line-speed exceeds the maximum dispense speed of the labeller then this warning message will be generated. A line-speed higher than the labeller’s maximum dispense speed will affect label placement accuracy. If this warning is generated even though the line speed is lower than the labeler's maximum dispense speed then the parameter *Encoder resolution* is set incorrectly (too low) or severe conveyor vibration is causing peaks of line-speed well above the average line speed. There is no maximum line-speed when the parameter *Asynch mode* is set to “ON”.

LOW MAINS VOLTAGE

This warning is generated if the mains voltage falls below about 80% of its nominal value. This means that for a nominal 120V mains supply this warning will be generated if the mains voltage falls below 96V. A low mains voltage will reduce the available motor torque and may lead to motor stalling. If this warning occurs frequently then the mains supply should be reviewed.

HIGH MAINS VOLTAGE

This warning is generated if the mains voltage rises above about 120% of its nominal value. This means that for a nominal 120V mains supply this warning will be generated if the mains voltage exceeds 144V. A high mains voltage may cause damage to the labeller's electronics. If this warning occurs regularly then the mains supply should be reviewed.

CABINET TOO HOT

This warning is generated if the temperature inside the control cabinet exceeds 55 Celsius.
If this warning occurs make sure that the cabinet cooling fan is operating and that the fan-filter is not clogged.

KEY EXPIRED

This warning is generated if the DONGLE (software key) has expired.

The labeller can be supplied with a limit to the number of labels that can be applied before the software key expires. Once this limit is reached then the settings *Software key 0* and *Software key 1* will appear in the Advanced Menu. The labeller will only apply labels again if the values provided by the distributor are entered into both these settings.

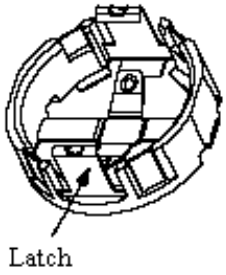
ENCODER ALARM

If the encoder used with the labeller has a fault output and the output is active then this warning will be generated.

Chapter 10 Dongle

The dongle is a small disc-shaped device that looks somewhat like a button-cell battery. It is fitted in the dongle retainer which is located near the centre of the main-board as shown below.

Dongle Retainer



Dongle

Side view Bottom view

Adding new features by exchanging dongles

The dongle contains data which activates various software controlled features of the labeller. There are many special functions and features of the labeller that can be enabled via the dongle. Adding additional features to the labeller after the initial purchase will usually involve exchanging the dongle already fitted to the mainboard for a new dongle. Please contact your distributor for information on what additional functions and features are available for your labeller.

Removing and inserting the dongle into its retainer

Warning!

To avoid the risk of electrical shock always ensure that the labeller has been disconnected from the mains before opening the electrical cabinet.

To remove the dongle from its retainer, simply deflect the retainer latches just enough to free the dongle. Avoid applying excessive force to the latches. To insert the dongle into its retainer simply push the dongle into the retainer until the latches click into place. Never attempt to insert or remove a dongle unless the power has been turned off. Attempting to insert or remove the dongle with power applied could severely damage the mainboard or destroy the dongle.

Mainboard exchange

If for any reason the labeller's mainboard is exchanged the dongle must be transferred to the new mainboard. Without a dongle fitted to the mainboard the labeller cannot operate.

Dongle error messages

If no dongle is fitted to the labeller's mainboard then at power-up the message "No dongle found" will appear in the display and it will not be possible for the labeller to operate. This message could also appear if the dongle is defective.

If the dongle does not contain valid data then at power-up the message "Dongle data invalid" will appear in the display and it will not be possible for the labeller to operate. This message could also appear if the dongle is defective.

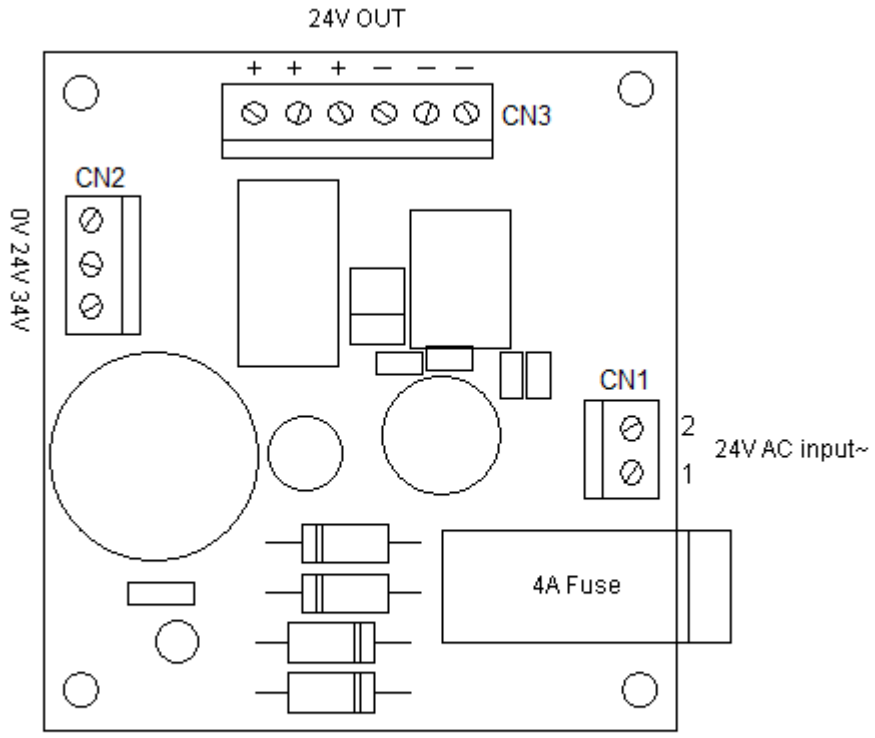
If the dongle contains invalid data or is defective it must be exchanged for a new dongle. Do not discard the old dongle even if it is thought to be defective as the old dongle provides proof of entitlement to use the software originally supplied with the labeller. Unless the old dongle can be produced the entitlement to use the software will have to be purchased again.

Dongle serial number

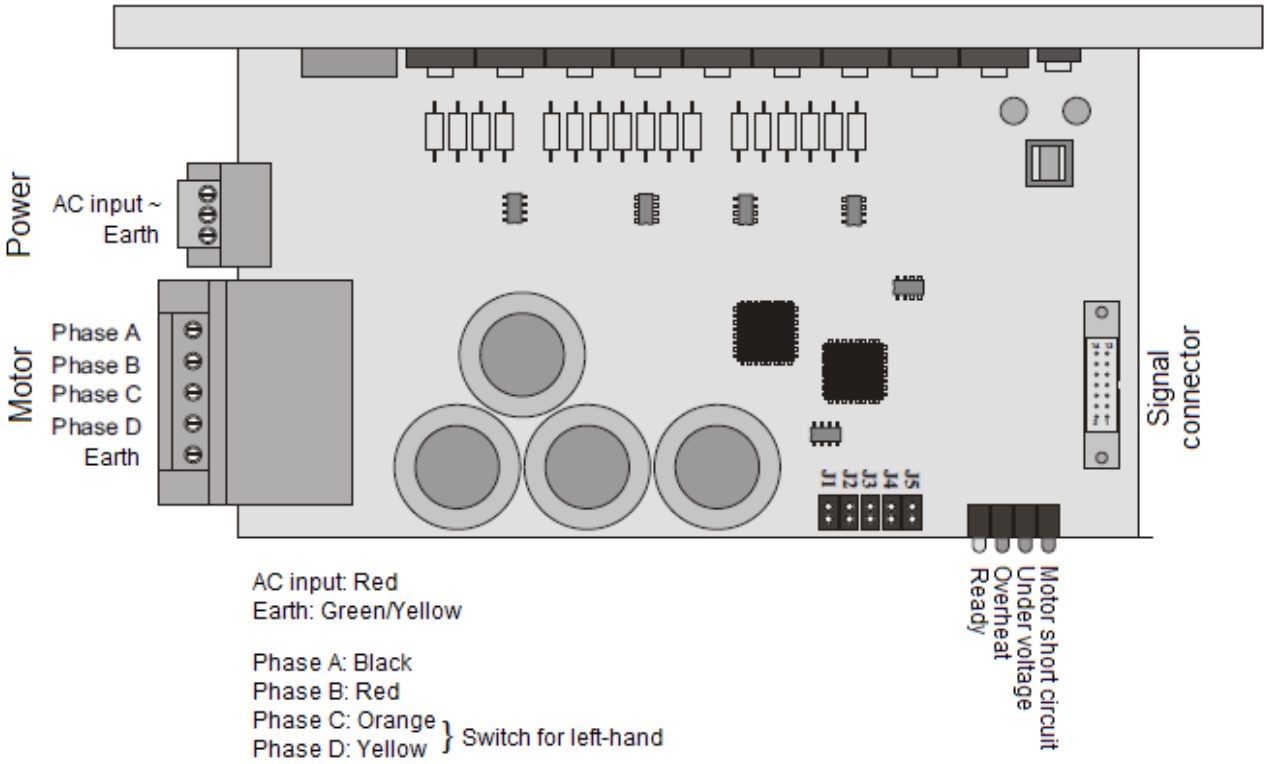
Each dongle has a unique serial number. Information regarding each dongle is held in a database by FastPaQ. When making enquiries regarding the dongle please provide the serial number of the dongle fitted to the labeller. The serial number of the dongle can be displayed by selecting the *Dongle* menu point in the Service Menu. Alternatively the dongle can be removed from the mainboard and the serial number read directly from the dongle itself as it is inscribed on the dongle centre contact.

Chapter 11 Electrical

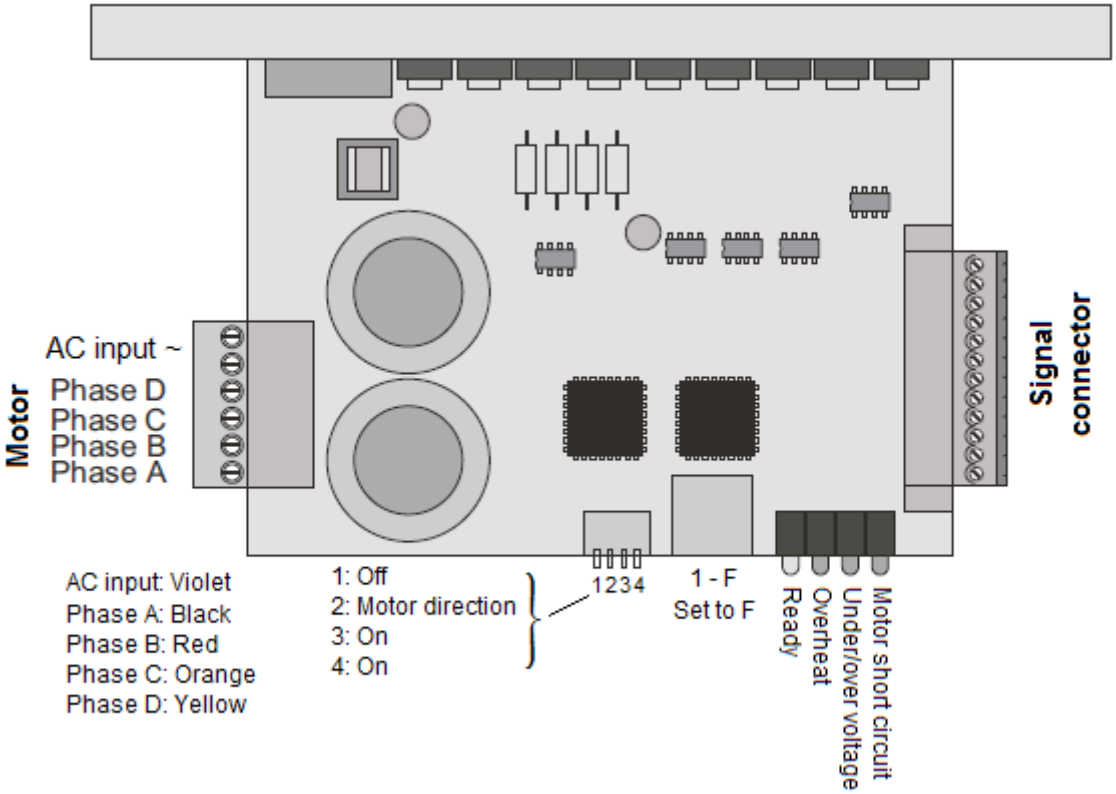
Power board



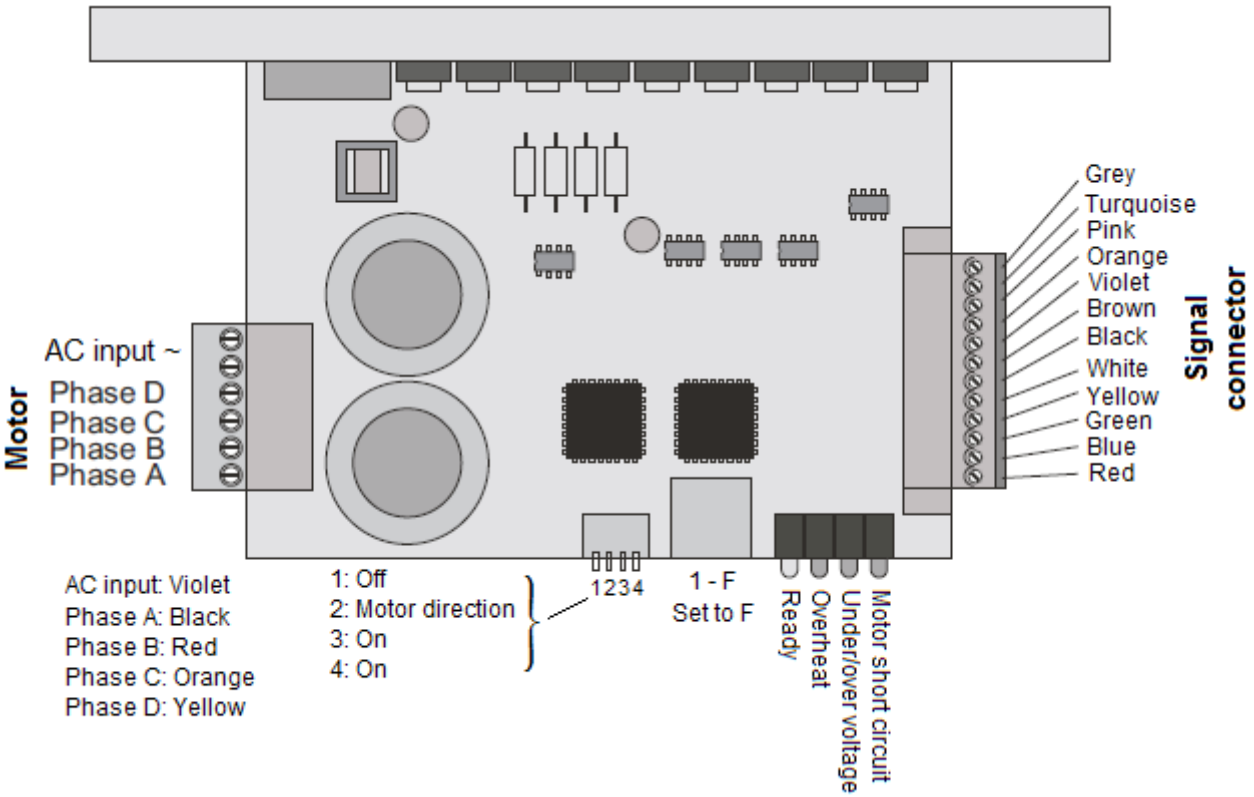
Dispense motor driver



Loop motor driver

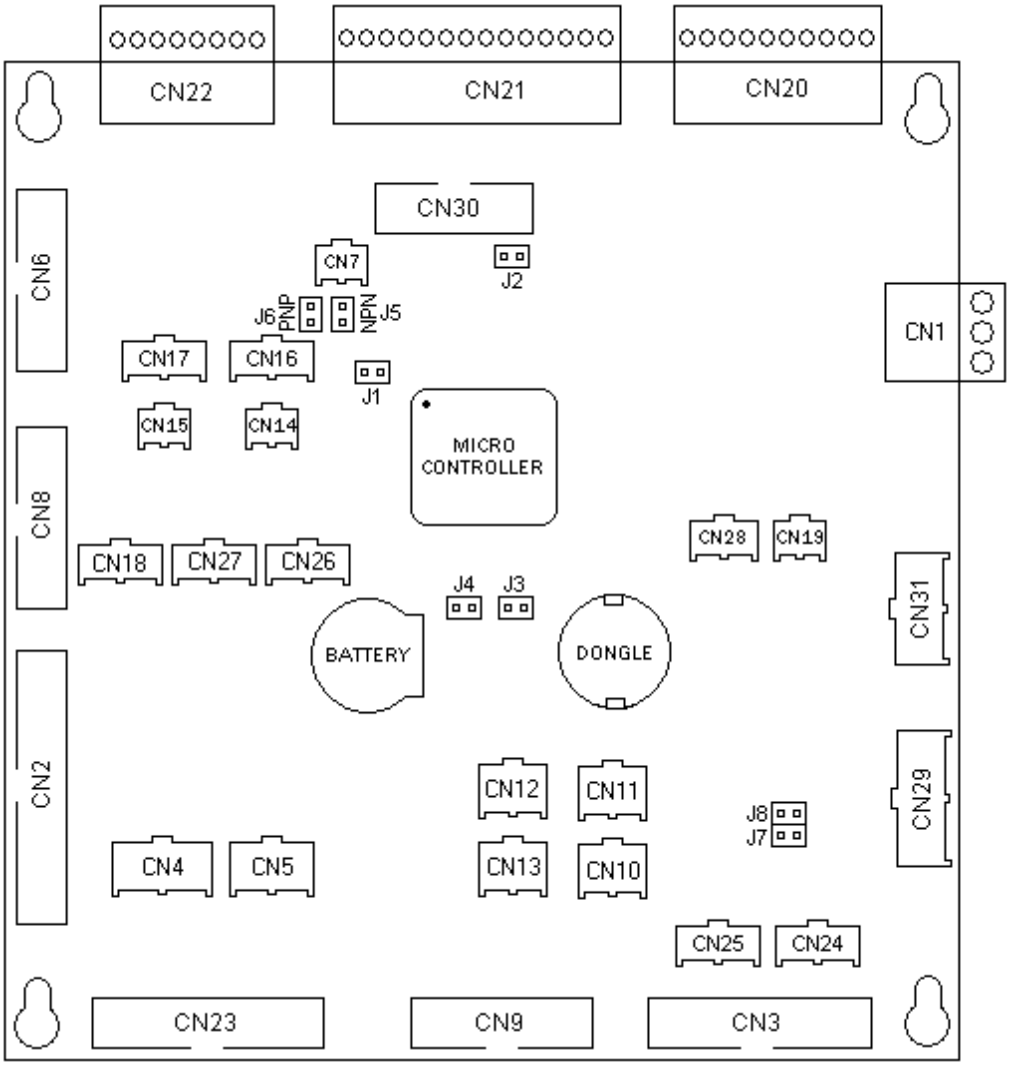


Rewind motor driver



Main board

The diagram below shows the location of the mainboard connectors (CN1 to CN31). The location of jumpers J1 to J8 and of the dongle is also shown.

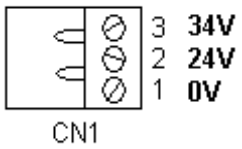


The main board connectors, jumpers and dongle are identified in white type on the board itself. Pin 1 of each connector is either marked with a "1" or indicated by a small white triangle.

J1 – Fit jumper during programming only, otherwise leave open
J2 – Leave open
J3 – Leave open
J4 – Leave open
J5 – Fit jumper when using a NPN type product-sensor, otherwise leave open
J6 – Fit jumper when using a PNP type product-sensor, otherwise leave open
J7 \ Fit jumper to ***either*** J7 ***or*** J8 to change direction of the line speed encoder. **Never** fit both
J8 / jumpers at the same time or the main-board encoder input circuitry will be destroyed.

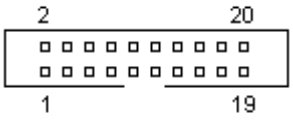
CN1 Power connector

Connect to CN1 on the power board.



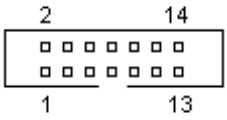
CN2 Keypad /display connector

Connects to the display/keypad connectors on the cabinet



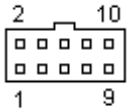
CN3 Dispense motor driver connector

Connects to the signal connector (CN4) on the Dispense motor driver



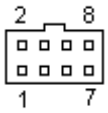
CN4 Unwind board connector

Connects to the signal connector (CN2) on the Unwind board



CN5 Rewind sensor connector

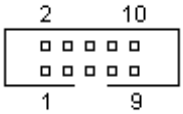
Connects to the 6-way Binder connector on the cabinet



CN6 Serial communications interface 1

This interface is used to download a new program to the mainboard. It can be also used for RS232 serial communication with other devices. This interface is configured as DCE.

1	NC
2	DTR1
3	TxD1
4	CTS1
5	RxD1
6	RTS1
7	NC
8	NC
9	0V
10	NC



CN7 Serial communications interface 2

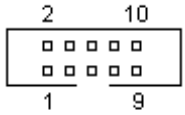
This interface can be used for RS485/RS422 serial communication with other devices

1	A
2	B

CN8 Communications interface 3

This interface can be used for RS232 serial communication with other devices. This interface is configured as DTE.

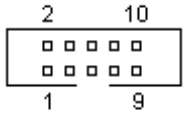
1	NC
2	NC
3	RxD3
4	RTS3
5	TxD3
6	CTS3
7	DTR3
8	NC
9	0V
10	NC



CN9 Serial communications interface 4

This interface can be used for RS232 serial communication with other devices. This interface is configured as DTE and can receive data only.

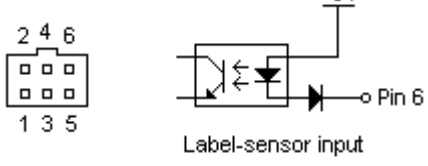
1	NC
2	NC
3	RxD4
4	RTS4
5	NC
6	NC
7	DTR4
8	NC
9	0V
10	NC



CN10 Label-sensor connector 1

Connect to a label-sensor. Unless the FastPaQ infra-red label-sensor is used make sure that no connection is made to pins 4 and 5 otherwise the mainboard may be damaged.

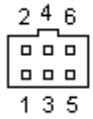
1	0V
2	5V
3	24V
4	DAC1+
5	DAC1-
6	Label-sensor input 1 (NPN)

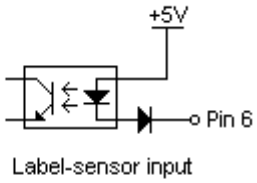


CN11 Label-sensor connector 2

May be connected to an additional label-sensor. Unless the FastPaQ infra-red label-sensor is used make sure that no connection is made to pins 4 and 5 otherwise the mainboard may be damaged.

1 0V
2 5V
3 24V
4 DAC2+
5 DAC2-
6 Label-sensor input 2 (NPN)

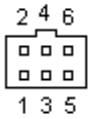


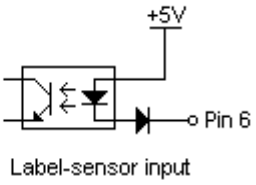


CN12 Label-sensor connector 3

May be connected to an additional label-sensor. Unless the FastPaQ infra-red label-sensor is used make sure that no connection is made to pins 4 and 5 otherwise the mainboard may be damaged.

1 0V
2 5V
3 24V
4 DAC3+
5 DAC3-
6 Label-sensor input 3 (NPN)

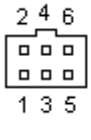


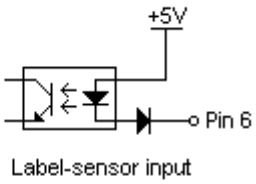


CN13 Label-sensor connector 4

May be connected to an additional label-sensor. Unless the FastPaQ infra-red label-sensor is used make sure that no connection is made to pins 4 and 5 otherwise the mainboard may be damaged.

1 0V
2 5V
3 24V
4 DAC4+
5 DAC4-
6 Label-sensor input 4 (NPN)





CN14 Drive nip-roller

Connects to the DIN rail terminals in the cabinet.

1 0V (Ground)
2 Dispense-nip input

CN15 Loop nip-roller

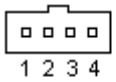
Connects to the DIN rail terminals in the cabinet.

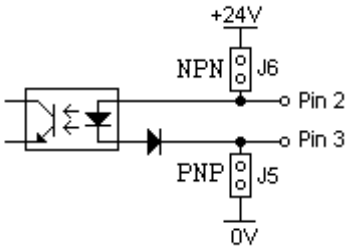
1 0V (Ground)
2 Loop-nip input

CN16 Product-sensor input

Connect to a product-sensor

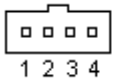
1 0V
2 Product-sensor +
3 Product-sensor -
4 24V

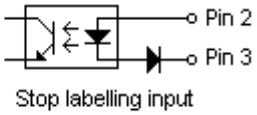




CN17 Stop labelling input

1 0V
2 Stop labelling input +
3 Stop labelling input -
4 24V

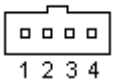




CN18 Tandem connector

For tandem operation pin 2 of CN18 should be connected to pin 3 of CN18 on the other labeller.

1 NC
2 Deactivate in
3 Deactivate out
4 NC



CN19 Motor heat-sink temperature input

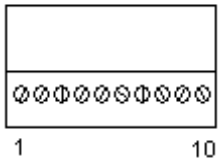
Connects to the DIN rail terminals in the cabinet.

CN20 Status and hot-stamp printer outputs

This connector can be used to drive signal lamps and a hot-stamp coder.

All outputs are of PNP type and are rated at 24V, 350mA (with over-current limiting at 500mA). The outputs can be connected directly to LED lamp stacks. These outputs cannot drive incandescent lamps directly due to the high turn-on current required by incandescent lamps.

1	0V
2	Ready output
3	0V
4	Warning output
5	0V
6	Error output
7	0V
8	Spare output
9	0V
10	Hot-stamp NPN output

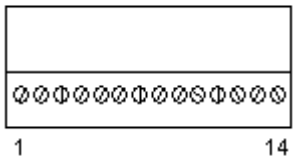


CN21 Applicator module solenoid outputs

This connector can be used to drive the solenoids of an applicator module.

All outputs are of PNP type and are rated at 24V, 350mA (with over-current limiting at 500mA).

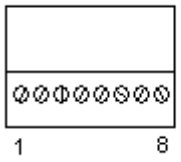
1	0V
2	Pneumatic dispensing edge
3	0V
4	Air assist
5	0V
6	Air blast
7	0V
8	Tamp 1
9	0V
10	Tamp 2
11	0V
12	Spare output
13	0V
14	Spare output

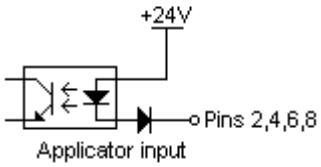


CN22 Applicator module inputs

This connector is used to interface with an applicator module. The inputs are of NPN type.

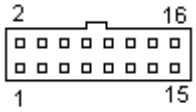
1	0V
2	Tamp1 home input
3	0V
4	Tamp 1 out input
5	0V
6	Tamp 2 home input
7	0V
8	Tamp 2 out input





CN23 Printer interface

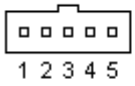
This connector is reserved for use with a printer module

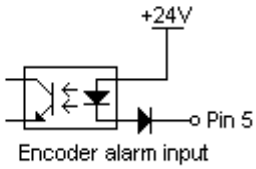


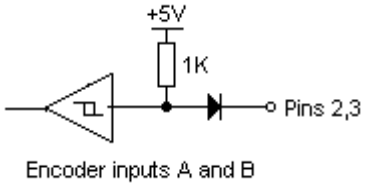
CN24 Conveyor encoder connector

For use with a conveyor encoder. A dual-phase encoder is recommended.
If the signal is single-phase then Phase A must be used and a jumper placed in J8 on the main-board
If the encoder has an NPN alarm output it should be connected to pin 5.

1 0V
2 Conveyor encoder input B
3 Conveyor encoder input A
4 24V
5 Alarm input



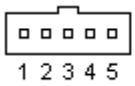


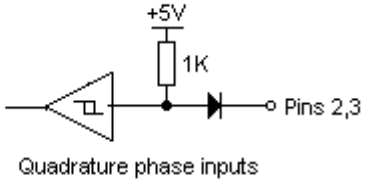


CN25 Spare quadrature phase connector

This connector may be used in special applications to monitor other equipment.

1 0V
2 Quadrature phase input A
3 Quadrature phase input B
4 24V

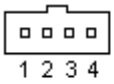


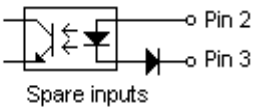


CN26 Spare input

This connector is reserved for special applications

1 0V
2 Spare input +
3 Spare input -
4 24V

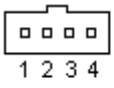


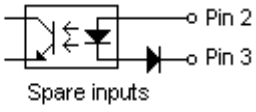


CN27 Spare input

This connector is reserved for special applications

1 0V
2 Spare input +
3 Spare input -
4 24V





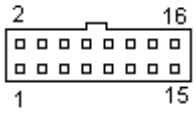
CN28 Analog signal input

This connector may be used in special applications to monitor other equipment.
Incorrect connection to CN28 may damage the mainboard.

1 AVss
2 Spare A/D input
3 AVcc

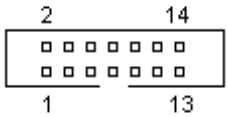
CN29 Expansion board connector

This connector is reserved for use with an I/O expansion board.



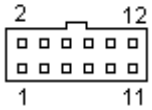
CN30 Emulator connector

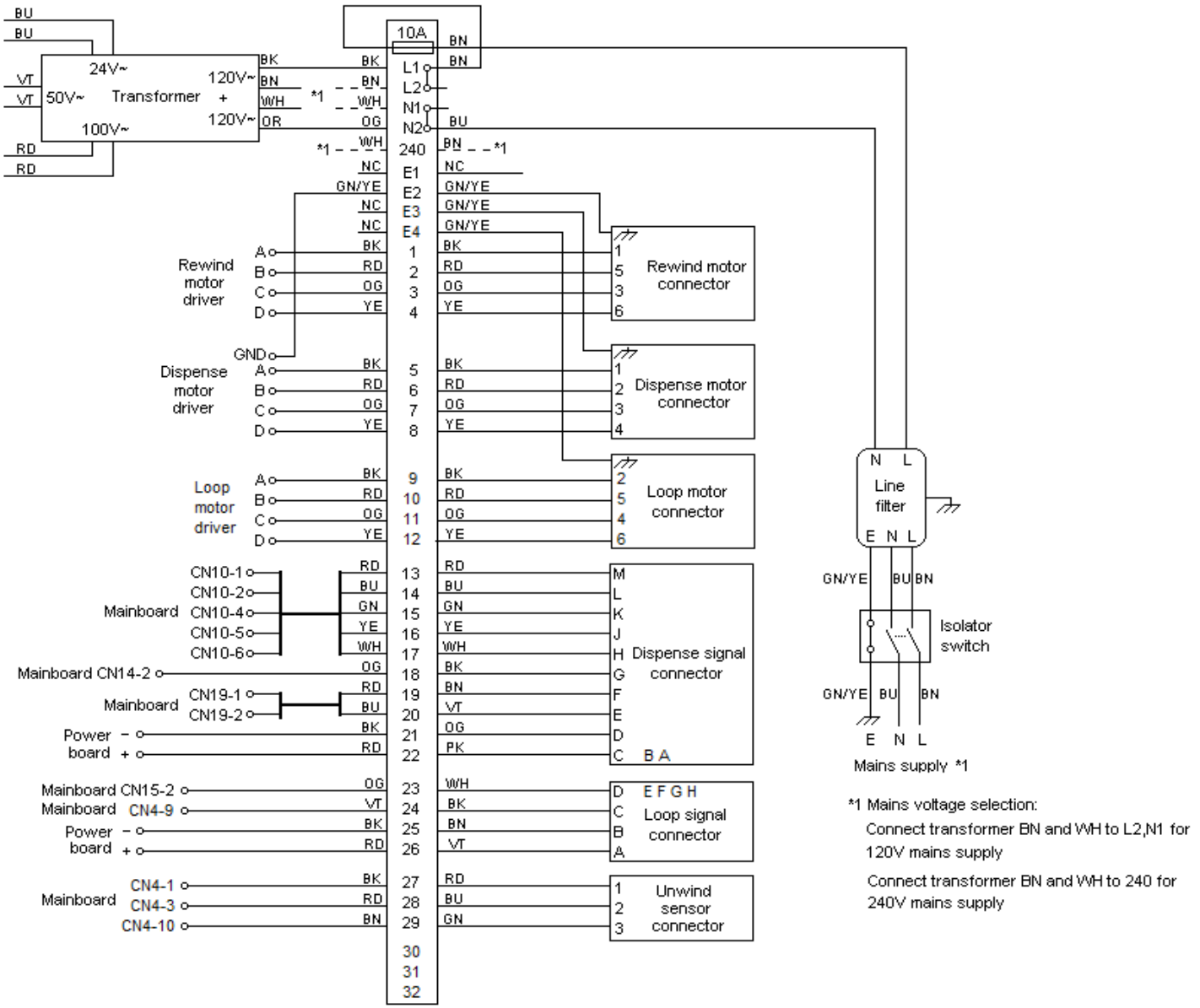
This connector is for factory use only.



CN31 Rewind motor driver connector

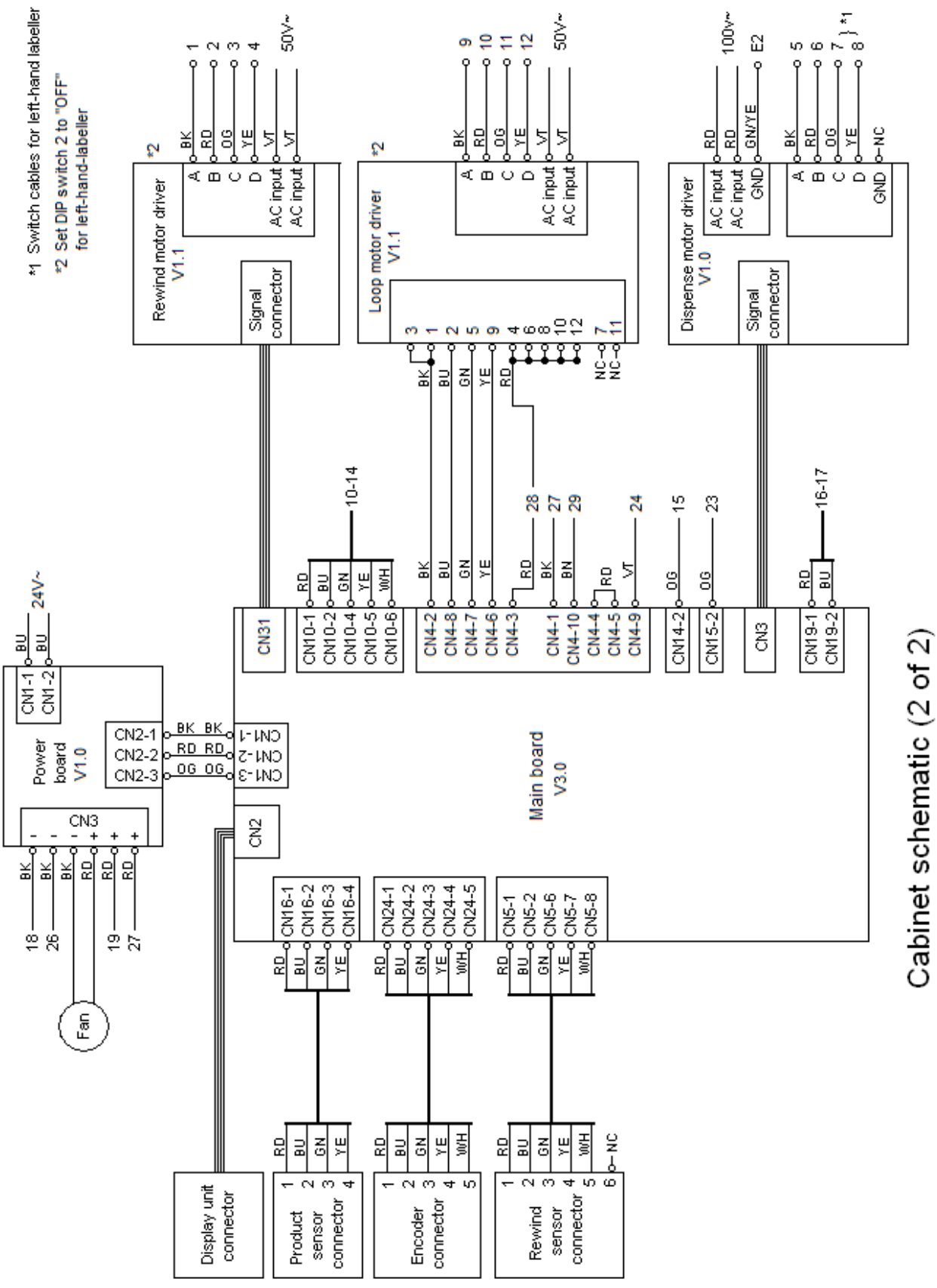
Connects to the signal connector on the Rewind motor driver





Cabinet schematic (1 of 2)

2015-03-20


*1 Switch cables for left-hand labeller
*2 Set DIP switch 2 to "OFF" for left-hand-labeller
Rewind motor driver V1.1
Loop motor driver V1.1
Dispense motor driver V1.0
Signal connector
AC input
AC input
50V~
100V~
Power board V1.0
CN1-1
CN1-2
24V~
CN2-1
CN2-2
CN2-3
CN3
Fan
Main board V3.0
CN31
CN2
CN10-1
CN10-2
CN10-4
CN10-5
CN10-6
CN4-2
CN4-8
CN4-7
CN4-6
CN4-3
CN4-1
CN4-10
CN4-4
CN4-5
CN4-9
CN14-2
CN15-2
CN3
CN19-1
CN19-2
CN16-1
CN16-2
CN16-3
CN16-4
CN24-1
CN24-2
CN24-3
CN24-4
CN24-5
CN5-1
CN5-2
CN5-6
CN5-7
CN5-8
Display unit connector
Product sensor connector
Encoder connector
Rewind sensor connector
Cabinet schematic (2 of 2)
2016-09-26

Chapter 12 Specifications

12.1 Standard specifications

Maximum label width: 100m (4″)

Maximum label length: 500mm (20″)

Maximum dispense speed: 375m/min (15,000″/min)

Maximum line speed: 375m/min (15,000″/min)

Labelling accuracy: Up to +/-0.4mm (+/-1/64″)

Single remotable keypad/display unit

Dimensions: Stand-alone loop unit L 460mm (18″) H 300mmm (12″) approx

Stand-alone dispense unit L 460mm (18″) H200mm (8″) approx

Labeller with units combined L 510 (20″) H 510mm (20″) approx

Power supply: Single phase 120V or 240V +/- 15%.

Operating temperature: 5° C – 50° C

Maximum humidity: 85% (non-condensing)

IP rating: 20

Noise emission: Sound pressure level LpA 88dB(A)

12.2 Options

Unwind unit (with automatic low-label detection)

Rewind unit

Maximum label width: 500mm (20″)

Maximum label length: Can be specified by customer

Maximum line speed: 1km/min (40,000″/min)

Additional remotable keypad/display units

Serial communication interfaces including RS232 and RS485 for monitoring/control of labeller and/or external devices

I/O for interfacing to PLCs, controlling status lamps, monitoring/control of external devices etc.

Bespoke software for control/monitoring of other devices such as reject units, barcode readers etc.

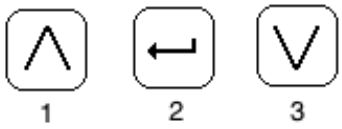
IP rating: 65 (wash-down)

Appendix A

Menu codes

If both the < and > keys are pressed simultaneously the labeller will request a keypad code sequence. Enter the Advanced menu code or Service menu code to move to the desired menu. If an incorrect code is entered the labeller will remain in the current menu.

Advanced menu code



Service menu code

Appendix B

Maintenance schedule

Keep the rollers and other parts generally clean and free from accumulated labels and adhesive.

At the start of each shift:

1. Wipe clean the label-sensor lenses with a soft cloth in case of build up of dirt/label adhesive. A symptom of this would be erratic labelling in the form of inaccuracy, double labelling etc.

Carry out the following at regular intervals according to the dustiness of the operating environment:

2. Wipe clean the loose-loop reflector. A build up of dust on the reflector will cause the labeller to think the loose-loop box is full when it isn't. A symptom of this is the loose-loop box emptying or nearly emptying repeatedly.

3. Remove the cabinet fan filters and beat clean. Occasionally the filters should be replaced. If the filters become clogged the cabinet temperature will rise until the warning message "Cabinet too hot" appears on the display. If no action is taken the error message "Cabinet overheat!" will appear and the labeller will go offline. Make sure the filters are not left off allowing dust to enter the control cabinet - if dust builds up over the circuit boards it will eventually cause them to fail.

Appendix C

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Weymouth, Dorset DT4 9GH
Tel: +44 1305 330008
Fax: +44 1305 759583
www.fastpaq.com

EC DECLARATION OF CONFORMITY

Fastpaq Ltd.

Declares that the machinery described:-

1. The HS (High Speed) labelling machine
2. The VHS (Very High Speed) labelling machine
3. The UHS (Ultra High Speed) labelling machine

Conforms to the following Directives:-

2006/42/EC
2004/108/EC
2006/95/EC

Uses the following harmonised standards:-

BS EN 60204-1:2006+A1:2009
BS EN 61000-6-4:2007
BS EN ISO 12100-1:2003+A1:2009
BS EN ISO 12100-2:2003+A1:2009
BS EN ISO 13849-2:2008
BS EN ISO 14121-1:2007
BS EN ISO 954-1:1997

and complies with the relevant essential health and safety requirements

_____(Signature)

DIRECTOR (Position)

Signed by _____
Person authorised to sign

Signed at Weymouth (place) on 2012-12-03 (date)