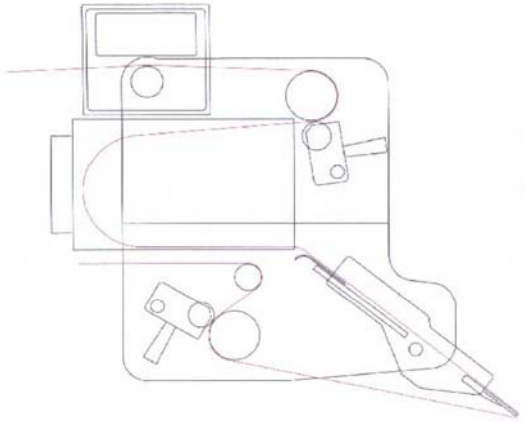
UHS Operating Manual

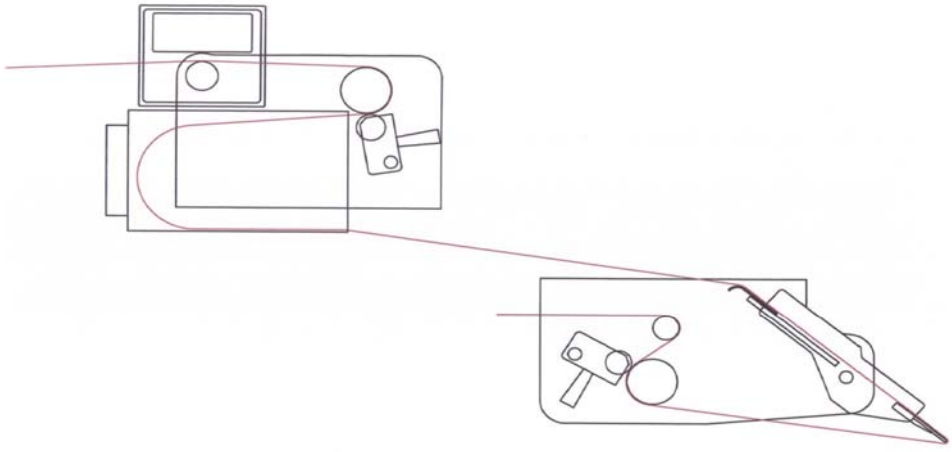
Applies to software Version 1.0

Chapter 1 Mechanics

The UHS labeller consists of two separable units - the dispense unit and the loose-loop unit. The loose-loop unit provides a zero-tension supply of labels to the dispense unit. The two units can be joined together together to form a single compact labelling machine but where space is very limited the two units can be separated and operated as even more compact stand-alone units. Both these configurations are shown below in Figure 1.1.



Loose-loop and dispense units joined together



Loose-loop and dispense units mounted separately

Figure 1.1

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 is shown below in figure 1.2.

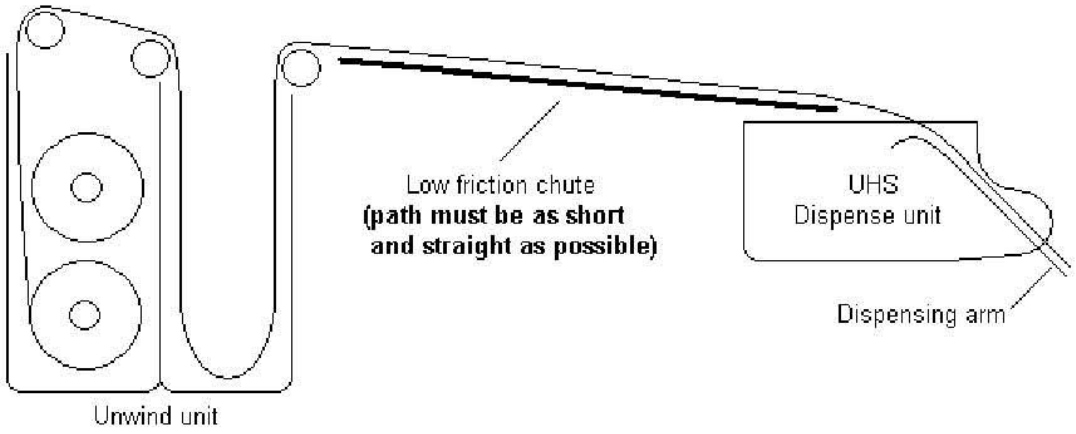


Figure 1.2

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.

Threading the label web

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

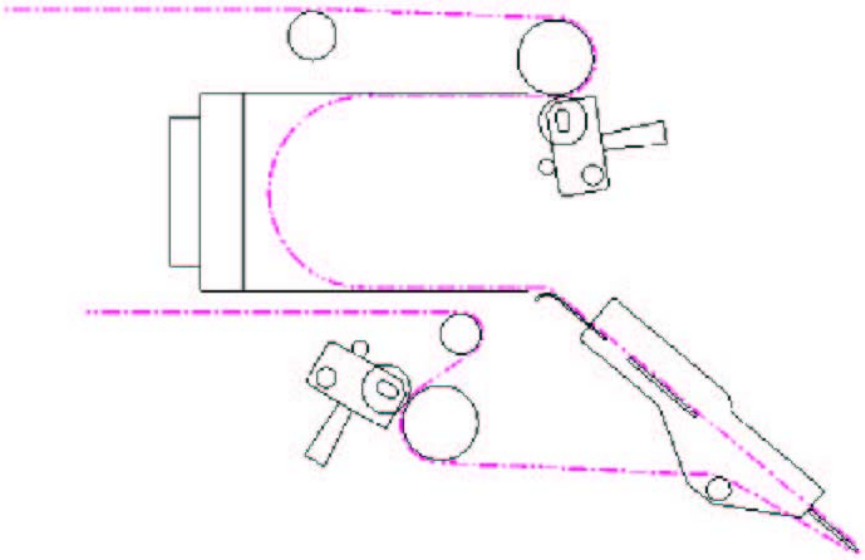


Figure 1.3

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 tensioning brushes should apply a light pressure to the web. Applying too high a pressure to the tensioning brush on the dispensing arm will cause over-tensioning of the web, potentially leading to labelling inaccuracy or web-breakage.

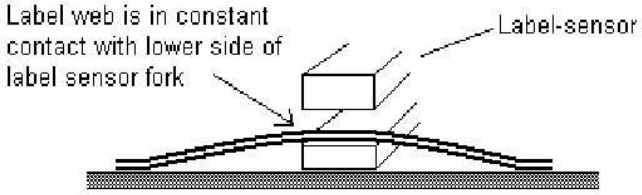
At higher labelling speeds the label web may "run-on" under the dispensing arm brush as the web is decelerated at the end of each label dispense. A small amount of run-on (up to 2mm) is not a problem but if the tensioning brush is applying too light a pressure then the run-on may be excessive leading to web breakages as the slack is taken up at the start of the each label dispense. Check that any run-on does not cause the edge of the next label to pass through the label-sensor. If it does, adjust the position of the label-sensor so that it is nearer the middle of the label to avoid label edge detection problems. Even though the run-on will cause the apparent stop position of the labels relative to the peel tip to change, this will not affect the actual label placement accuracy.

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

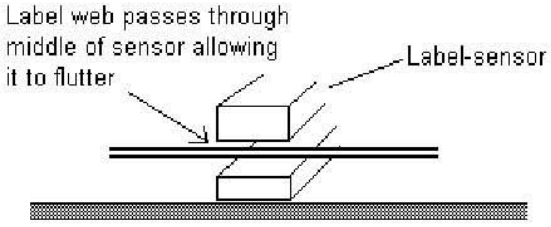
Using a non-standard dispensing arm

To cope with the requirements of a particular application a special dispensing arm may be fitted to the labeller, for instance a longer or narrower 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 1.4.



Correct web path through label-sensor



Incorrect web path through label-sensor

Figure 1.4

Routine maintenance

The UHS labeller has been designed to be rugged and very low maintenance. Routine maintenance consists mainly of keeping the labeller clean and free from 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. **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 with a soft, damp cloth.

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

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

Chapter 2 Keypad/Display

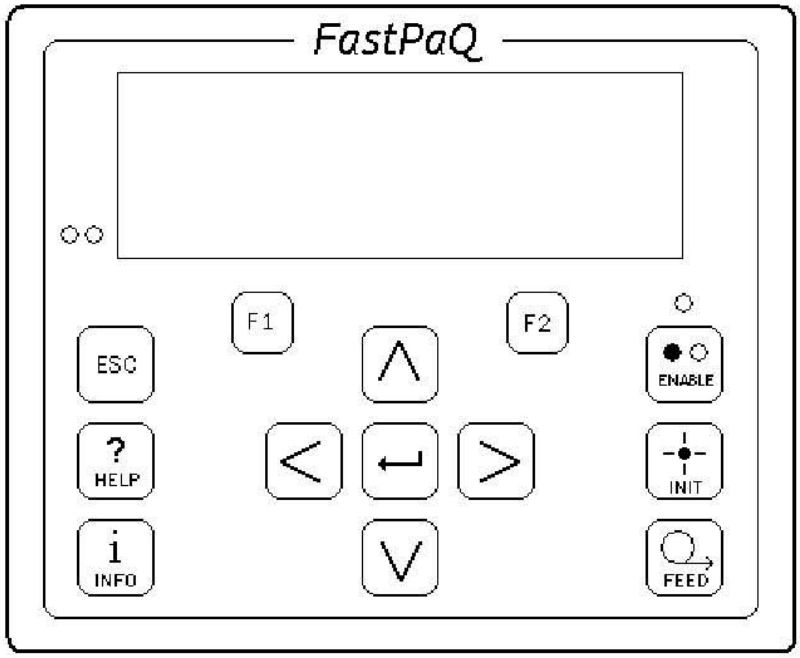


Figure 2.1

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.

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 parameter and its value.

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

Job display

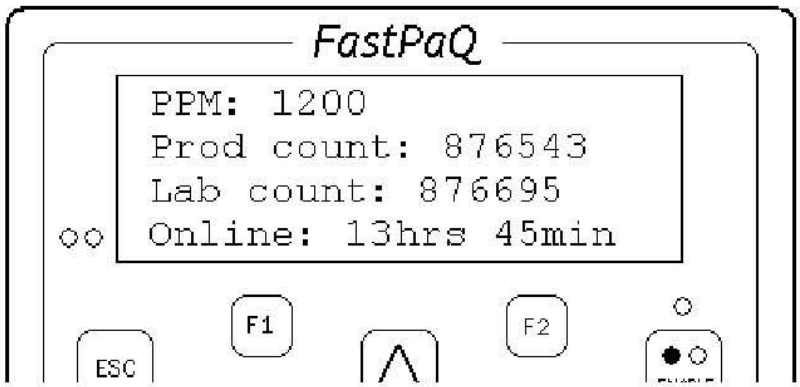


Figure 2.3

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

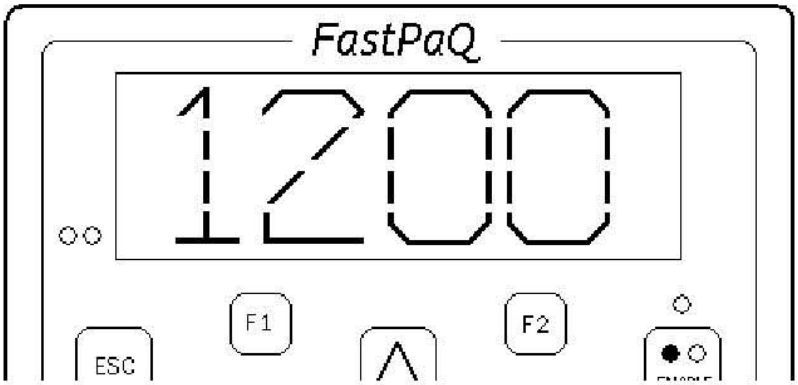


Figure 2.4

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.

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 drive roller can be rotated by hand to facilitate threading of the labeller.

INIT key 

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

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.

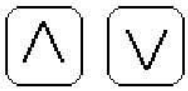
INFO key 

The INFO key is used to select the job and PPM information displays
Press the INFO key once to show the PPM display. Press again to show the job display. Press the INFO key a third time to return to the menu display.

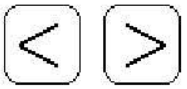
On some keypads the INFO key is marked as FAST SET.

ENTER key 

The ENTER key is used to select parameters and confirm adjustments as described in the chapter "Menus and Operation".

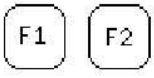
UP-ARROW / DOWN-ARROW KEYS 

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

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 parameter adjustment.

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 function keys are used to access any optional labeller functions.

Chapter 3 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 parameters for the labeller's basic adjustments.

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

The Service menu contains parameters 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 parameters are shown below in figure 3.1.

Operator menu	Advanced menu	Service menu
Position of label on product	Label-sensor setting	Unwind
Dispense speed*	Label repeat distance	Units
Line speed*	Position of label on product	Speed matching
Label stop position	Dispense speed*	Encoder resolution*
Load saved setup	Line speed*	Asynch mode*
	Label stop position	Motor dynamic
	Label-sensor edge	Dispense speed*
	Product-sensor inhibit	Run mode
	Label-sensor to peel-tip distance	Auto-cycle
	Consecutive missing labels count	Total label count
	Missing label speed	Total product count
	Save setup	Distance dispensed
	Load saved setup	Mains voltage
	Delete saved setup	Cabinet temperature
	Backlight intensity	Dispense motor temp.
	Display contrast	Dongle
	Reset job counters	Restore factory defaults

Figure 3.1

The parameters marked with an asterisk may or may not appear in the menus depending on the setting of other parameters. For instance the "Encoder resolution" parameter only appears if the "Speed matching" parameter is set to "ON"

Navigating the menus

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

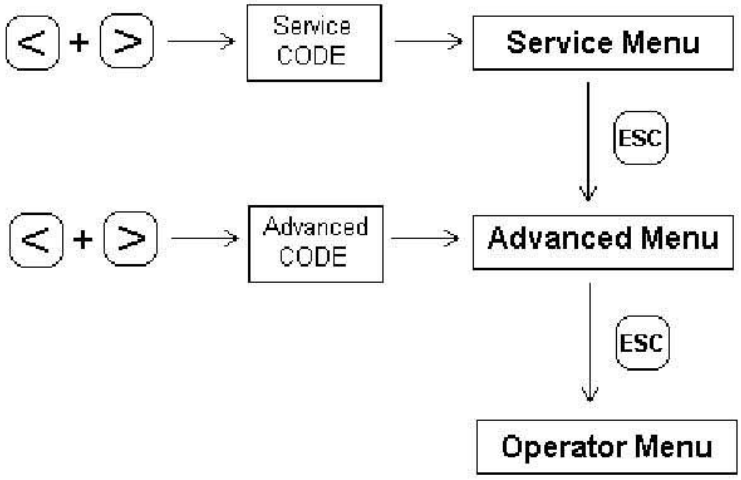


Figure 3.2

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 code to move to the desired menu. If an incorrect code is entered the labeller will remain in the current menu.

The Advanced and Service codes are given in Appendix A.

Adjusting parameters

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

Press the ENTER key and the display cursor will appear below the parameter'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 parameter 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 parameter to its original value.

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

Some parameters 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.

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 4 Label initialisation

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

Initialising using the FastPaQ label-sensor

To start the initialisation 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 initialisation 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 initialisation process simply press the INIT key and release immediately.

Initialisation failure

The labeller will generate an error message if it cannot complete the initialisation 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 repeat distance* must be set manually as described in Chapter 5.

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.

Chapter 5 Parameter descriptions

Position of label on product

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

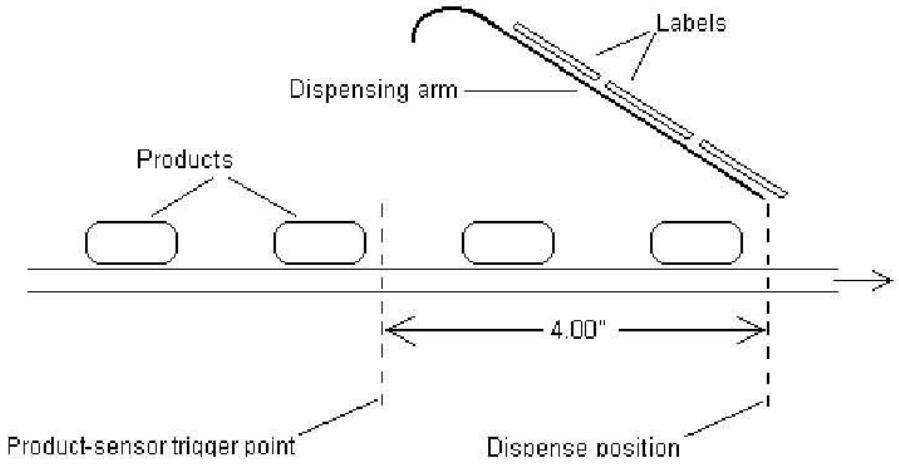
The value displayed shows the distance from the product-sensor to the dispense position.*

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 04.00 then the dispense position is 4.00" from the product-sensor.



Note:

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

Dispense speed

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

This parameter 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 5678 then the dispense speed will be 5678" per min.

Line speed

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

This parameter shows the line (conveyor) speed

This parameter is for information only and cannot be adjusted.

Example:

If the conveyor is moving at 6,400" per minute then the *Line speed* parameter will display 6400.

Note:

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

Label stop position

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 stop position* parameter is used to adjust the stop 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 beyond the peel tip. When the *Label stop position* parameter is set to zero the label will stop with its leading edge exactly in line with the peel tip.

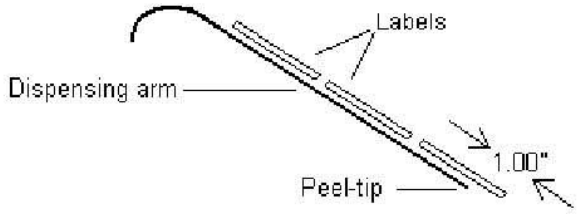
If the value of *Label stop position* is increased, the label will stop with its leading edge positioned further forward from the peel-tip.

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

It is recommended that *Label stop position* is set to at least 15mm (0.6") to allow the label web to decelerate after a label has been dispensed past the peel tip. If *Label stop position* 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.

Example:

If *Label stop position* is adjusted to 01.00 then the leading edge of the next label to be dispensed will stop 1.00" beyond the peel tip.



Note:

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

Load saved setup

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

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

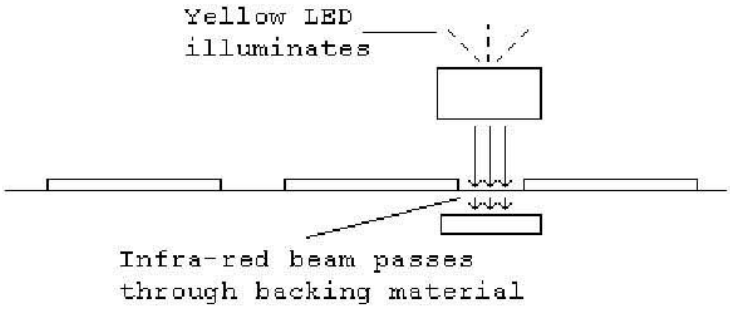
Label-sensor setting

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

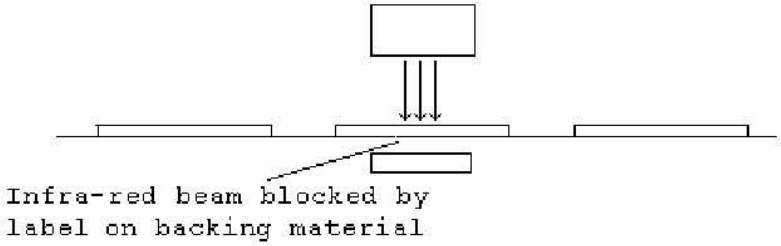
If the FastPaQ infra-red label-sensor is *not* in use then this parameter *must* be set to zero

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 the parameter *Label-sensor setting* is usually adjusted automatically by the labeller during the process of "initialisation". If initialisation 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 a further 10*.

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

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.

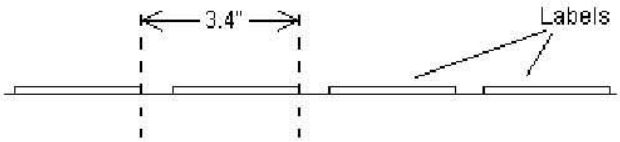
Label repeat distance

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

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

To set *Label repeat distance* 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 repeat distance* to the distance measured. *Label repeat distance* is displayed in units of 0.01" so if the distance measured was 3.4" the parameter should be adjusted to the value 03.40



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

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

Label-sensor edge

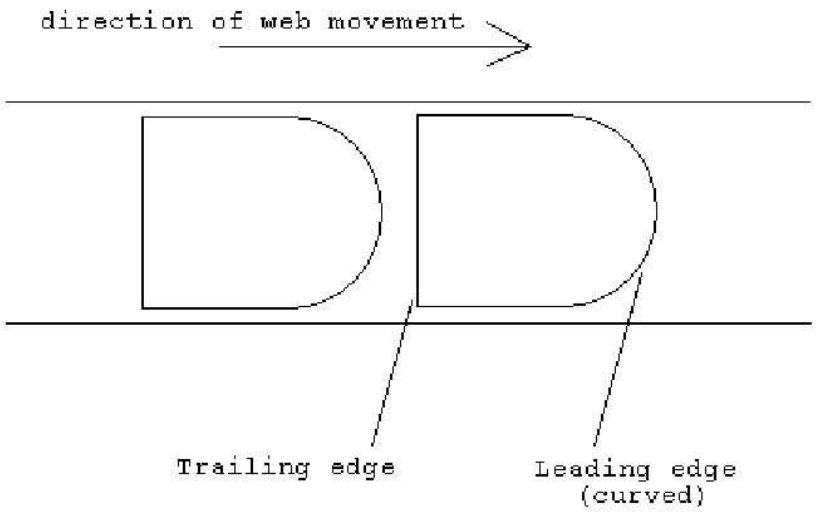
This parameter can be used to determine whether the labeller will detect the leading edge or trailing edge of the labels.

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

This parameter 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 inhibit

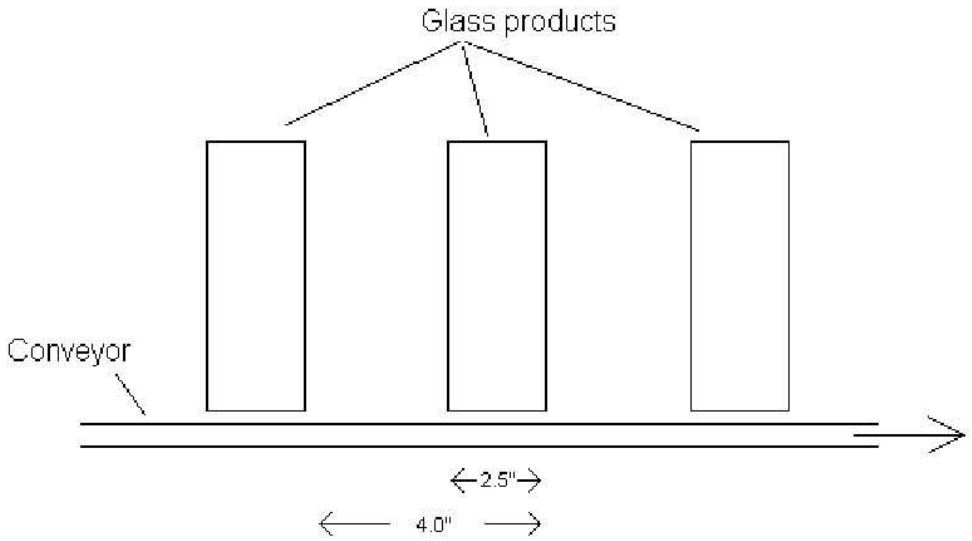
After a product has triggered the product-sensor the product-sensor will be inhibited for the distance displayed in this parameter.

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 cylinders with a diameter of 2.5" *Product-sensor inhibit* should therefore be set to at least 02.5

The product pitch (distance from the leading edge of one product to the leading edge of the following product) is 4.0". To allow the next product to be detected correctly *Product-sensor inhibit* should be set to a value less than 04.0



Label-sensor to peel-tip distance

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

To adjust this parameter first make sure that the parameter *Pre-dispense* is set to zero.

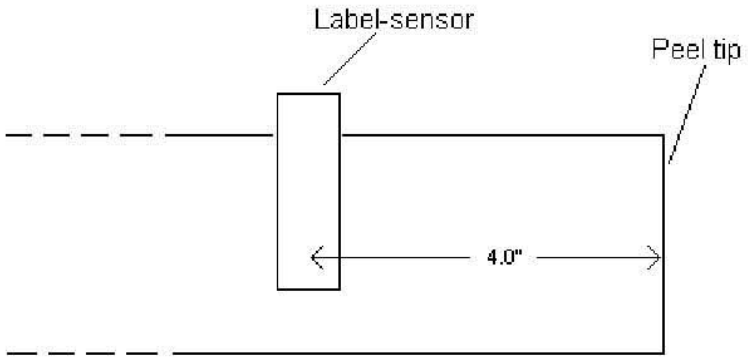
Next measure the distance from the centre of the label-sensor to the peel tip and set *Label sensor to peel tip distance* to this distance.

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 4.0" then the parameter *Label sensor to peel tip distance* should be set to 04.0



Note:

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

Consecutive missing labels count

This parameter 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 signal and no further labelling can take place until the error is acknowledged by the operator.

Setting this parameter to zero will mean that an error signal will be generated if any labels 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 parameter *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 parameter *Missing label speed* defines how fast the labeller will feed past any missing labels. Usually this parameter should be set to a high value so that the labeller will have time to 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 8000" /minute then the parameter *Missing label speed* should be set to 8000.

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 parameter *Consecutive missing labels count.*

Save setup

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

This parameter is used to saved the current values of the labeller's parameters 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 setup

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

This parameter is used to load a previously saved labeller setup. The labeller's parameters 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 empty" will be displayed.

Delete saved setup

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

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

To load a 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 empty" will be displayed.

Backlight intensity

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

Increasing the value of this parameter increases the backlight intensity.

Decreasing the value of this parameter decreases the backlight intensity.

Display contrast

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

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

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

Unwind

Set this parameter to "ON" if the loop-box module is used.

If only the dispense module is present set this parameter to "OFF"

Units

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

This parameter has two possible settings: “Metric” and “Inches”

Speed matching

This parameter 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 the parameter *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.

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

Note:

For speed-matching to operate correctly the parameter *Encoder resolution* must be set correctly.

Encoder resolution

This parameter is only available in the menu when the parameter *Speed matching* is set to "On".

The parameter *Encoder resolution* should be set to the number of pulses generated by the encoder per inch of conveyor movement.

The labeller can operate with an encoder that provides between 25.0 and 250.0 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 drive 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 wheel mounted directly on the conveyor then the correct setting for *Encoder resolution* is given by:

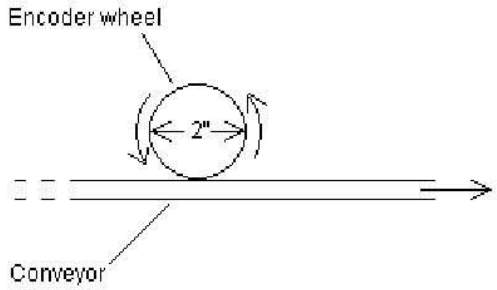
(Pulses per encoder revolution) / (Pi x d)

where Pi = 3.142
d = the diameter of the encoder wheel

Example:

An encoder that generates 600 pulses per revolution is driven by a wheel of 2" diameter mounted directly on the conveyor.

The correct setting for *Encoder resolution* is 600 / (Pi x 2) = 95.5



Without knowing the above data the correct value for *Encoder resolution* can be determined by a short process of trial and error as follows:

Firstly measure the distance from the product-sensor to the peel-tip and set the parameter *Position of label on product* to this value. Next place a product on the conveyor and start the conveyor so that the product passes in front of the product-sensor.

If *Encoder resolution* is set correctly then the labeller will start to dispense a label when the product is exactly in line with the peel tip. If the label is dispensed before the product is in line with the peel-tip then reduce *Encoder resolution*, if the label is dispensed after the product is in line with the peel-tip then increase *Encoder resolution*.

Asynch mode

This parameter is only available in the menu when the parameter *Speed matching* is set to "On".

The parameter *Asynch mode* is used to turn "asynchronous mode" on or off.

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 repeat distance is more than100mm (4"). If the parameter *Label repeat distance* is at a value greater than this then the labeller will not operate in asynchronous mode regardless of the setting of *Asynch mode*.

When the labeller is operating in asynchronous mode the parameter *Label stop position* is automatically adjusted to the optimum value. The optimum value is typically a little less than half the label repeat distance.

This parameter has two possible settings: "On" and "Off"

Note:

For asynchronous mode to operate correctly the distance from the peel-tip to the product must equal the label length exactly.

Motor dynamic

This parameter should be left at the default value of “Normal” unless advised otherwise by your service center.

Run mode

This parameter 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 parameter *"Label repeat distance"* for 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.

This parameter has two possible settings: "With labels and "Without labels".

Auto-cycle (cycles per minute)

This parameter is used to auto-cycle the labeller to determine what labelling rate can be achieved for a given label 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 the parameter *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)* parameter 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 the parameter *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.

Total label count

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

This parameter is for information only and cannot be adjusted.

Example:

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

Total product count

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

This parameter is for information only and cannot be adjusted.

Example:

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

Distance dispensed

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

This parameter is for information only and cannot be adjusted.

Example:

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

Mains voltage

This parameter 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 parameter is for information only and cannot be adjusted.

Example:

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

Cabinet temperature

This parameter shows the air temperature inside the labeller cabinet.

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

If the temperature 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 system is operating correctly.

This parameter is for information only and cannot be adjusted.

Example:

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

Dispense motor temperature

This parameter shows the temperature of the dispense motor.

This parameter is for information only and cannot be adjusted.

Example:

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

Dongle

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

This parameter is for information only and cannot be adjusted.

Example:

If the serial number of the installed dongle is 000000ACD0C5 then the *Dongle* parameter will display "000000ACD0C5".

Restore factory defaults

This parameter is used to restore the labeller's parameters to their default values.

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

Note:

The parameters *Total label count, Total product count* and *Distance dispensed* cannot be reset using this parameter

Chapter 6 **Asynchronous operation**

The UHS 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.

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

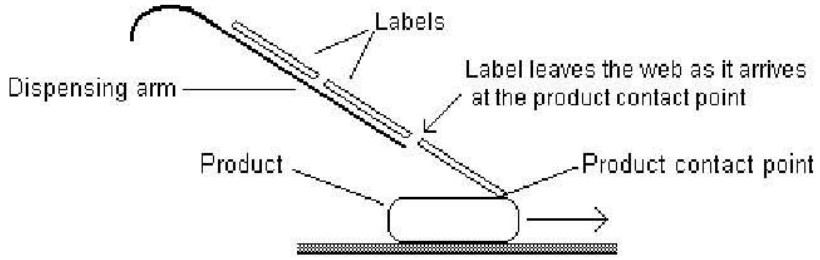


Figure 6.1

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

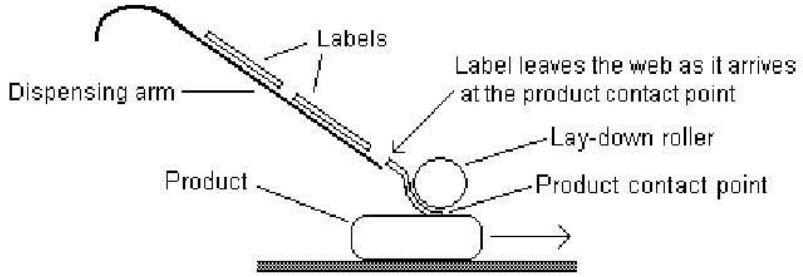


Figure 6.2

Label stop position

The optimum value for the parameter *Label stop position* 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 repeat distance*.

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 repeat distance and label length

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

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

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 7 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
UNWIND NIP OPEN
MOTOR DRIVER FAULT
NO GAP SEEN
MISSING LABELS
CONVEYOR REVERSED
LABEL QUEUE OVERFLOW
PROD. QUEUE OVERFLOW
POWER FAIL!
CABINET OVERHEAT!
INITIALISATION FAIL
UNWIND ERROR

Warning messages
UNLABELLED PRODUCT
LABEL EDGE
SPEED TOO HIGH
LOW MAINS VOLTAGE
HIGH MAINS VOLTAGE
CABINET TOO HOT

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".

UNWIND-NIP OPEN

This error is generated if the labeller attempts to dispense a label when the unwind 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. 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 repeat distance. This can be caused by an incorrectly adjusted label-sensor, a web-break or because of a label web threading problem such as a label web that 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 and a two-phase encoder is in use. A two-phase encoder provides information about the direction of conveyor movement as well as information on the distance moved.

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.

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 repeat distance* is set too low or the parameter *Label-sensor to peel-tip distance* is set too high. The parameter *Label repeat distance* may have been set too low by the labeller itself during an unsuccessful automatic label initialisation.

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.

INITIALISATION FAIL

The labeller will generate an error message if it cannot complete the initialisation 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 repeat distance* 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.

UNWIND ERROR

When the labeller is switched "Online" the unwind 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 sensor itself.

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.

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 labellers 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.