by ID Technology

powered by Pro Mach

OPERATING MANUAL

MODEL 40.20

PRESSURE SENSITIVE LABELER

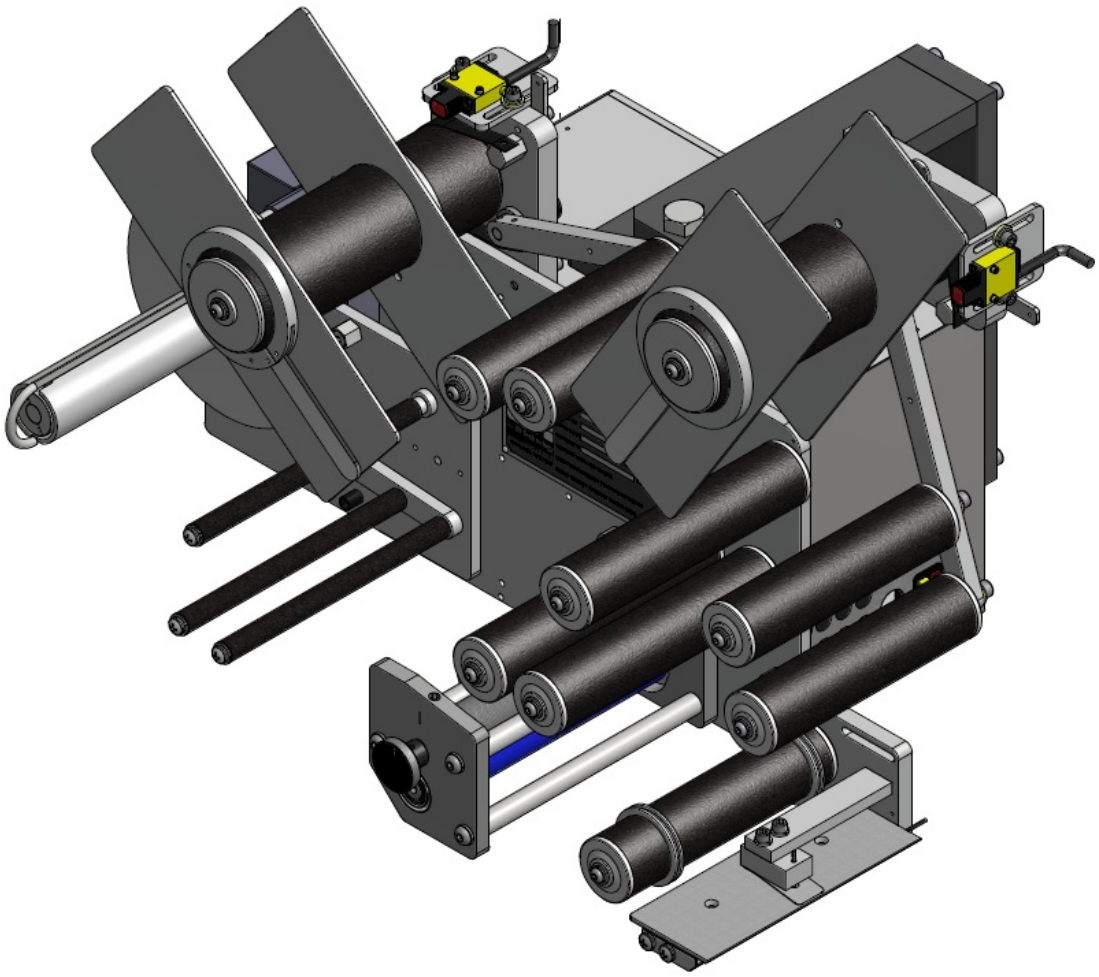
END USER: ELLISON BAKERY
SERIAL NUMBER: C000148017-1
MANUFACTURED: NOVEMBER 2015

PLEASE HAVE MODEL NUMBER AND SERIAL NUMBER AVAILABLE WHEN CALLING FOR PARTS OR SERVICE

48 SPRUCE STREET
OAKLAND, NJ
(201) 405-0767

Thank you for purchasing an LSI Labeling System. Under proper operating conditions, this labeling system will provide many years of trouble free performance. This manual has been prepared to assist with the set-up and maintenance of the labeling system. It is written for production line and maintenance personnel. LSI equipment is manufactured to the strictest standards and is thoroughly tested before being released into the field. Occasionally, a problem may arise in the field which is not covered in this manual. Remember, we are only a phone call away.

Please have model number and serial number available when calling for parts or service.



WARNING !

Machinery in this manual may be pictured without guards or covers.
This is done only for purposes of illustration clarity.
Never operate any machine without all guards and covers in place.

READ BEFORE OPERATING EQUIPMENT

Introduction

All production line and maintenance personnel must read this manual carefully and pay special attention to the warnings and cautions before operating or servicing the equipment.

Initial Operation of Equipment

LSI equipment is carefully assembled and checked before it is shipped from the factory. Upon completion of field installation all set screws and other components should be checked for tightness. After an initial operating period of 40 to 60 hours, the equipment should again be thoroughly inspected for any signs of loose set screws or other components and necessary corrections made.

Integrated Labeling Solutions by ID TECHNOLOGY powered by Pro Mach

TABLE OF CONTENTS

SECTION A: LABELING HEAD DATA

Factory HMI Settings

Head Serial (Job) Number: C000148017-1
Head Orientation: Right Handed

User Settings

(**Note: Customer may need to reset factory settings to suit existing situation**)

Parameter	Default Value	Units
Product Delay 1	0.010	sec
Product Delay 1 Speed Comp	Off	
Product Delay 1 Height Comp	N/A	
Product Delay Compensation 1 Distance	N/A	in
Product Delay Compensation 1 Speed	N/A	in/min
Height Comp Small Product	N/A	
Height Comp Large Product	N/A	
Product Delay 2	N/A	in
Product Delay 2 Speed Comp	N/A	
Product Delay Compensation 2 Distance	N/A	in
Product Delay Compensation 2 Speed	N/A	in/min
Dispense / Jog Speed	1000	in/min
Missing Label Detection	None	
Label Stop		in
Label Pitch		in
Vacuum Delay	N/A	ms
Blower Speed	N/A	%
Feed Delay	300	ms
Inspection	Disabled	
Cycle End Pulse Width	0	ms
Printer Pulse Width	0	ms
Operation Mode	N/A	
Application Mode	N/A	
Applicator 1 Extend /Blow Time	N/A	ms
Applicator 1 Retract Time	N/A	ms
Applicator 2 Extend / Blow Time	N/A	ms
Applicator 2 Retract Time	N/A	ms

BE AWARE OF SAFETY LABELS ON ALL LABELING HEAD(S) AND SYSTEM ASSEMBLIES

The directions in this manual must be observed for the safety of people and machinery. The following symbols and warnings are used on the labeling head and system to identify awareness to important safety concerns. Strict awareness to these cautions and warnings is required.

SYMBOLS

 	CAUTION DANGER WARNING	**GENERAL DANGER** **Used when the well-being of the machine operator is in potential danger or significant damage to can occur**
 	DANGER WARNING	**ELECTRICAL HAZARD** **Used when electricity causes potential danger**
	CAUTION DANGER	**PINCH POINT** **Moving parts can crush, cut or pinch. Keep hands clear of applicators, roller and other assemblies. DO NOT OPERATE WITHOUT GUARDS REMOVED.**

WARNING LABELS

	DANGER WARNING	**DO NOT OPERATE THIS MACHINE WITHOUT GUARDS IN PLACE**
	DANGER WARNING	**MACHINE OR DEVICE AUTOMATICALLY STARTS.**
	DANGER WARNING	**LOCKOUT DEVICE** **Follow lock-out procedure before servicing**
	DANGER WARNING	**HOT SURFACE** **Burn Hazard: Hot surface, do not touch**
	DANGER WARNING	**PINCH POINT:** **Keep hands clear of rollers.** **Follow lock-out procedure before servicing**.

SECTION B: MODEL 40 LABELING HEAD

Introduction

This User's Guide is intended to provide the information needed to set up your new LSI Series 40 Labeler. Your machine has been fully inspected for quality and operation prior to leaving the factory. Please note it may be necessary to make some adjustments for your specific operating environment after the machine has been unpacked and set-up on your production line.

Basic Features and Benefits

The *Series 40* is LSI's ***Economical Performance*** line of labeling heads. ***Series 40*** includes models with adjustable web speeds up to 1000" per minute, web widths up to 7" and unwind roll diameters up to 16". All models are designed to work with any of LSI's standard applicators. There is a ***Series 40*** models are designed to fit almost any labeling application and included the following features:

- Five phase stepper motor w/ onboard controls, for maximum torque and precise speed control
- User adjustable fixed speeds, from 0 to 1000 inches per minute
- Bright LCD digital display, easy to read, simple menus, remote mounting available
- PLC Controls - flexible, upgradeable, I/O expansion kit available
- Count based label stop position control, for repeatable label stop at any dispense speed
- Adjustable product sensor delay
- Resettable product and label counters
- 50 recipe storage locations, for easy set-up and repeatable product change over
- Fiber optic, tip of peeler bar label sensing
- Easy thread nip roller latch, for quicker roll changes
- Heavy duty aluminum plate and stainless steel construction.

Applicator Options

The Series 40 Labeling Head can be equipped with any of the LSI standard applicators including Wipe-on, Vacuum Grid Roll-on, Blow-On, Tamp, Swing Arm Tamp and Corner Wrap models.

Conversion Kits

The basic Series 40 can be converted in the field with the kits listed below:

Double Dancer Kit	Includes double dancer arm and 5” or 7” wide idler rollers
16” Unwind Kit	Includes 16” unwind support and 16” unwind disks
Powered Rewind Kit 5”	Included powered rewind/rewind dancer assembly with 5” rollers
Powered Rewind Kit 7”	Included powered rewind/rewind dancer assembly with 7” rollers
Remote Display Kit	Includes display enclosure and flexible mounting arm assembly
Rear Mounting Kit	Includes 3/8” rear mounting plate and hardware
PLC I/O Expansion Kit	Provides 4 additional Inputs and 4 addition Outputs

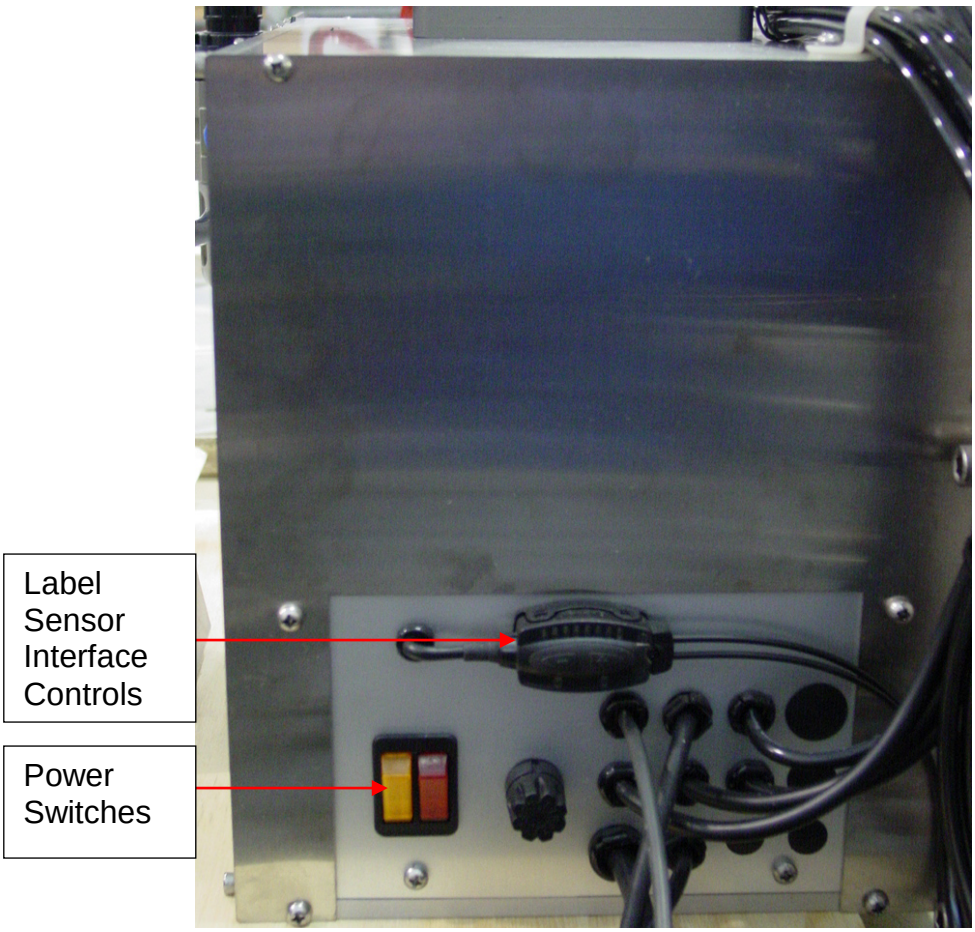
Labeling Head Controls

The front panel of the Series 40 provides access to all user adjustable labeling head functions. Front panel controls include:

- Power Switches
- Label Sensor Interface
- Operator Interface

Standard Panel Controls

Front Panel of the Series 40 Labeler



Power Switches

The front panel incorporates two power switches with indicator lights.

Main Power Switch	Controls main power to the head, including the DC power supply, control package, and stepper motor drive controller. A red led illuminates to indicate that the main power is on.
Auxiliary Power Switch	Controls power to optional auxiliary devices including the applicator vacuum fan, power rewind motor and printer. An amber LED illuminates to indicate that the auxiliary power is on.

Remote Display Mounting Kit

The Operator Interface can be mounted in a remote display mounting kit as with this particular labeling head. This allows the operator a more suitable access to the HMI.

Operator Interface Panel View C300

Screen Navigation

An operator can navigate from screen to screen by selecting the option on the HMI screen or by pressing ◀ **or** ▶ keys to scroll between screens.

Editing Parameters

When inside the edit box, use the ◀ and ▶ keys to move the cursor to the desired digit location. Press ▲ or ▼ to change the digit. Move the cursor to each digit location to make the desired number changes. Once the desired value is displayed, press the ENTER key (bottom right hand corner) to accept it. The edit box should close and the new value should be shown on the display.

Operator Interface User Screens

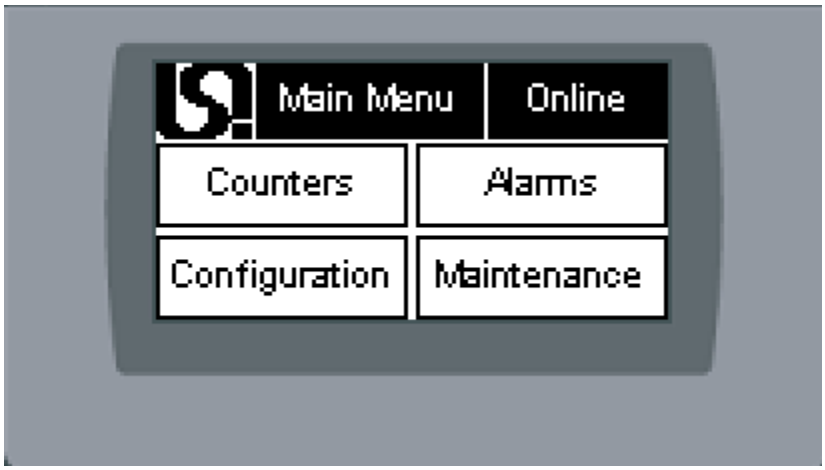
Splash Screen

This screen is shown at startup.

Touch screen to continue onto Main Screen.

Operator Interface User Screens

Main Menu Screen



Touch button Functions

LSI Logo	Touch to go to Login screen (this screen only)
Online / Offline button (on most screens)	Takes labeler offline (product sensor inhibited, labeler online output off, beacon flashing) or puts it back online
Counters	Touch to go to Counters screen
Alarm	Touch to go to Alarms screen
Configure	Touch to go to Config Menu screen
Maintenance	Touch to go to maintenance menu screen

Operator Interface User Screens

Login Screen

Touch button Functions

Login	Touch this button to enter the login password. Default passwords are 1234 for technician and 9876 for administrator. No password is required for operator. The system will automatically log the user out after being on any non-protected screen for 5 minutes.
Logout	Touch this button to logout the technician or administrator

Current User: displays the user currently logged on

Operator Interface User Screens

Counters Screen

This screen displays the for Product and Label counters, Rate (Last Minute) and Rate (Current).
To reset a counter, touch Product or Label on screen depending on which counter needs resetting. (See next page)

Touch button Functions

Product	Number of products seen by product sensor (this count increments even when labeling head is offline). Touch the text to reset the counter (see Counters (Reset) screen).
Label	Label – number of labels dispensed (not including labels dispensed during autoset and label sensor teach). Touch the text to reset the counter (see Counters (reset) screen).
Rate (Last Minute) (*not a touch function*)	The number of products seen in the last minute (updated every 5 sec.).
Rate (Current) (*not a touch function*)	Product per minute rate based on the number of products seen in the last 5 seconds

Operator Interface User Screens

Resetting Counters Screen

Touch button Functions

Reset Product Count?	Touch text to cancel counter reset.
Yes (Product)	Touch to reset product counter
Reset Label Count?	Touch text to cancel counter reset
Yes (Label)	Touch to reset label counter

Operator Interface User Screens

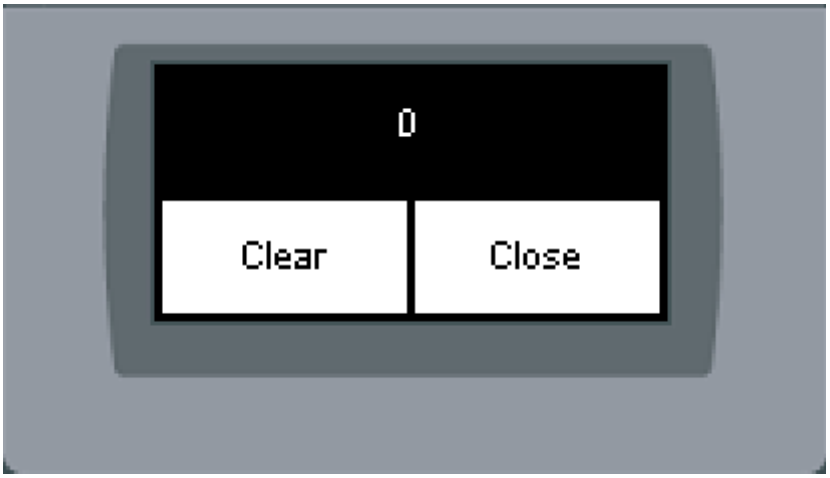
Alarm Screen

This screen allows operator to review alarm messages and to clear all alarms.

No Active Alarms	Status window showing active alarms (if any)
Clear All Alarms	Touch to clear all alarms **Please Note: Alarms will not clear until the cause is resolved.**

Operator Interface User Screens

Alarm Banner (this is a popup screen):



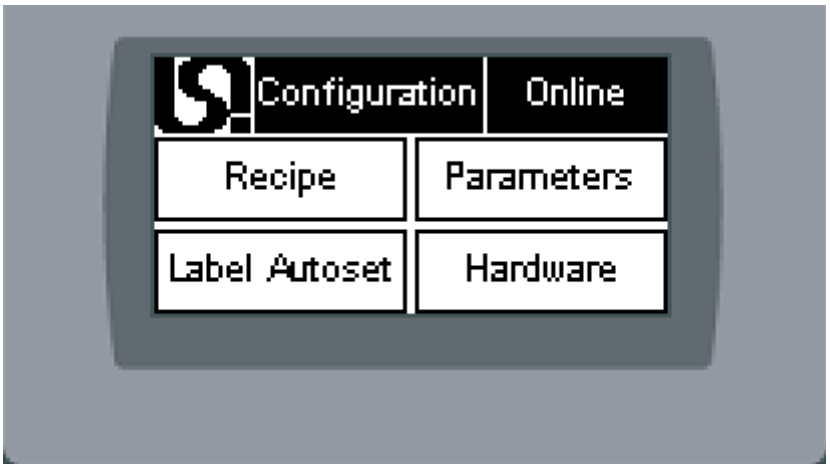
Touch button Functions

Clear	Clear all alarms
Close	Close window without clearing alarms

Operator Interface User Screens

Configuration Screen

This screen allows the user to configure recipes, label autoset, user parameters and hardware.



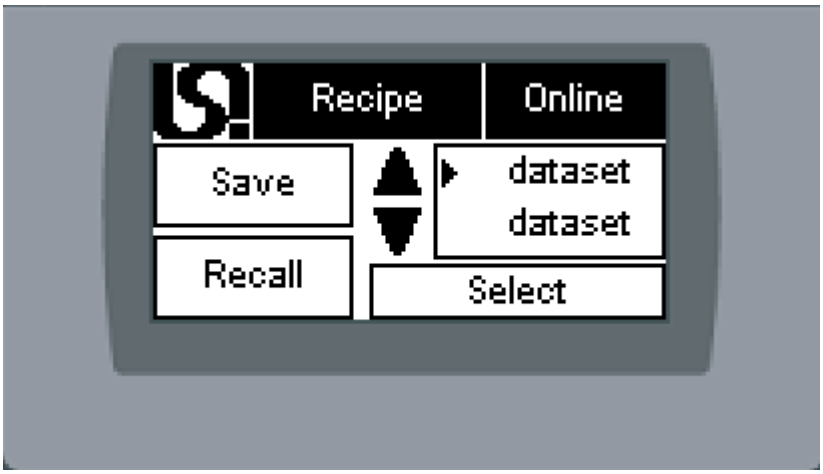
Touch button Functions

Recipe	Touch to go to Recipe Screen
Label Autoset	Touch to go to Auto set screen(only visible when offline)
Parameters	Touch to go to Product Delay 1 (only visible when logged in as technician or administrator)
Hardware	Touch to go to HMI configuration screens (only visible when offline and logged in as administrator).

Operator Interface User Screens

Recipe Screen

This screen allows the operator to save and recall recipes.



Touch button Functions

▲ **and** ▼	Scroll up and down list
Select	Select recipe next to ▸ on list. The recipe name (number) will highlight when selected
Save	Save current values to selected recipe (recipe must be selected before you can save). This is available only when logged in as technician or administrator
Recall	Load values from recipe (recipe must be selected before you can recall). This is only available when offline

Operator Interface User Screens

Label Auto Setup Screen

Touch button Functions

Label Autoset	Run Label Auto Setup routine. This will measure and set the label length and label stop for the loaded labels. The label sensor must be set up before running this routine or a fault will occur. This is only visible when offline
Return	Touch to return to previous screen

Label Auto Setup (Running) Screen

A version of the Autoset screen showing the other text.

Operator Interface User Screens

Configure Parameter Screens

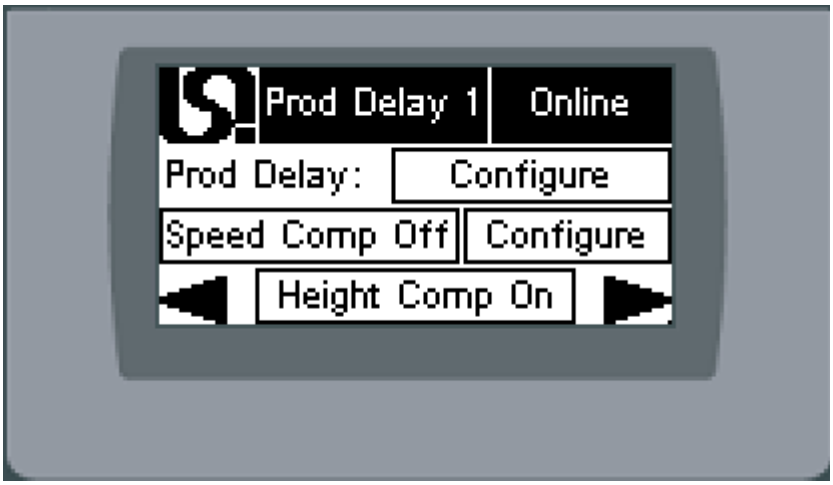
These screens allow the operator to configure parameters of the labeling head and applicator.

Please Note: Some screens may not appear if they do not apply to the particular labeler configuration.

Product Delay 1 Screens

Product Delay 1 with Height Compensation "Off"

Product Delay 1 with Height Compensation "On"



Operator Interface User Screens

Product Delay 1 Screens (continued)

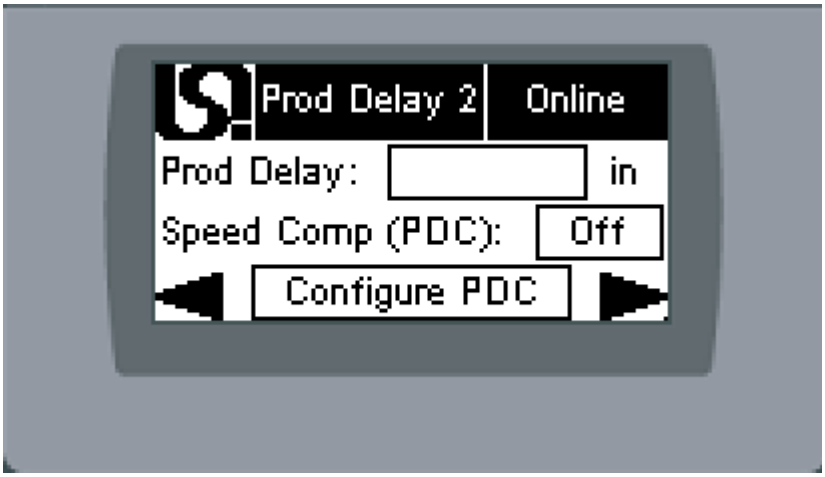
Touch button Functions

Product Delay	Time (or distance if encoder present) from product sensor to label application point. This is measured in seconds if no encoder or in inches if encoder is present. **NOTE:** If Height Comp is enabled, then the Configure button appears on screen. This button is used to go to Height Comp Screen.
Speed Comp	Enable or disable product delay speed compensation. This function adjusts product delay based on product speed. It is recommended that this not be used with synchronous applicators. It is only visible if an encoder is present.
Configure (right of speed comp)	Goes to PDC 1 screen (only visible if Speed Comp is enabled).
Height Comp (Toggle button)	Enable or disable product delay height compensation. This function adjusts product delay based on product height. It is recommended that this not be used with synchronous applicators. It is only visible if a height sensor is present.

Operator Interface User Screens

Product Delay 2 Screen

Visible only if a second product sensor is present

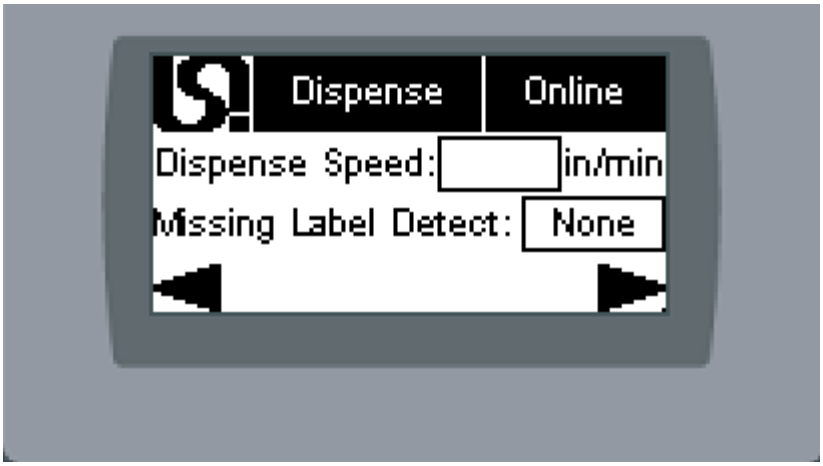


Touch button Functions

Product Delay	Time (or distance if encoder present) from product sensor to label application point. This is measured in seconds if no encoder or in inches if encoder is present.
Speed Comp	Enable or disable product delay speed compensation. This function adjusts product delay based on product speed. It is recommended that this not be used with synchronous applicators. It is only visible if an encoder is present.
Configure PDC	Goes to PDC 2 screen (only visible if Speed Comp is enabled).

Operator Interface User Screens

Dispense Screen



Touch button Functions

Dispense Speed:	Label dispense speed measured in/min. The text will read Jog Speed if the labeler is configured as a follower; label jog and cycle jog will run at this speed regardless of the encoder speed input.
Missing Label Detection	Touch to change missing label detection mode: o None – no missing label detection. The labeler will feed up to 3 label pitches before causing a fault. This is the most common setting. o Feed – The labeler will feed one label pitch for each product sensor input regardless of whether a label edge is seen. This is recommended for applications where printing or inspection will happen on the labels. A fault will only occur after at least 3 consecutive indexes without seeing a label edge. o Alarm – The labeler will index a single label pitch on each product sensor and will fault if no label edge is seen during that index.

Operator Interface User Screens

Label Setup Screen

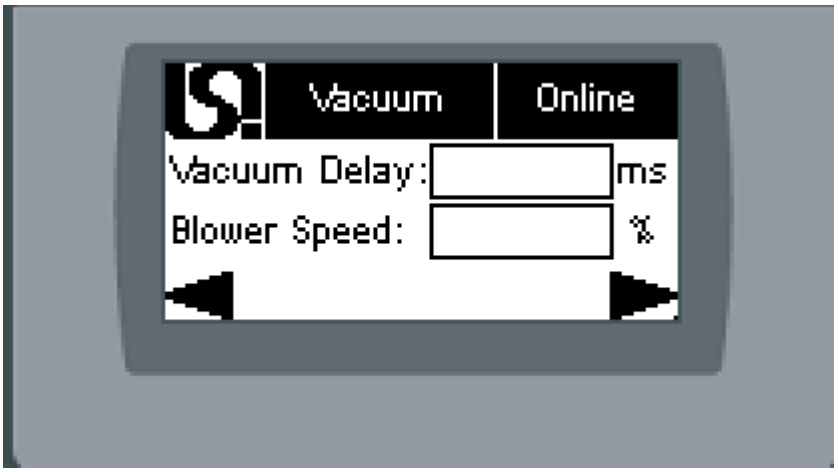
Touch button Functions

Label Stop	The distance the label will index after the label sensor detects a label edge. This value should be set to get the leading edge of the label near the tip of the peel bar. This value cannot be less than the decel distance set in the hardware setup.
Label Pitch	The distance from the leading edge of one label to the leading edge of the next label
Auto Setup Label	Touch this button to go to the autoset screen. This allows you to automatically measure and set up both label stop and label pitch.

Operator Interface User Screens

Vacuum Screen

This screen is only visible if vacuum or a variable speed blower is used



Touch button Functions

Vacuum Delay	The time from when the label starts to dispense until the vacuum generator is turned on. This is used to keep a long label from stalling on the tamp pad. This value is only visible when vacuum is used.
Blower Speed	The speed of the variable speed blower. This value is only visible if the variable speed blower is used

Operator Interface User Screens

Feed Delay Screen

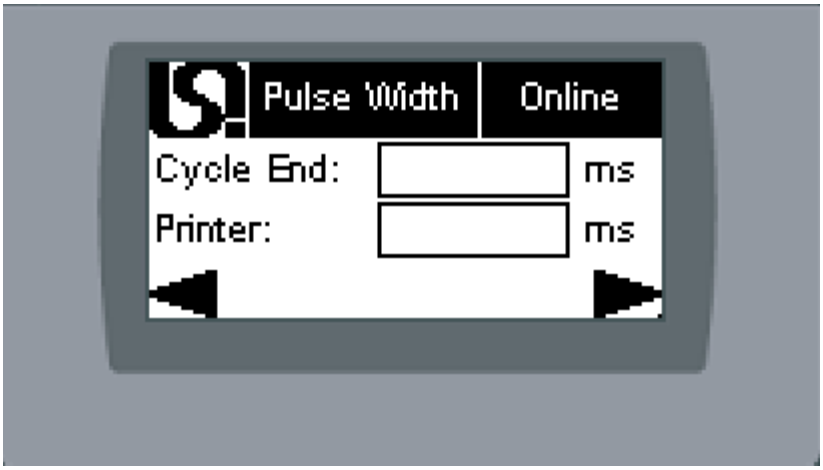
Touch button Functions

Feed Delay	The delay between the end of a label feed and the start of the application cycle. This is used to provide some settling time for the label on the tamp pad.
Inspection	Used to enable or disable inspection of labels. This is only visible if the inhibit input was configured as Inspection Pass in the hardware setup

Operator Interface User Screens

Pulse Width Screen

This screen is only visible if the printer or cycle end output was configured in pulse mode in the hardware setup



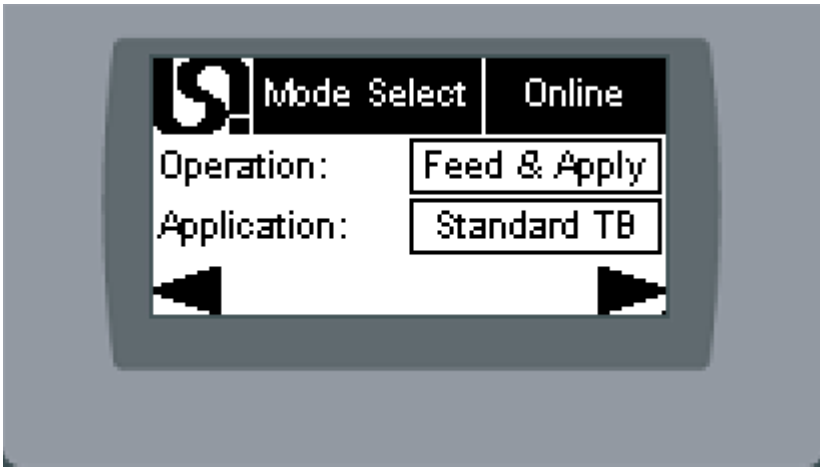
Touch button Functions

Cycle End	The width of the cycle end output pulse. It is recommended to set this value to 0 if the output is not used.
Printer	The width of the printer output pulse. It is recommended to set this value to 0 if the output is not used

Operator Interface User Screens

Mode Select Screen

This screen is only visible for non-synchronous applicators



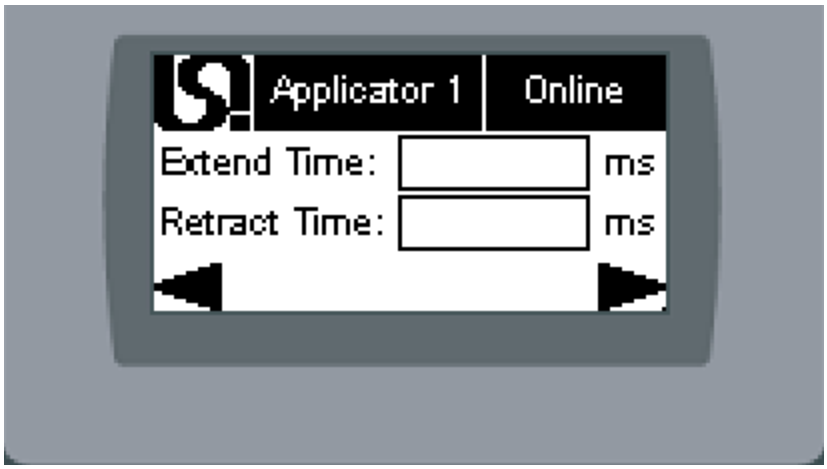
Touch button Functions

Operation	Touch this button to toggle between o Feed & Apply – when a product delay is complete, a new label is onto the applicator; the label is automatically applied to product. o Apply & Feed – when product delay is complete, the label on the applicator is applied to the product; a new label is automatically fed onto the applicator. This mode results in always having a label present on the applicator. o Hybrid – when a product sensor input is seen, a label is fed only the applicator; the label is applied when the product delay is complete.
Application	Touch this button to toggle between (only available with tamp-blow applicators) o Standard TB – When the application cycle begins, applicator 1 extends and stays extended until applicator 2 extends; both then release together. o Modified TB – When the application cycle begins, applicator 1 extends and release when applicator 2 extends. o Reverse TB – applicator 1 extends at the end of the feed cycle and stays extended until product delay is complete and applicator 2 extends; both then release together.

Operator Interface User Screens

Applicator 1 Screen

This screen is only visible if applicator 1 is an air cylinder or a blow



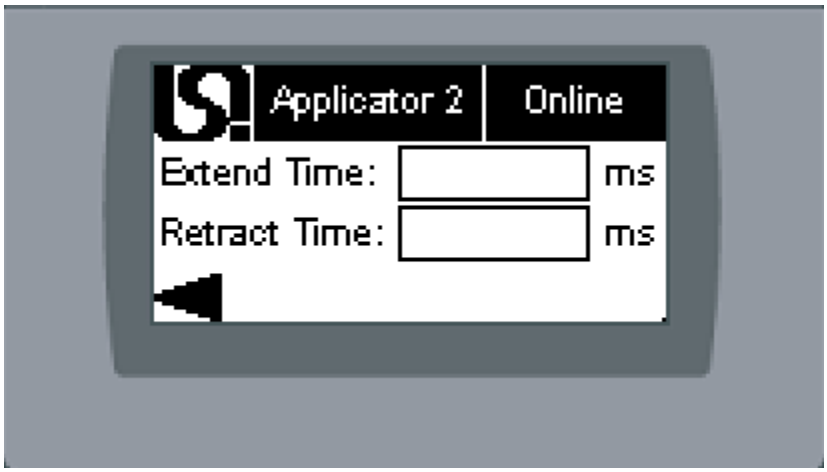
Touch button Functions

Extend Time (Blow time if applicator 1 is a blow)	The time for the cylinder to extend (or the time for a blow)
Retract Time	The time for the cylinder to retract. This value is only visible if the applicator is an air cylinder and does not have a home switch.

Operator Interface User Screens

Applicator 2 Screen

This screen is only visible if applicator 2 is an air cylinder or a blow

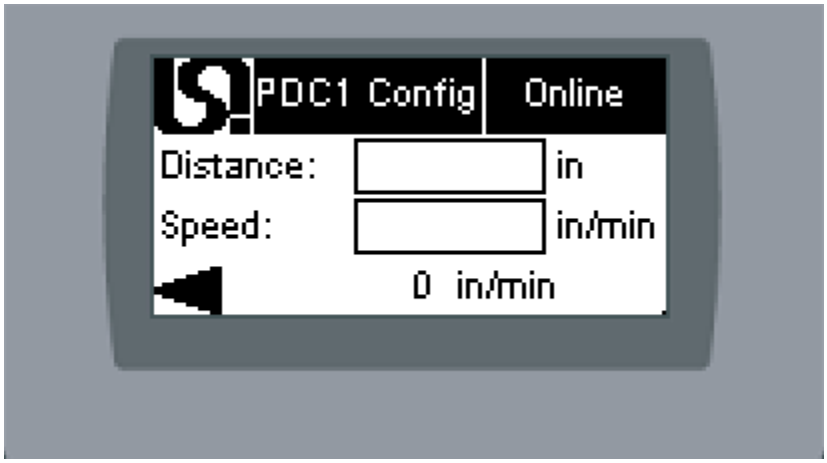


Touch button Functions

Extend Time (Blow time if applicator 2 is a blow)	The time for the cylinder to extend (or the time for a blow)
Retract Time	The time for the cylinder to retract. This value is only visible if the applicator is an air cylinder and does not have a home switch.

Operator Interface User Screens

PDC1 Config Screen

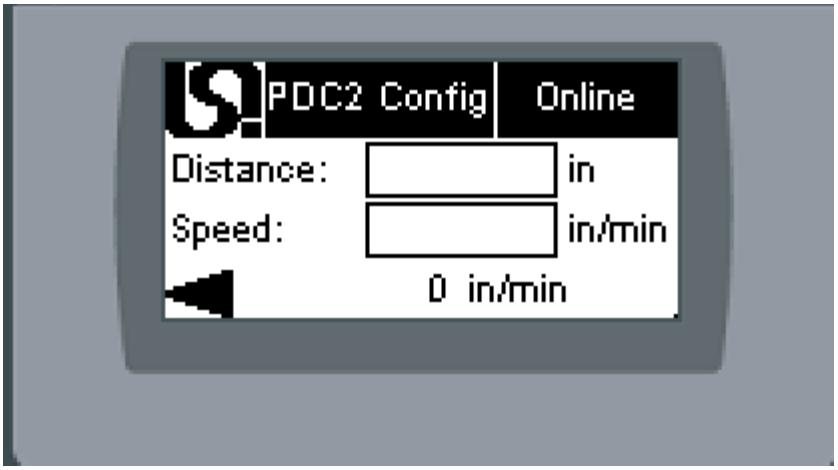


Touch button Functions

Distance	The distance from the product sensor to the label application point at zero speed. In other words, if the conveyor is stopped this is the distance from the leading edge of a product just triggering the product sensor to the leading edge of a product in the correct location for a cycle jog to correctly place the label.
Speed	This is the conveyor speed that was used to set up the product delay. If the conveyor speed has not been changed since product delay was set up, this will be the speed shown at the bottom of the screen.

Operator Interface User Screens

PDC2 Config Screen



Touch button Functions

Distance	The distance from the product sensor to the label application point at zero speed. In other words, if the conveyor is stopped this is the distance from the leading edge of a product just triggering the product sensor to the leading edge of a product in the correct location for a cycle jog to correctly place the label.
Speed	This is the conveyor speed that was used to set up the product delay. If the conveyor speed has not been changed since product delay was set up, this will be the speed shown at the bottom of the screen.

Operator Interface User Screens

Height Comp (Small Product) Screen

NOTE: For Height Comp to work properly, Product Delay must be set on both Height Comp Screens (Small Product Product Delay and Large Product Product Delay Screens). Height Comp disabled in this screen for set up purposes.

Touch button Functions

Product Delay	Used to set Product Delay for small product. It is recommended using smallest product available when setting this parameter. The conveyor should be at a constant speed and speed comp should be OFF. This is measured in seconds if no encoder or in inches if encoder is present

Operator Interface User Screens

Height Comp (Large Product) Screen

NOTE: For Height Comp to work properly, Product Delay must be set on both Height Comp Screens (Small Product Product Delay and Large Product Product Delay Screens). Height Comp disabled in this screen for set up purposes.

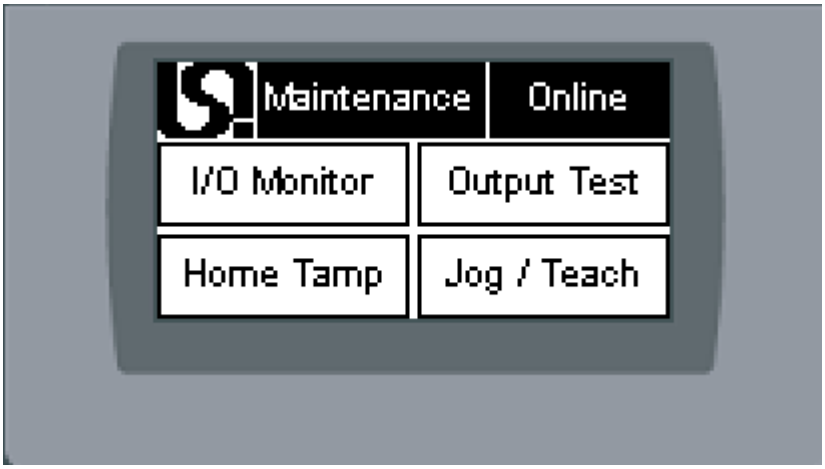
Touch button Functions

Product Delay	Used to set Product Delay for large product. It is recommended using largest product available when setting this parameter. The conveyor should be at maximum speed and speed comp should be OFF. This is measured in seconds if no encoder or in inches if encoder is present

Operator Interface User Screens

Maintenance Screen

This screen allows operator access to I/O Monitor, Home Tamp, Output Test and Jog/Teach screens in order to perform basic hardware maintenance tasks.



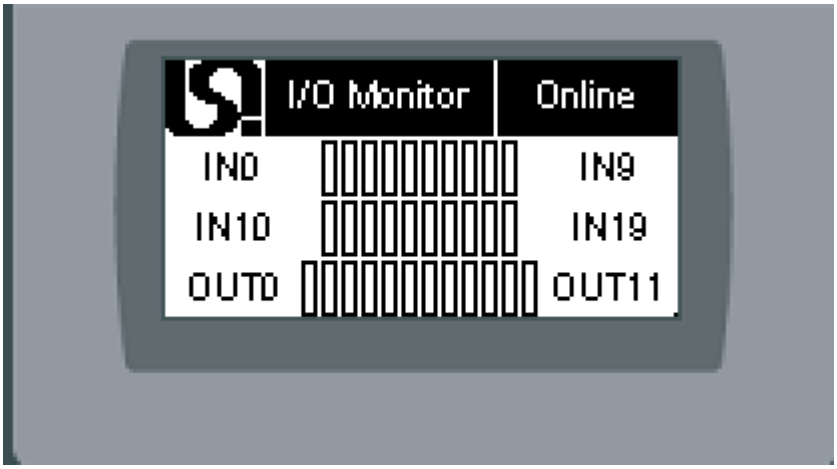
Touch button Functions

I/O Monitor	goes to I/O Monitor screen
Output Test	Goes to Applicator Output Test screen. This is only visible when offline and logged on as a technician
Home Tamp	Not implemented in this release. This would only be visible if a 076TB applicator was selected.
Jog/Teach	Goes to jog screen. This is only visible when offline.

Operator Interface User Screens

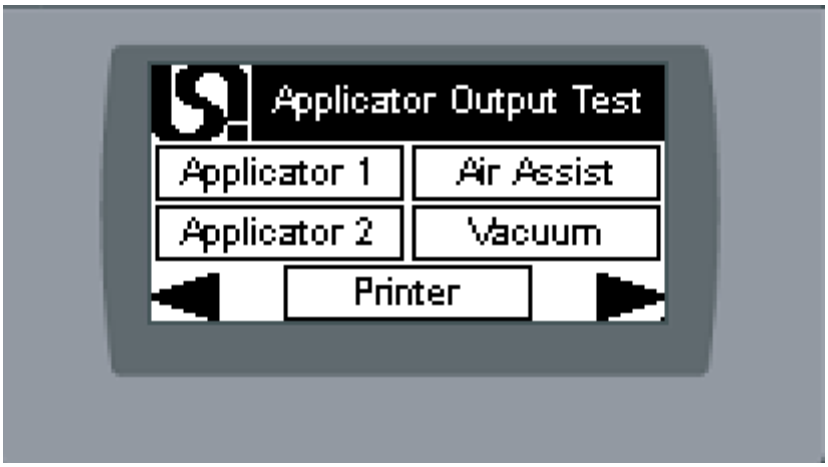
I/O Monitor Screen

This screen shows the status of the PLC input and outputs with the legend indicating OFF and ON status.



Operator Interface User Screens

Applicator Output Test Screen



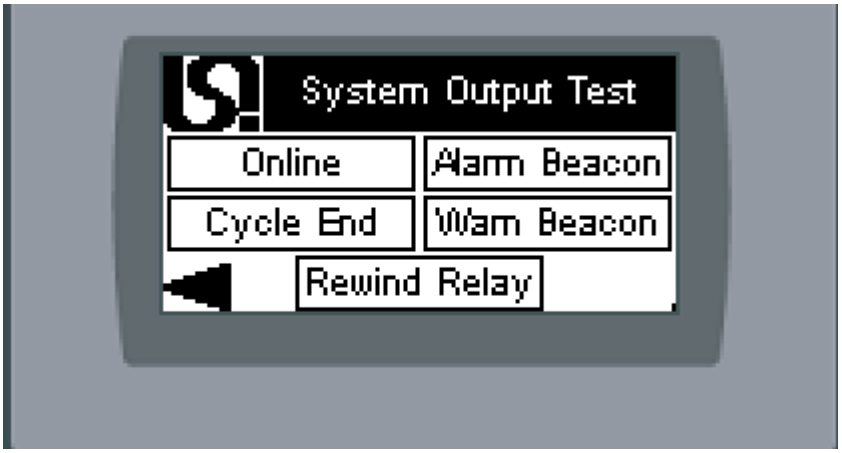
All buttons on this screen are momentary; in other words the output will only be on while you hold the button). While this screen is displayed, all automatic control of the PLC outputs is disabled

Touch button Functions

Applicator 1	Touch to test applicator 1 output. This button will not be visible if applicator 1 is not used.
Applicator 2	Touch to test applicator 2 output. This button will not be visible if applicator 2 is not used.
Air Assist	Touch to test air assist output
Vacuum	Touch to test vacuum output. This button will not appear if vacuum (or variable speed blower) is not used.
Printer	Touch to test printer output

Operator Interface User Screens

System Output Test Screen



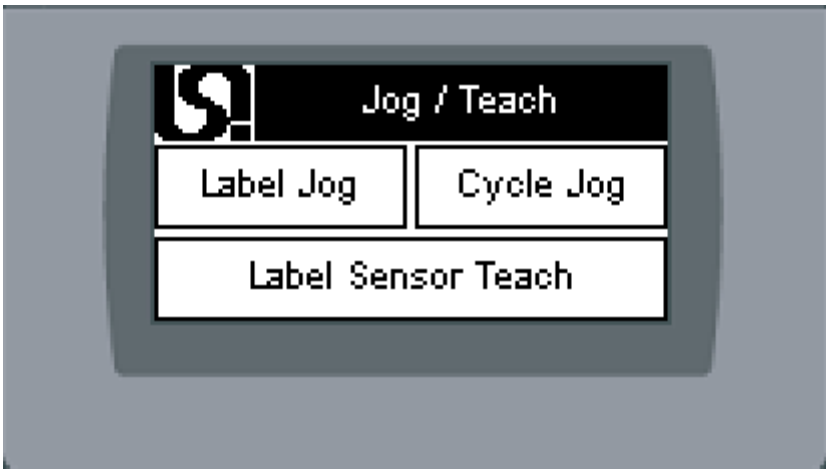
All buttons on this screen are momentary; in other words the output will only be on while you hold the button). While this screen is displayed, all automatic control of the PLC outputs is disabled

Touch button Functions

Online	Touch to test labeler online output.
Cycle End	Touch to test cycle end output
Alarm Beacon	Touch to test alarm beacon output.
Warn Beacon	Touch to test warning beacon output. This button will not appear if the beacon type is set to single.
Rewind Relay	Touch to test rewind relay output. This will turn on the rewind motor and applicator fans (if present).

Operator Interface User Screens

Jog/Teach Screen



Touch button Functions

Label Jog	Feed a single label, but do not fire the applicator (goes to Jog Screen-Jog label).
Cycle Jog	Feed a single label and fire the applicator (goes to Jog Screen-Jog Cycle)
Label Sensor Teach	Puts label sensor in remote teach mode and feeds 3 labels to set up label sensor switching threshold. Labels must be threaded and label pitch must be set for this to work correctly. This is only visible if the label sensor was configured as remote teach capable in hardware setup. (Goes to Jog Screen-Teach).

Operator Interface User Screens

Jog Screens

Jog Label

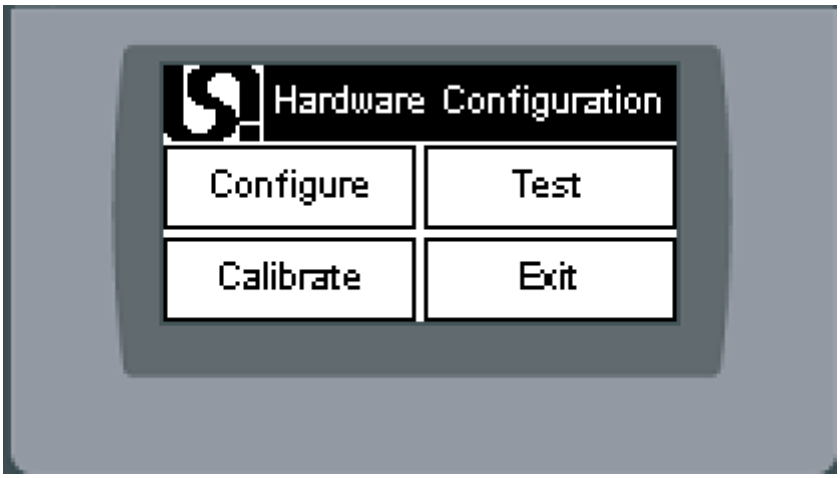
Jog Cycle

Jog Teach

Operator Interface Hardware Screens

Hardware Configuration Screen

These screens allow configuration of hardware and non-label specific settings. (All settings not included in recipes.)



Touch button Functions

Configure	Goes to Auto Online Behavior Screen
Test	Goes to Test Menu Screen
Calibrate	This button is reserved for a future release and will not appear unless 076TB applicator is selected (not implemented in this release).
Exit	Returns to HMI Configuration Screens

Operator Interface Hardware Screens

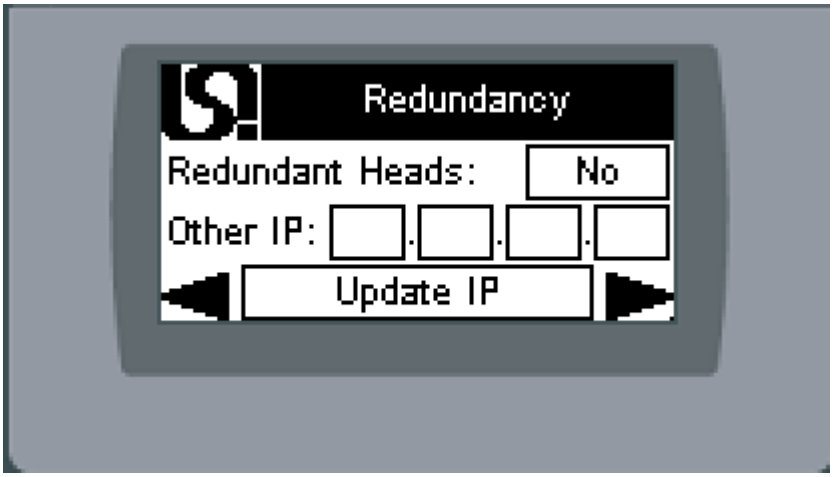
Auto Online Setup Screen

Touch button Functions

Auto Online Behavior	Touch this button to change the times the labeling head will automatically go into online mode (None, on startup, on alarm reset, on completion of auto setup, or any combination of these).

Operator Interface Hardware Screens

Redundancy Screen

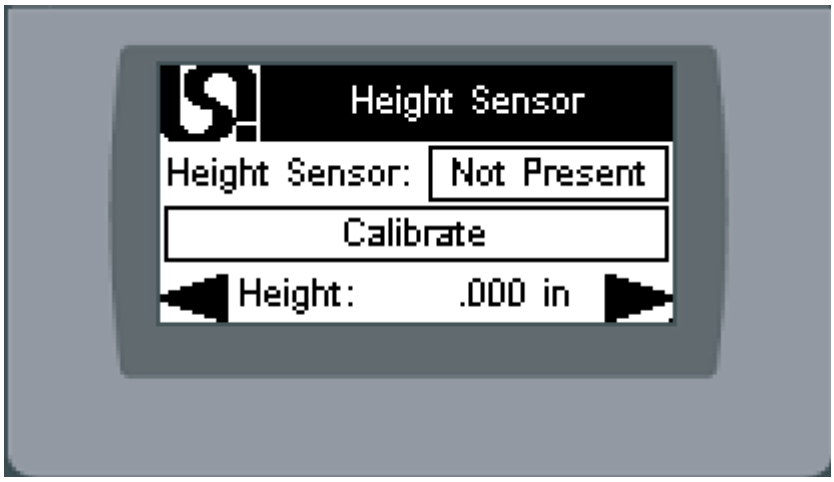


Touch button Functions

Redundant Heads	Touch this button to toggle “Yes” or “No”
Other IP	Touch to enter IP Address on the other labeling head (only appears if Redundant Heads set to YES)
Update IP	Touch this button to apply new IP address entered above. (only appears if Redundant Heads set to YES)

Operator Interface Hardware Screens

Height Sensor Screen

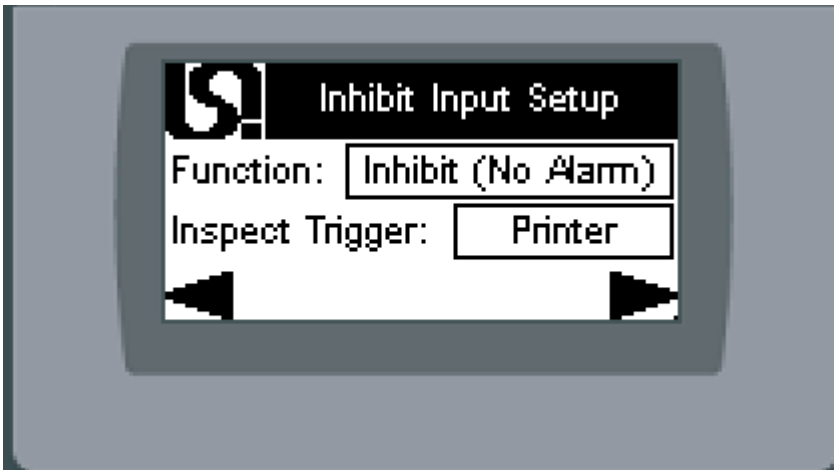


Touch button Functions

Height Sensor	Touch this button to toggle “Present” or “Not Present”
Calibrate	Touch to go to Calibration screens (only appears if Height Sensor is set to “Present”)
Height	Display of scaled Height sensor reading (Display only)

Operator Interface Hardware Screens

Inhibit Input Setup Screen

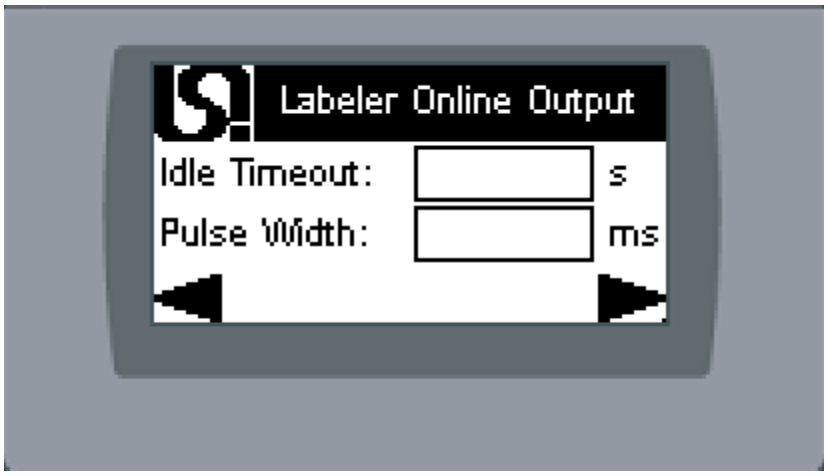


Touch button Functions

Function	Touch this button to change how the inhibit input functions: o Inhibit (No alarm) – head will ignore product sensor inputs until this input is removed but will not alarm or go offline (Online output will go off when this input is on). o Inhibit (Alarm) – head will fault when this input goes on. o Inspection Pass – This input will be used as an inspection pass input. In this mode, a pass signal must be received from the inspection system while the inspection trigger signal is on or a fault will occur.
Inspection Trigger	This only appears if Inspection Pass is selected under function. The choices are: Printer (occurs at end of feed) or Cycle End (occurs at end of apply – on passive or synchronous applicators this will occur at end of feed).

Operator Interface Hardware Screens

Labeler Online Output Screen

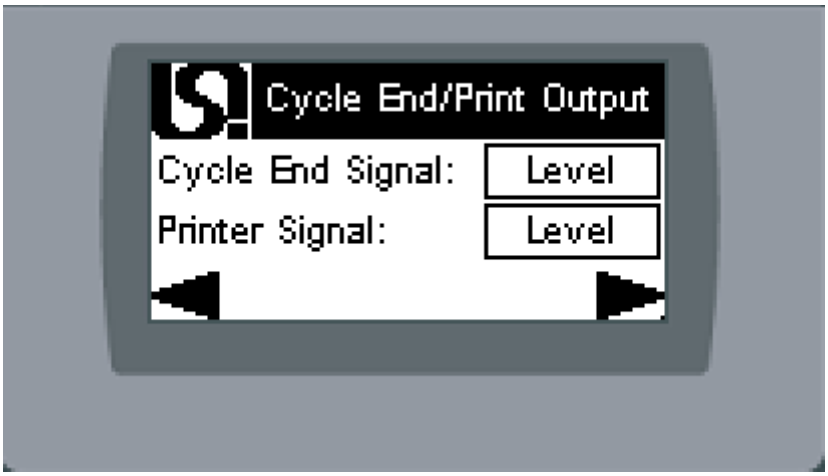


Touch button Functions

Idle Timeout	Time after the last cycle is complete before the labeler online output is automatically turned off to shut down an associated piece of equipment (such as a case taper, cartoner, etc.). Set this value to 0 to disable this function
Pulse Width	Time the labeler online output is off when the idle timeout is complete. This does not appear if idle timeout is set to 0.

Operator Interface Hardware Screens

Cycle End/Print Output Screen

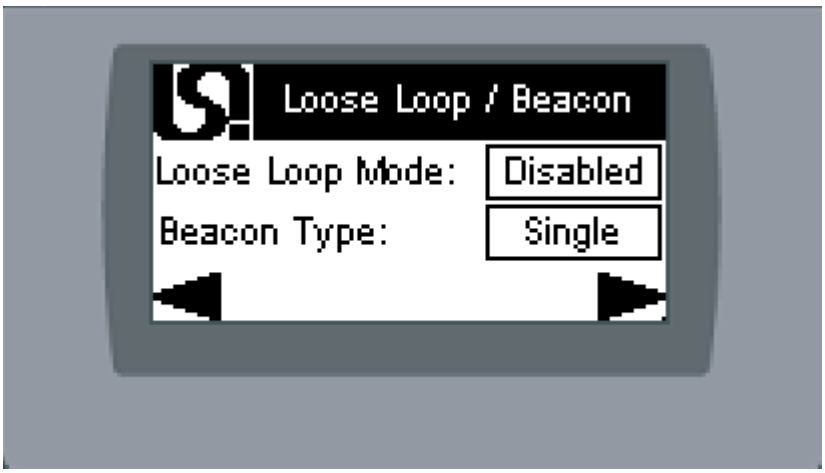


Touch button Functions

Cycle End Type	Select whether this signal is a level signal (on during the apply cycle) or a pulse at the end of the apply cycle. It is recommended to set this to Pulse if the output is not used.
Printer Type	Select whether this signal is a level signal (on during label feed) or a pulse at the end of feed. It is recommended to set this to Pulse if the output is not used.

Operator Interface Hardware Screens

Loose Loop/Beacon Screen

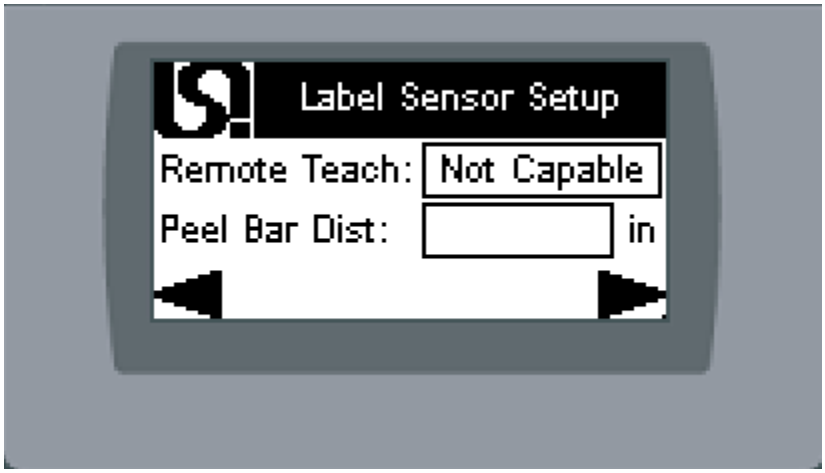


Touch button Functions

Loose Loop Mode	Touch to enable or disable loose loop mode.
Beacon Type	Select the type of beacon. It is recommended to set this to Double if a beacon is not used. o Single – only a single beacon is attached. It will be on solid for a warning and flash for an alarm (fault). o Double – a two light beacon is attached. The warning output will be on solid for a warning and the alarm output will be on solid for an alarm (fault).

Operator Interface Hardware Screens

Label Sensor Setup Screen

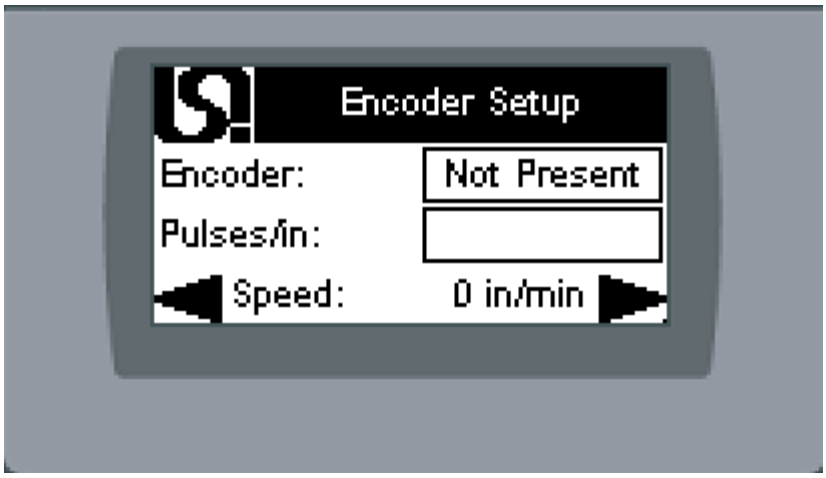


Touch button Functions

Remote Teach	Touch to select whether the label sensor is remote teach capable.
Peel Bar Dist	This is the physical distance from the label sensor to the tip of the peeler bar. It is used to calculate label stop in the label auto setup function.

Operator Interface Hardware Screens

Encoder Setup Screen



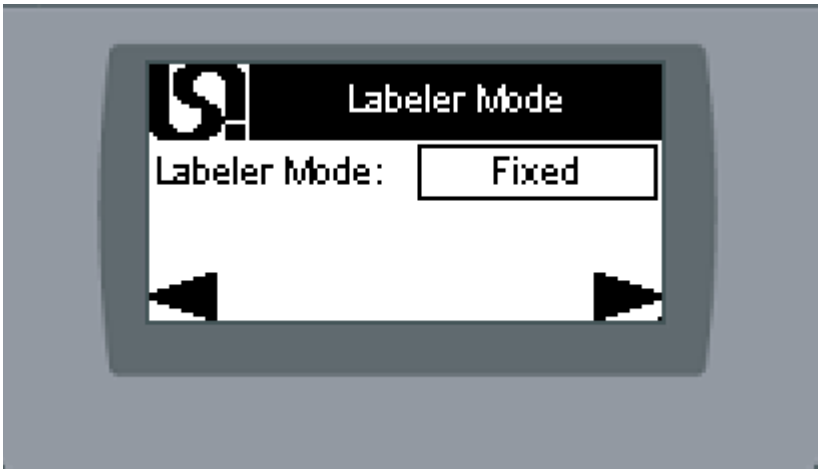
Touch button Functions

Encoder	Touch to select if an encoder is “Present” in the system. Default setting: “Not Present”.
Pulses/in	Enter the number of pulses per inch for the encoder. When this is entered correctly, the speed displayed at Speed should match the incoming product speed (generally measured by a tachometer on the incoming conveyor). This setting affects product delay distances (and delay compensation if used) and the dispense speed if in follower mode. This is only visible if an encoder is present.
Speed	This is a display of the incoming product speed (generally also the conveyor speed) as measured by the labeling head. This is only visible if an encoder is present.

Operator Interface Hardware Screens

Labeler Mode Screen

(This screen is only visible if an encoder is present).

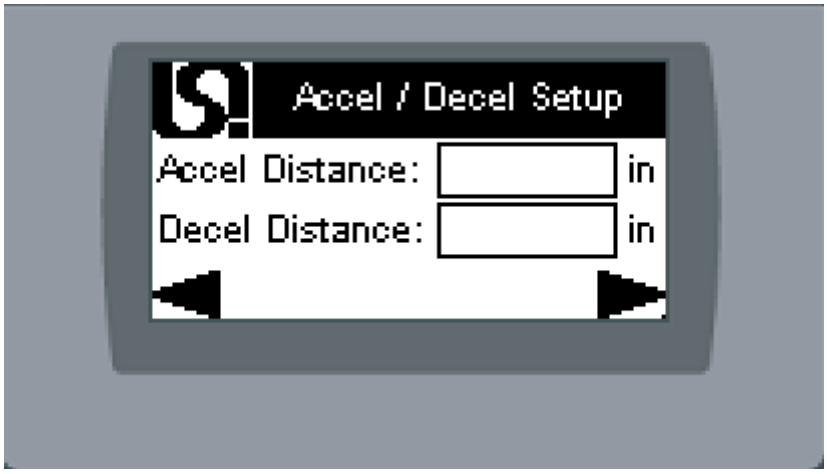


Touch button Functions

Labeler Mode	Touch to select “Fixed” (fixed speed dispense) or “Follower” (variable speed dispense; generally only used with synchronous applicators).

Operator Interface Hardware Screens

Accel/Decel Setup Screen

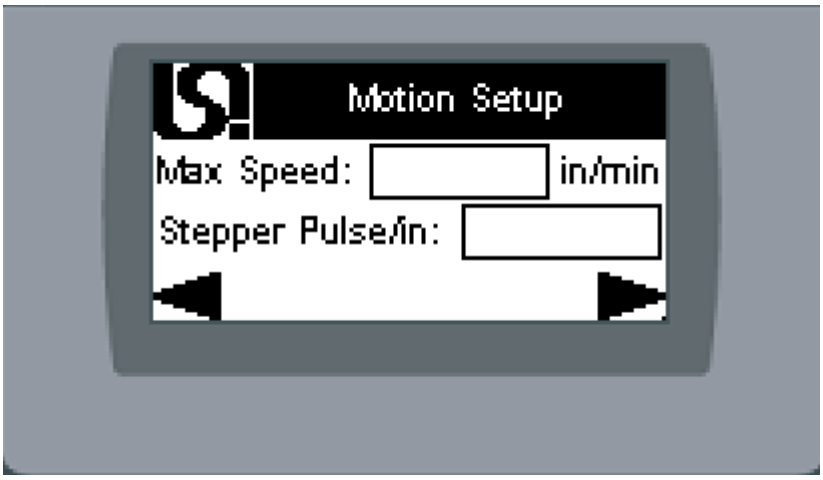


Touch button Functions

Accel Distance	The distance allowed for the label to accelerate from a stop to full dispense speed. This value is dependent on many factors and should only be adjusted by authorized personnel.
Decel Distance	The distance allowed for the label to decelerate from full dispense speed to a stop. This value is dependent on many factors and should only be adjusted by authorized personnel.

Operator Interface Hardware Screens

Motion Setup Screen

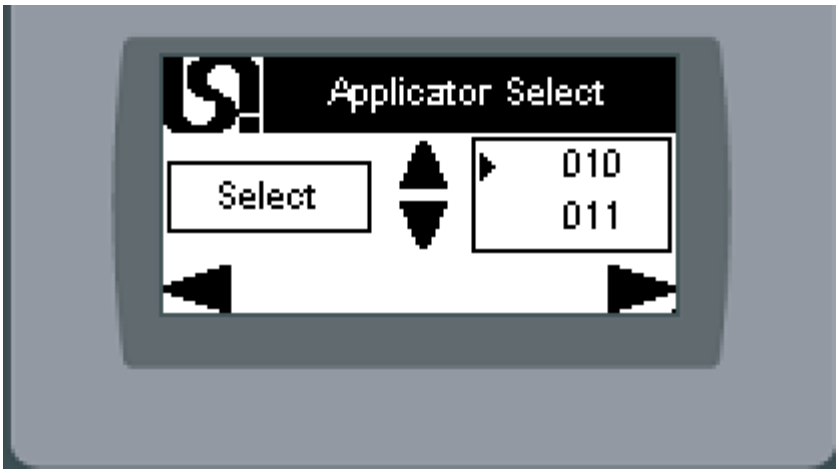


Touch button Functions

Max Speed	The maximum dispense speed allowed for the labeling head (for both fixed and follower modes). This value is dependent on many factors and should only be adjusted by authorized personnel.
Stepper Pulses/in	The number of stepper pulses per inch of label feed. This value must be set correctly for the labeler to function.

Operator Interface Hardware Screens

Applicator Select Screen



Touch button Functions

▲ **and** ▼	Use the ▲ and ▼ arrows to select the installed applicator
Select	Touch this button to select the applicator next to ▸. The applicator number next to ▸ should then be highlighted.

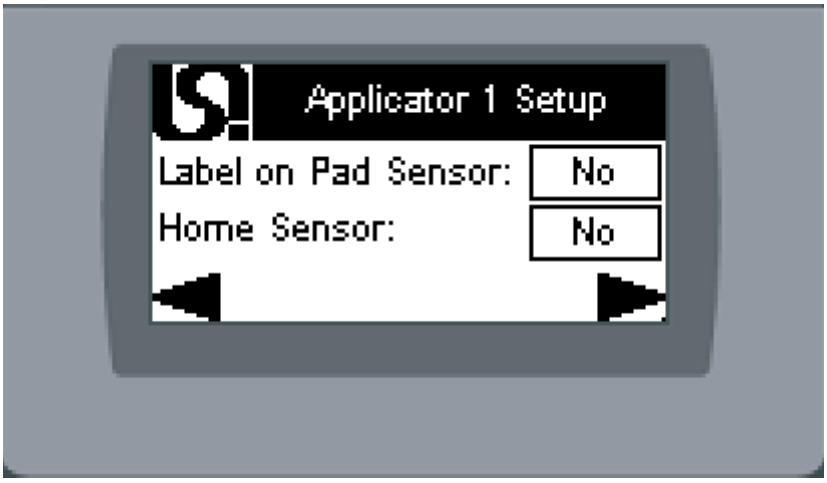
NOTE :

The ▸ (next) button on this screen may disappear depending on the applicator selection

Operator Interface Hardware Screens

Applicator 1 Setup Screen

(This screen will not appear if a label on pad sensor is not applicable to the selected applicator)



Touch button Functions

Label on Pad Sensor	Touch to select whether a label on pad sensor is present.
Home Sensor	Touch to select whether a home sensor is present on applicator 1. This will not be visible if the applicator is not an air cylinder.

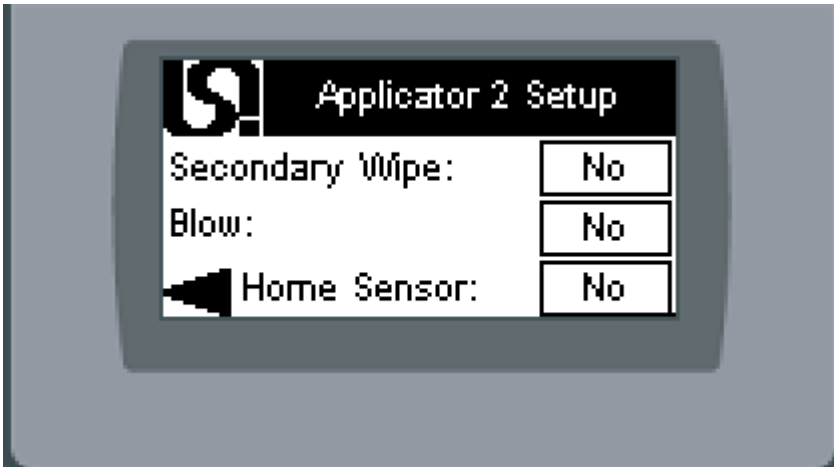
NOTE :

The ▸(next) button on this screen may disappear depending on the applicator selection.

Operator Interface Hardware Screens

Applicator 2 Setup Screen

(This screen will not appear if none of the applicator 2 options are applicable to the selected applicator)



Touch button Functions

Secondary Wipe	Touch to select whether a secondary wipe is installed. This may not be visible if applicator 2 is already assigned to another function.
Blow	Touch to select whether applicator 2 is installed as a blow. This may not be visible if applicator 2 is already assigned to another function.
Home Sensor	Touch to select whether a home sensor is present on applicator 2. This will not be visible if the applicator is not an air cylinder.

Operator Interface Hardware Screens

Height Sensor Calibrate Screen #1

Note to set up sensor before starting Calibration.

Operator Interface Hardware Screens

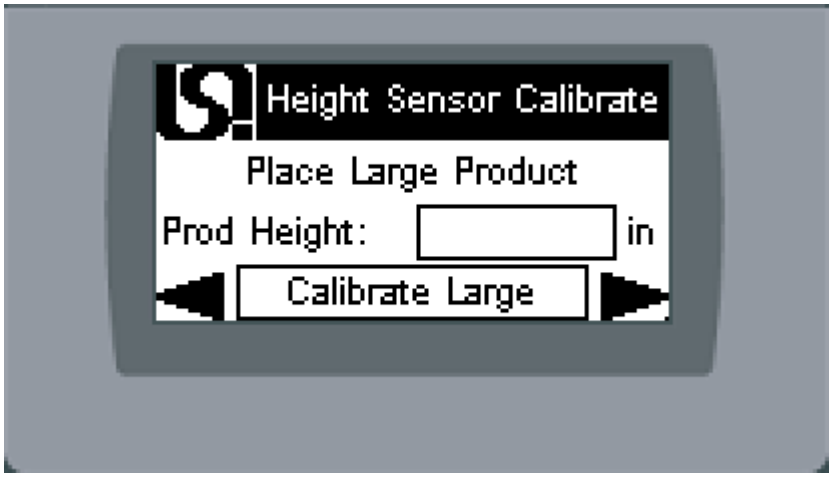
Height Sensor Calibrate Screen #2

Touch button Functions

Prod Height	Touch to enter the height of the product in inches. It is recommended using smallest product available when setting up.
Calibrate Small	Touch to calibrate small product. Ensure the product is under sensor before hitting this button.

Operator Interface Hardware Screens

Height Sensor Calibrate Screen #3



Touch button Functions

Prod Height	Touch to enter the height of the product in inches. It is recommended using largest product available when setting up.
Calibrate Large	Touch to calibrate large product. Ensure the product is under sensor before hitting this button.

Operator Interface Hardware Screens

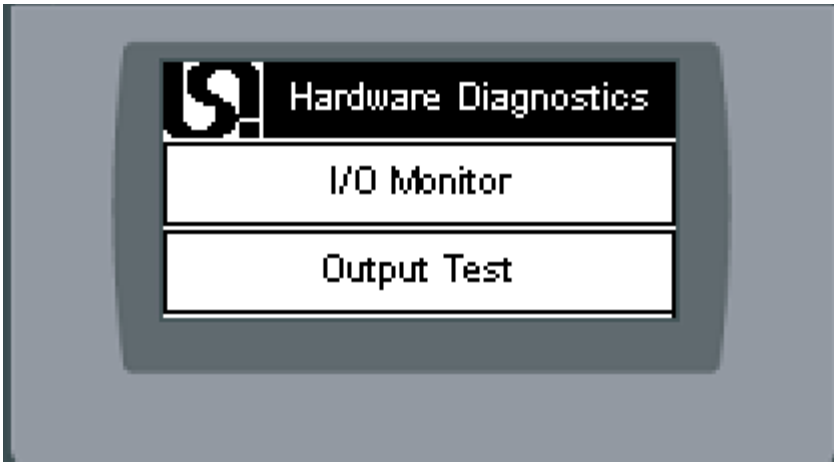
Height Sensor Calibrate Screen #4

Touch button Functions

Save Settings	Touch this button to re-calculate the scaling factor and save to PLC. If this button is not touched, **no changes are saved.**

Operator Interface Hardware Screens

Hardware Diagnostics Screen

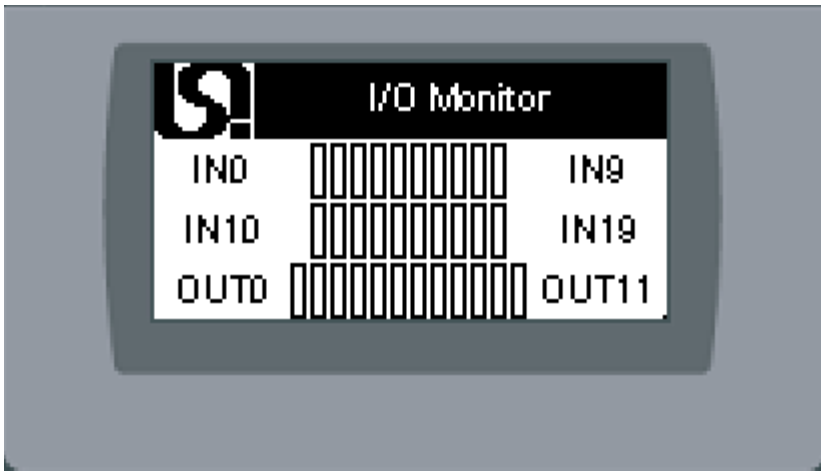


Touch button Functions

I/O Monitor	Touch to go to the I/O Monitor screen
Output Test	Touch to go to Applicator Output Test Screen**.** This screen will disable all automatic control of the PLC outputs

Operator Interface Hardware Screens

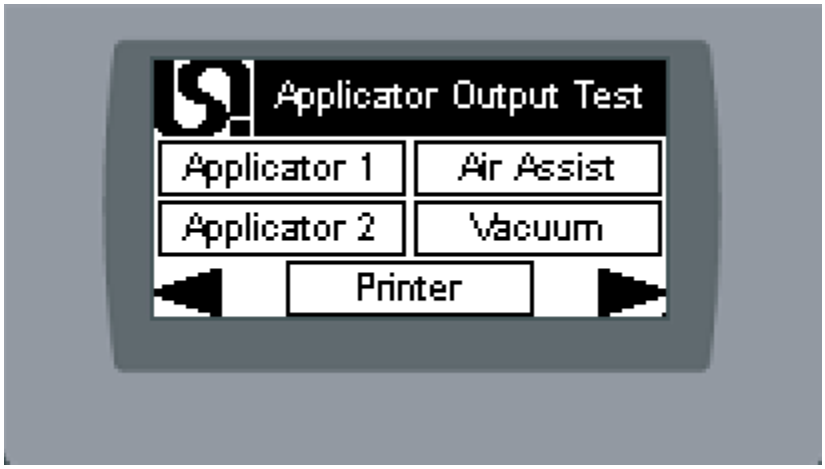
I/O Monitor Screen



This screen shows the current status of the PLC inputs and outputs (screen is basic copy of the LCD display on the front of the PLC).

Operator Interface Hardware Screens

Applicator Output Test Screen



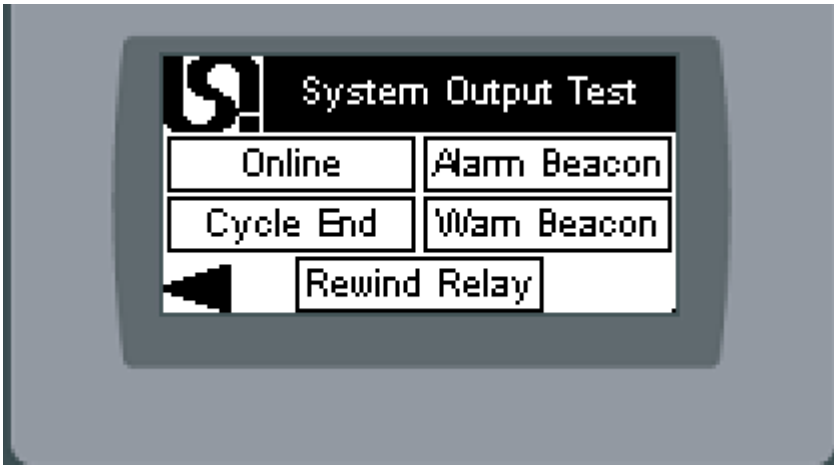
All buttons on this screen are momentary; in other words the output will only be on while you hold the button. While this screen is displayed, all automatic control of the PLC outputs is disabled

Touch button Functions

Applicator 1	Touch to test applicator 1 output. This button will not be visible if applicator 1 is not used
Applicator 2	Touch to test applicator 2 output. This button will not be visible if applicator 2 is not used.
Air Assist	Touch to test air assist output.
Vacuum	Touch to test vacuum output. This button will not appear if vacuum (or variable speed blower) is not used.
Printer	Touch to test printer output.

Operator Interface Hardware Screens

System Output Test Screen



All buttons on this screen are momentary; in other words the output will only be on while you hold the button. While this screen is displayed, all automatic control of the PLC outputs is disabled.

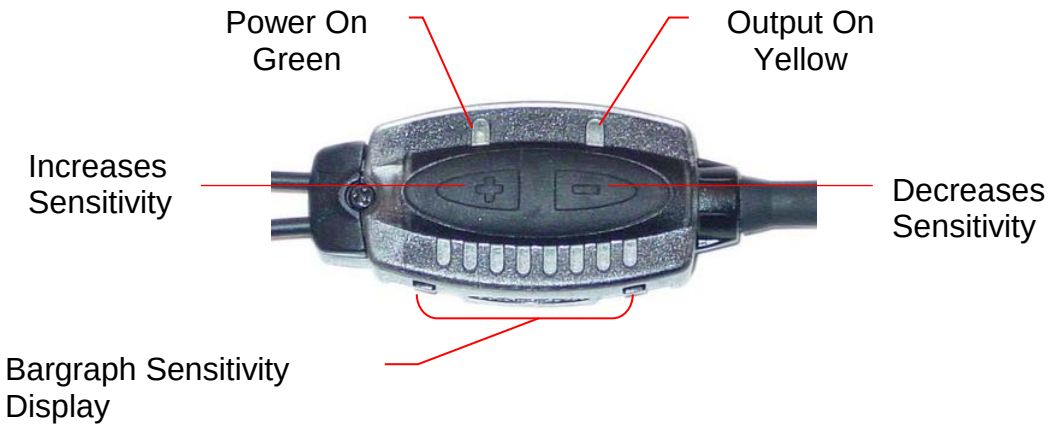
Touch button Functions

Online	Touch to test labeler online output.
Cycle End	Touch to test cycle end output.
Alarm Beacon	Touch to test alarm beacon output.
Warn Beacon	Touch to test warning beacon output. This button will not appear if the beacon type is set to single.
Rewind Relay	Touch to test rewind relay output. This will turn on the rewind motor and applicator fans (if present).

Label Sensor

Label Sensor Interface Amplifier

The body of the high performance fiber optic label sensor is mounted on the front panel of the labeler. The Sensor Interface includes 10 LEDs and 2 pushbuttons allowing the user to monitor and manually control all label sensor functions.

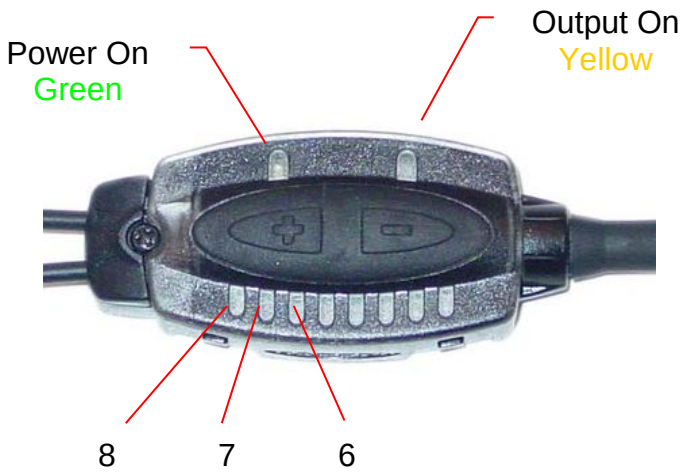


Fiber Optic Label Sensor Interface

Label Sensor

Leading/Trailing Edge Trigger
Set-up mode is used to change label sensor output response for:

- Light or Dark Operate
- 30 Millisecond Off Delay



The status LEDs (6, 7 and 8), active only during Set-up mode, indicate the output response configuration. Four combinations are possible:

Trigger	Sensor Mode	Delay	Status LED		
			6	7	8
Leading Edge	Dark Operate	No Delay	Off	**On**	Off
Not Used	Light Operate	No Delay	Off	Off	On
Not Used	Dark Operate	30ms Delay	On	On	Off
Not Used	Light Operate	30ms Delay	On	Off	On

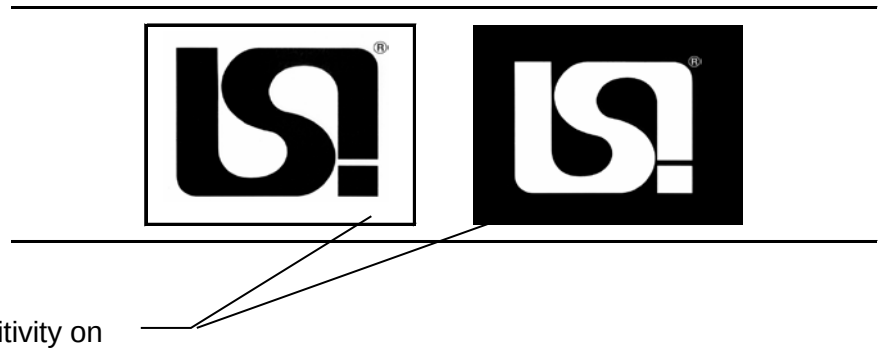
To access set-up mode, press and hold both **+** and **–** buttons until the green power indicator turns off. Press either **+** or **–** to toggle through the four possible settings. Press and hold both **+** and **–** until the green power LED turns back on.

If Set-up mode is interrupted and remains inactive for 60 seconds, the sensor returns to run mode with the most recent settings (i.e. exits and saves current selection).

Label Sensor

Manually Adjusting Label Sensor Sensitivity
Press **+** or **–** on the label sensor to increase or decrease label sensor sensitivity. The lighted bargraph LEDs will move to reflect the increase or decrease.

Adjust sensitivity so the sensor "sees through" the web but not through the label. Sensitivity should be set on the lightest (least opaque) portion of the label.



Set sensitivity on the lightest part of the label.

After manual adjustment, press **JOG** to ensure that label sensitivity has been set properly.

Auto-Teach Label Sensor Sensitivity
The standard label sensor package includes an Auto-Teach feature, which automatically adjusts sensor sensitivity.

To Auto-Teach the label sensor, thread the labeler and press Label Sensor Teach on the Jog/Teach Screen. After 3 labels, the web stops, and the Teach LED on the operator display extinguishes. LED 3 on the label sensor will turn on briefly to indicate that the Teach has been accepted. The green power LED on the label sensor will illuminate to indicate that Auto-Teach is complete.

Press **JOG** to ensure that label sensitivity has been set properly.

In the event of an Auto-Teach failure, LEDs 1, 3, 5 and 7 will flash alternately and the label sensor will return to run mode without changing settings. In this case, the label sensor sensitivity must be manually set as described above.

Low Label/Web Break Alarms (optional)

The ***Series 40*** Alarm Package option detects and annunciates the status of the label unwind reel and the label web. Sensors on the labeling head detect and alarm the following states:

- Low Label
- Label Out/Web Break

The alarm package includes a beacon light. The beacon illuminates to annunciate a Low Label condition (Low Alarm). The beacon will flash to indicate Label Out/Web Break (High Alarm).

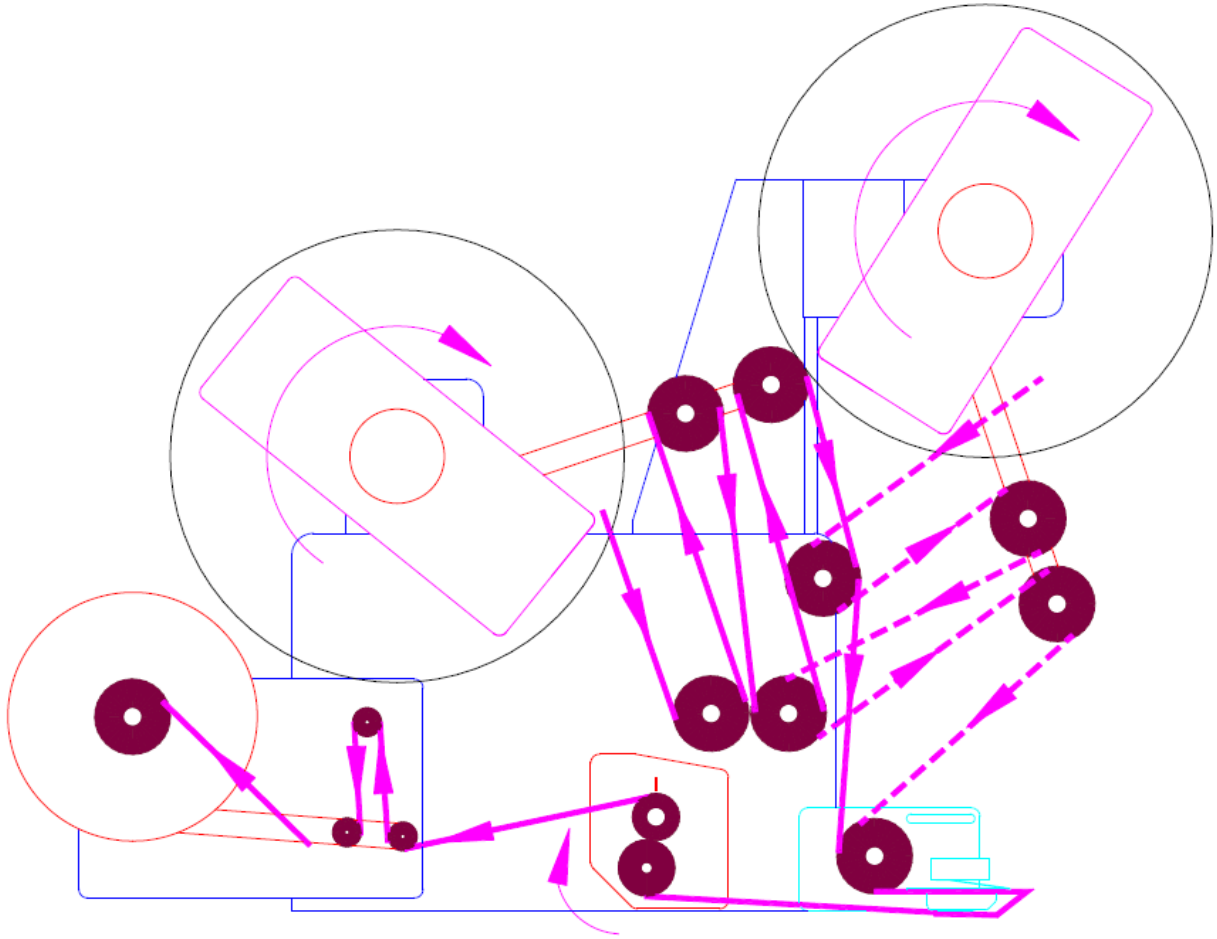
A photo-eye located on the unwind assembly monitors the unwind reel and detects a Low Label condition.

Low Label/Web Break Alarms (optional)

A convergent beam photoeye detects the presence of the web on the web drive roller. Absence of web on the drive roller indicates a Label Out/Web Break condition.

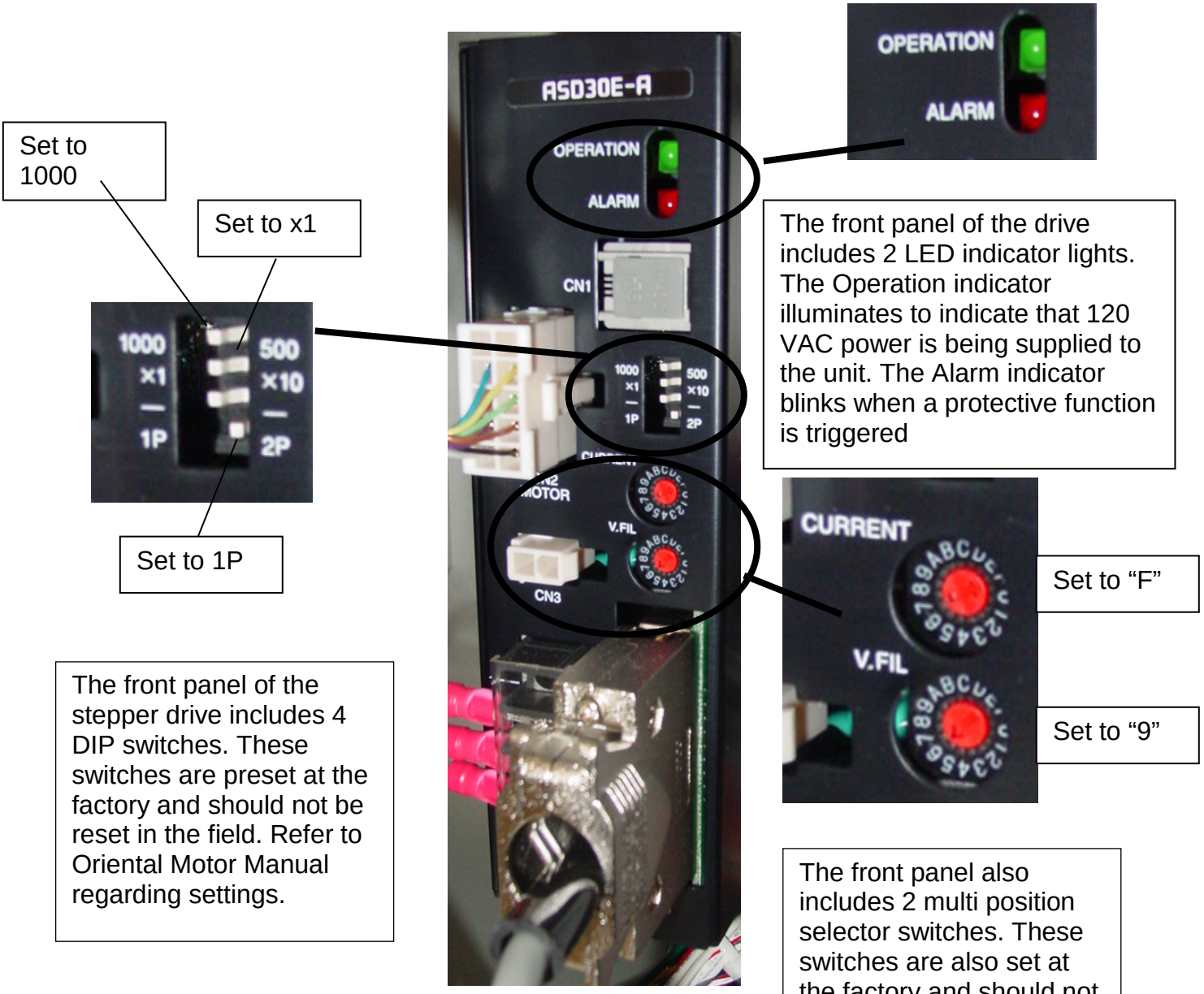
Threading the Machine

Model 40 Right Hand shown.



Maintenance Guide-Stepper Drive

The Series 40 utilizes a Stepper Drive to control the stepper motor. The front panel of the stepper motor drive is shown.



The front panel of the drive includes 2 LED indicator lights. The Operation indicator illuminates to indicate that 120 VAC power is being supplied to the unit. The Alarm indicator blinks when a protective function is triggered

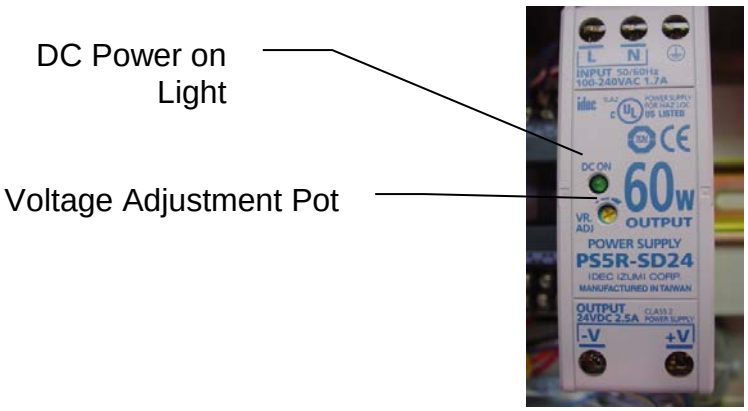
The front panel of the stepper drive includes 4 DIP switches. These switches are preset at the factory and should not be reset in the field. Refer to Oriental Motor Manual regarding settings.

The front panel also includes 2 multi position selector switches. These switches are also set at the factory and should not be changed in the field. Refer to Oriental Motor Manual regarding settings.

Maintenance Guide

DC Power Supply

The Series 40 utilizes a 24 volt DC power supply to power the PLC and various I/O devices. The power supply incorporates a green pilot light on the front face. The pilot light illuminates to indicate that DC power is available.



The front panel of the power supply includes a potentiometer to allow adjustment of the power supply's output voltage. Output voltage is set to 24 volts at the factory. No user adjustment should be required.

PLC

The Series 40 utilizes a PLC for logical control of the labeling sequence and to manage the operator interface. This particular Series 40 features the A-B Micrologix 1400 as the PLC. For specific information, please refer to the A-B Micrologix 1400 documentation provided with the labeling head.

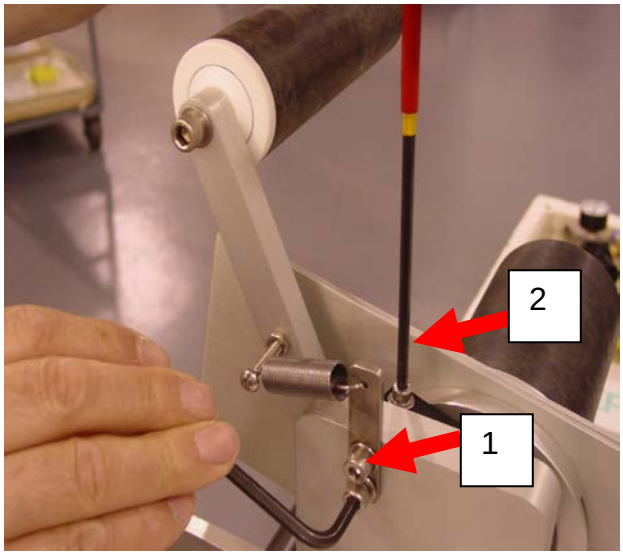
Mechanical Adjustments

All Series 40 labelers come complete from the factory and are adjusted to meet the operational specifications of the original application. The components described below may need occasional adjustment to ensure optimal performance.

BEFORE PERFORMING ANY ADJUSTMENTS, ENSURE THAT THE MACHINE IS DISCONNECTED FROM BOTH ELECTRICAL POWER AND COMPRESSED AIR.

Adjusting the Unwind Brake Belt

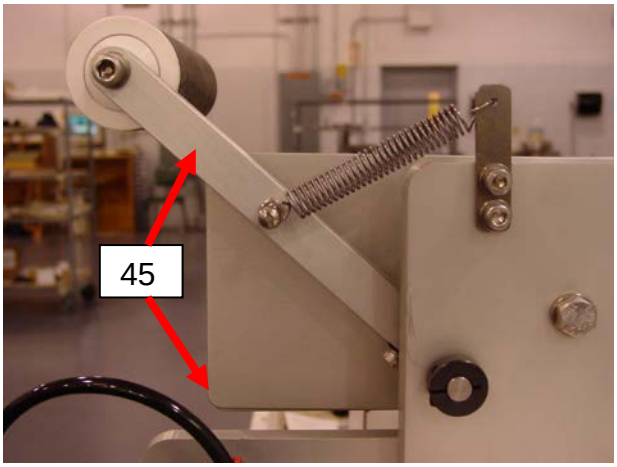
The unwind brake stops the unwind roll from free wheeling. Unwind brake tension is controlled by the position of the dancer arm. When properly adjusted, the dancer are should rest with the brake fully engaged, at approximately 45° from horizontal. Pulling down on the dancer arm will release the brake.



To adjust the unwind brake:

1. Loosen socket head cap screw (2) using an Allen wrench until the brake belt mount turns freely.
2. Using an Allen wrench or 5/8” wrench on brake belt holder inserted into screw (1) turn the brake belt mount until the dancer arm rests at approximately 45°.
3. Tighten screw (2).

When properly set, the tension arm should be at approximately a 45° angle from the edge of the main plate when in a resting position.

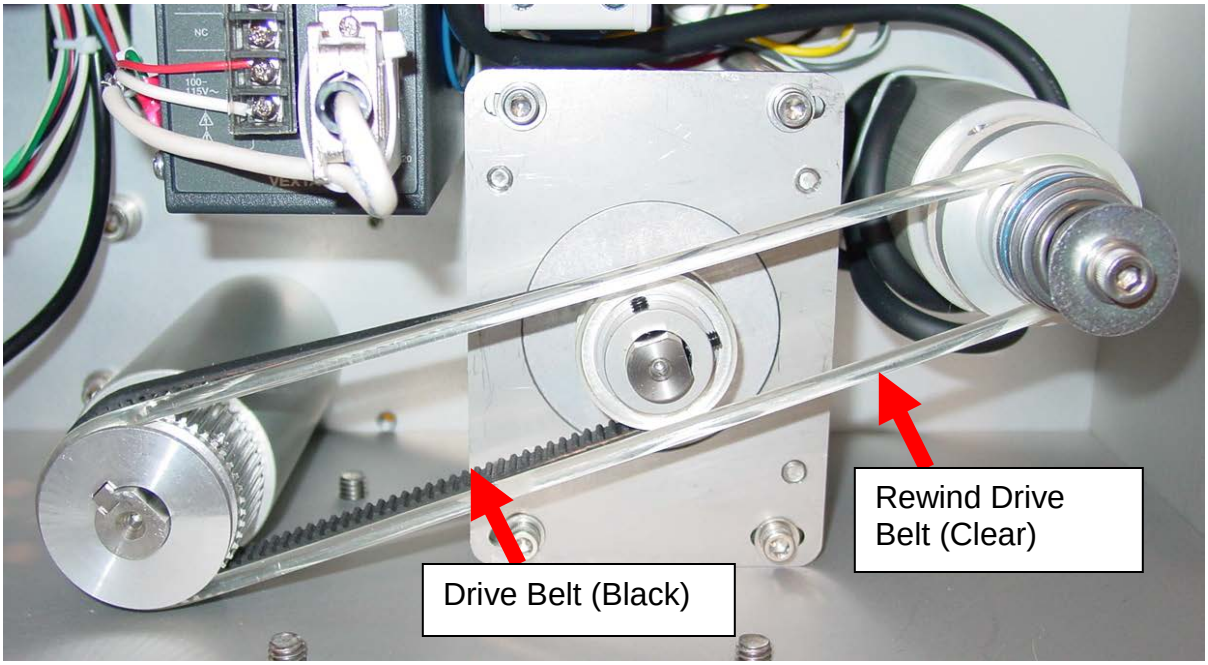


Mechanical Adjustments

Adjusting the Drive Belt

To adjust web drive belt tension:

1. Loosen the 4 mounting screws, that attached the motor mounting plate to the stand offs.
2. After confirming that belt teeth are properly engaged in the pulley grooves, adjust motor position to set belt tension and retighten mounting screws.
3. When the belt is properly tensioned, light pressure in the center of the span between the 2 pulleys should produce approximately 1/8” of belt movement.



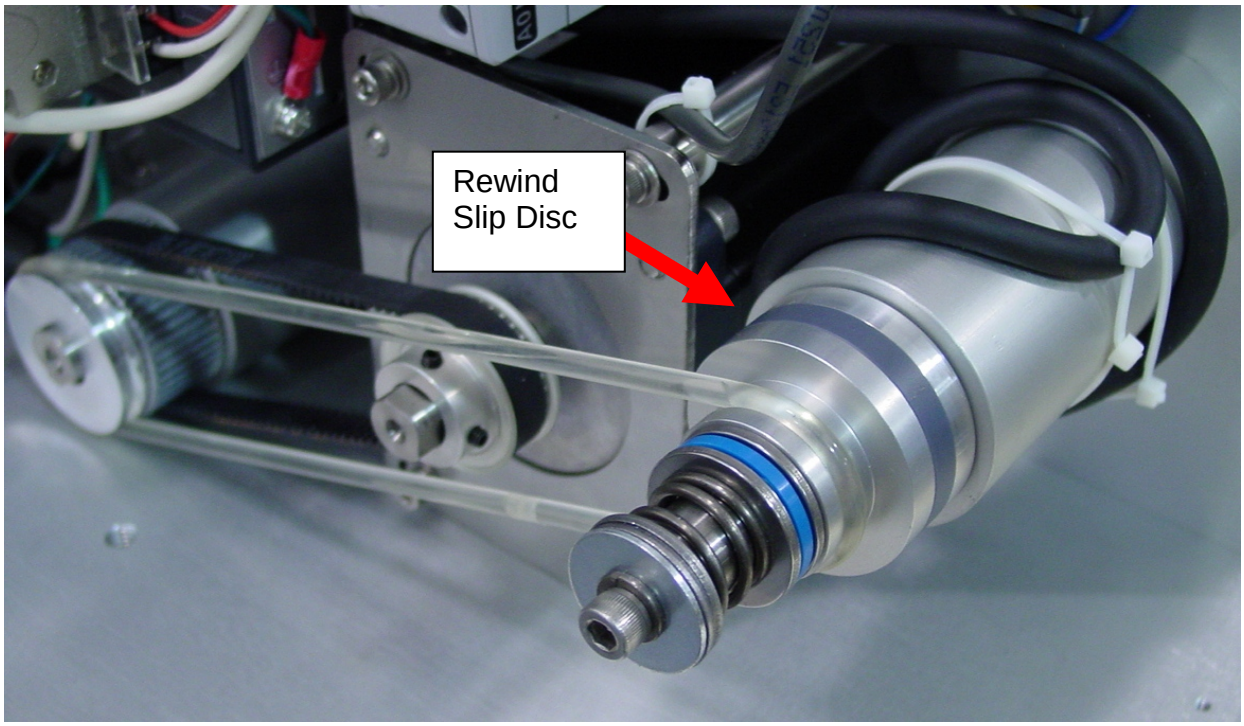
Mechanical Adjustments

Setting Rewind Tension

Rewind tension on the standard Series 40 slaved rewind assembly is set at the factory using shims. Field adjustment should never be required.

To replace the Rewind Slip disc.

1. Remove the socket head cap screw at the end of the shaft.
2. Remove the washer, shims, spring, thrust bearing and clutch plate/drive sheave from the rewind shaft.
3. Remove old slip disc and replace with a new slip disc.
4. Replace the clutch plate / drive sheave, thrust bearing, spring and shims in the reverse order from the way they were removed.
5. Install screw and washer and tighten.



To replace the rewind drive belt (Clear belt):

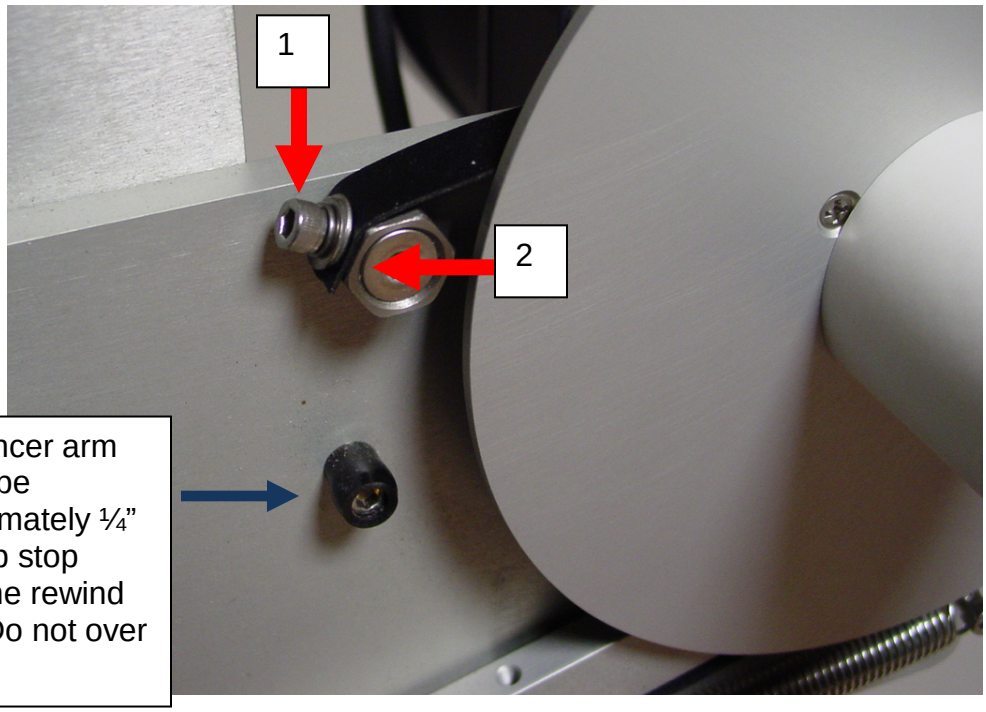
1. Remove the old rewind drive belt. The drive belt is very elastic and can be removed by hand without tools.
2. Clean the sheaves to remove any oil or contamination.
3. Install a new rewind drive belt.

Mechanical Adjustments

Rewind Dancer Arm Tension is controlled by the position of the dancer arm. It is adjusted by tightening (more rewind dancer arm tension) or loosening (less rewind dancer arm tension) the brake band mount.

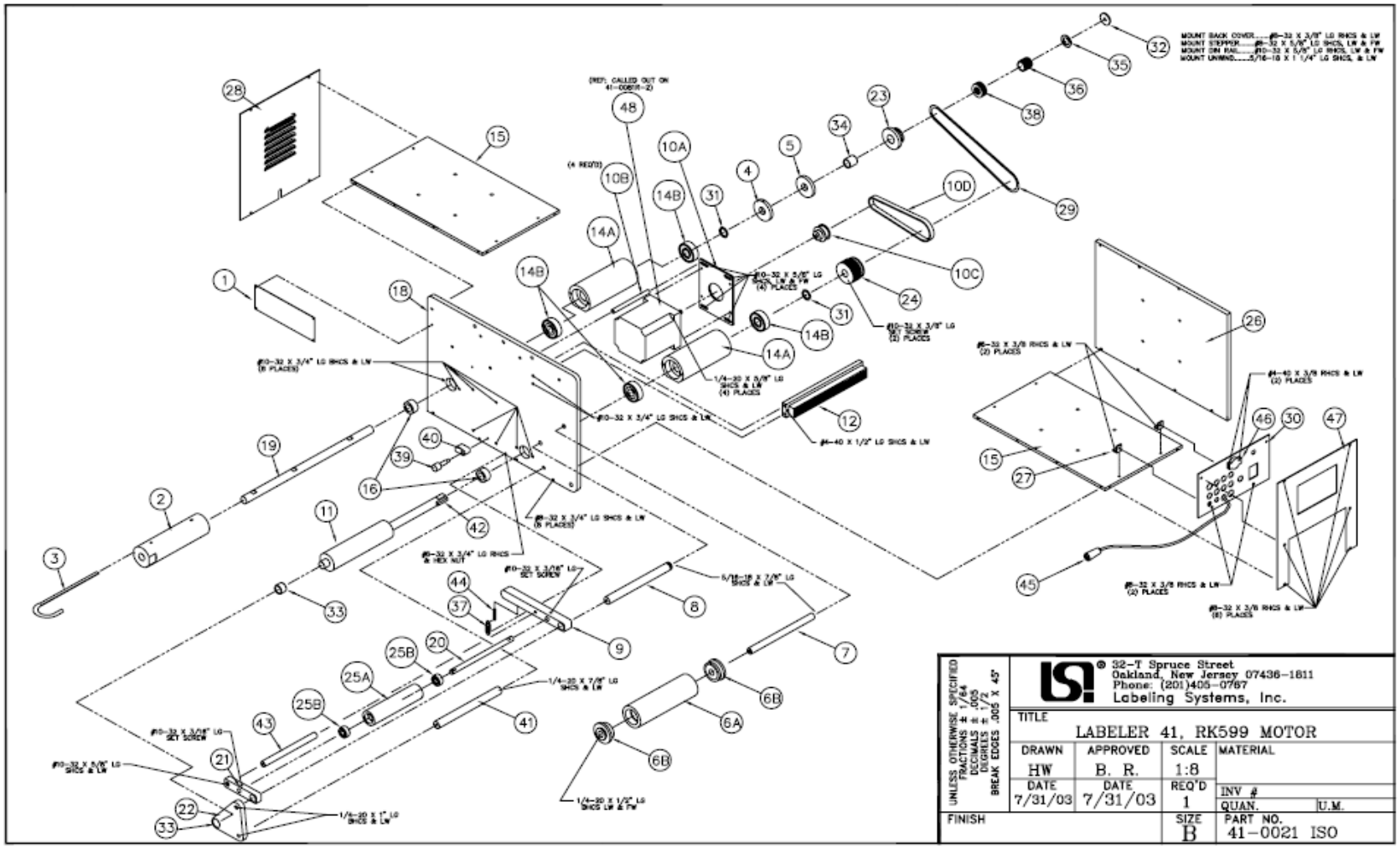
To adjust the Power Rewind Brake:

1. Loosen socket head cap screw (2) using an Allen wrench until the brake belt mount turns freely.
2. Using an Allen wrench or 5/8" wrench on brake belt holder inserted into screw (1) turn the brake belt mount until the rewind locks with the dancer arm approx ¼" from top stop.
3. Tighten screw (2).



Base Labeler

NOTE: THIS IS BASE LABELER. MODIFICATION OF PARTS MAY HAVE BEEN NECESSARY (SEE PAGES THAT FOLLOW)



Parts List Base Labeler

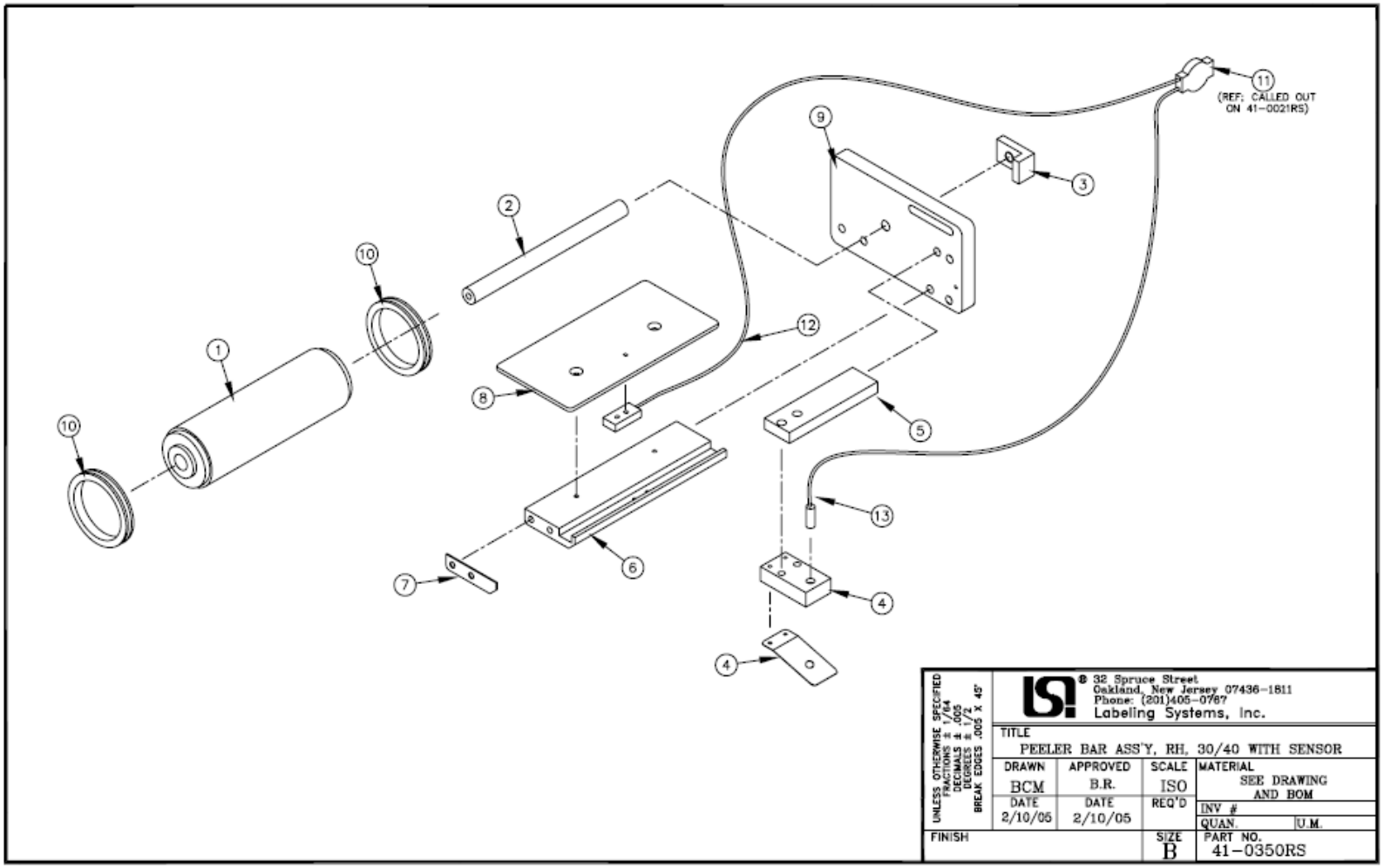
ID #	Qty	Part Number	Description
1	1	01-0180 B	L.S.I. NAME PLATE PRE-STAMPED
2	1	095-1001 B	REWIND HUB MODIFIED
3	1	095-1002 B	CANDY CANE, 1000
4	1	10-1191-1009 A	REWIND BACK UP HUB
5	1	10-1191-1010-1	REWIND SLIP DISC
6A	1	1000-1121 A	ROLLER, LONG
6B	2	MHRO06CB5001	BALL BEARING, ROLLER END
7	1	1000-1120 A	ROLLER SHAFT - LONG
8	1	1000-1143 B	ROLLER ARM PIVOT SHAFT
9	1	41-2020	EXTENDED ROLLER ARM
10A	1	41-1301	MOTOR MOUNT
10B	1	41-1302	MOTOR MOUNT ROD
10C	1	41-1303	PULLEY 3mm, MODIFICATION
10D	1	PTTB120M090	BELT 9mm WIDE
11	1	9609-0201	DRIVE ROLLER ASS'Y
12	2	41-0082-W	WAGO TERMINALS FOR 40 MACHINE
14A	1	41-2078	SUPPORT, SHAFT
14B	4	PTBB06213700	BALL BEARING 5/8 ID 1 3/8 OD
15	2	41-2014	PLATE, BOTTOM AND TOP
16	2	41-2005	SPACER
18	1	41-2015-2	PLATE, MAIN
19	1	9609-2017	SHAFT, REWIND ROLLER
20	1	41-2023	SHAFT, NIP ROLLER
21	1	41-2021	ARM, EXTENDED ROLLER

Parts List Base Labeler

ID #	Qty	Part Number	Description
22	1	41-2016	DRIVE ROLLER SUPPORT
23	1	9609-2040	PULLEY, REWIND, 1.172 P.D.
24	1	9609-2044	PULLEY, 48 TEETH
25A	1	41-2024	ROLLER, KNURLED NIP
25B	2	PTBB03708700	BALL BEARING 3/8 ID 7/8 OD
26	1	41-2052	PLATE, SIDE
27	2	41-2077	MOUNT, COVER
28	1	41-2057	COVER, REAR
29	1	PTRB3044K141	BELT, ROUND 3/16 DIA, ENDLESS
30	1	41-2055	STRAIN RELIEF MOUNTING PLATE
31	2	FASM62L03200	WASHER
32	1	FAWF25FENDER	FLAT WASHER ¼" ID
33	1	MHBB06207500	BUSHING PLAIN 5/8 x ¾ x 1/2
34	1	MHBB06207502	BUSHING PLAIN 5/8 x ¾ x 3/4
35	1	MHBS0621001	SHIM BUSHING 5/8 ID 1 OD
36	1	MHCS08508500	SPRING COMP .850 x .085 x 3/4
37	1	MHES036045	SPRING EXT.360 x .045 x 1
38	1	PTBT06211200	THRUST BEARING 5/8 ID
39	1	FASD2510H500	SHOULDER BOLT
40	1	41-1011	CAM
41	1	41-1143	ROLLER ARM PIVOT SHAFT
42	1	41-1003	KEY 3/16 x 3/16 x 1
43	1	41-2022	SHAFT SUPPORT
44	1	2010-1005	SPRING HOLDER
45	1	MQDC-406	DISCONNECT CABLE FOR SENSOR
46	1	FI22FP	SENSOR, AMPLIFIER W/AUTO TEACH
47	1	41-2049-1	Cover,Front - Blank
48	1	AS911AAE	Motor,Stepper,w/Drive,Alpha,115VAC

SECTION B: MODEL 40 LABELING HEAD

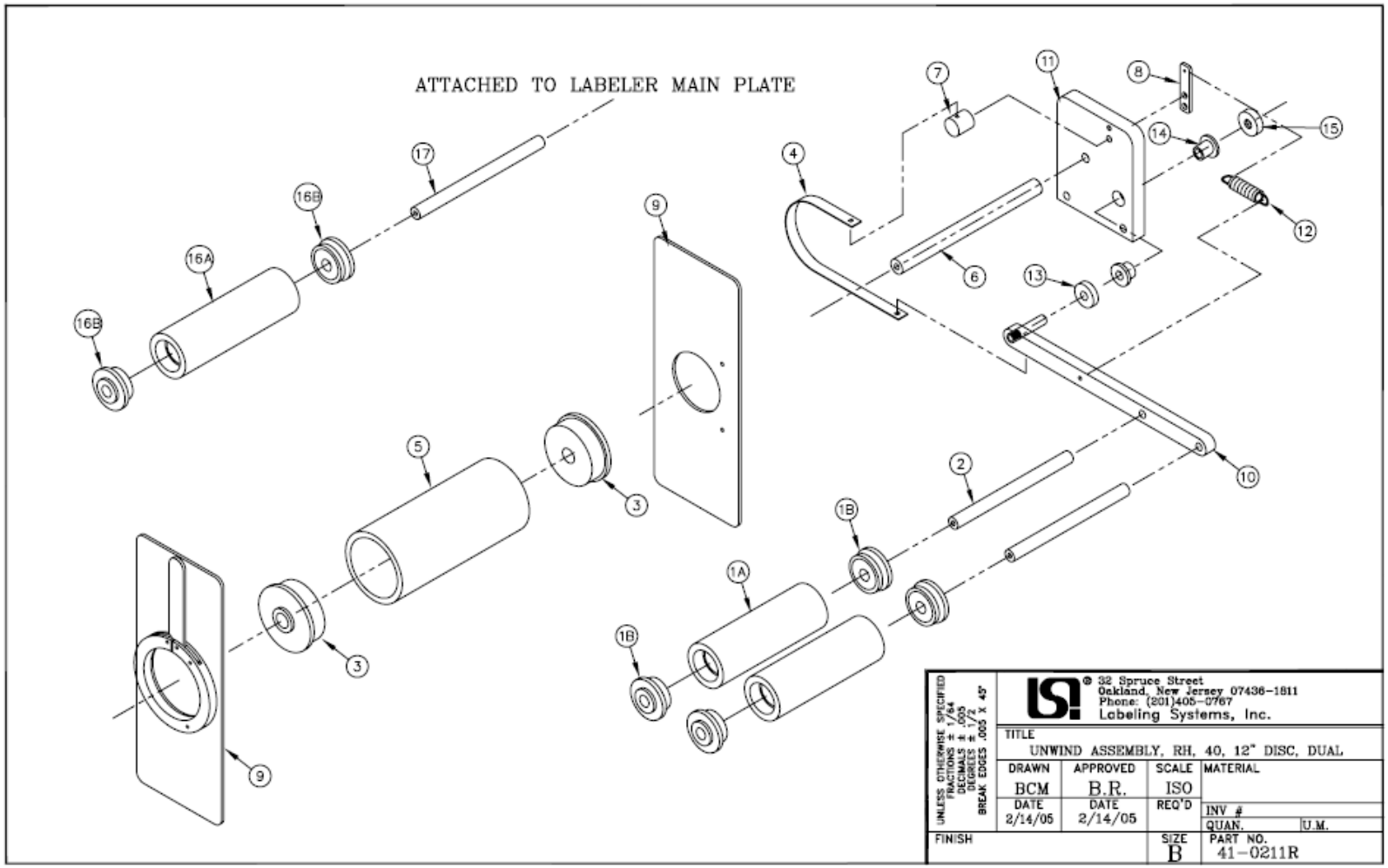
Peeler Bar



Parts List - Peeler Bar

ID #	QTY	PART NUMBER	DESCRIPTION
1	1	9609-0721	Assy,Sub,Roller - 7" Web.7.5"w.
2	1	9609-1722	Shaft,1/2 x 8.125,1/4-20,5/16-18,SS
3	1	1000-1134 A	Clamp,Rotational Arm 3/8"Thk
4	1	41-0352	Assy,Fiber Sensor Mount
5	1	9609-2033-7	Support,Photocell, 7" Web
6	1	9609-2034-7	Support,Peeler Bar, 7" Web
7	1	9609-2035	Cover
8	1	9609-2037-7	Bar,Peeler, 7" Web
9	1	9609-2066	Plate,Peeler Bar,Slot
10	2	MHCC187000ST	Collar,Plastic Spring 1-7/8 ID
11	1	FI22FP	Sensor,Amplifier,Thru-Beam,2m Cable
12	1	PIRS46UHFM	Fiber,Plastic,Aluminum Block
13	1	PIT66U	Fiber,Plastic,Opposed,79" Long

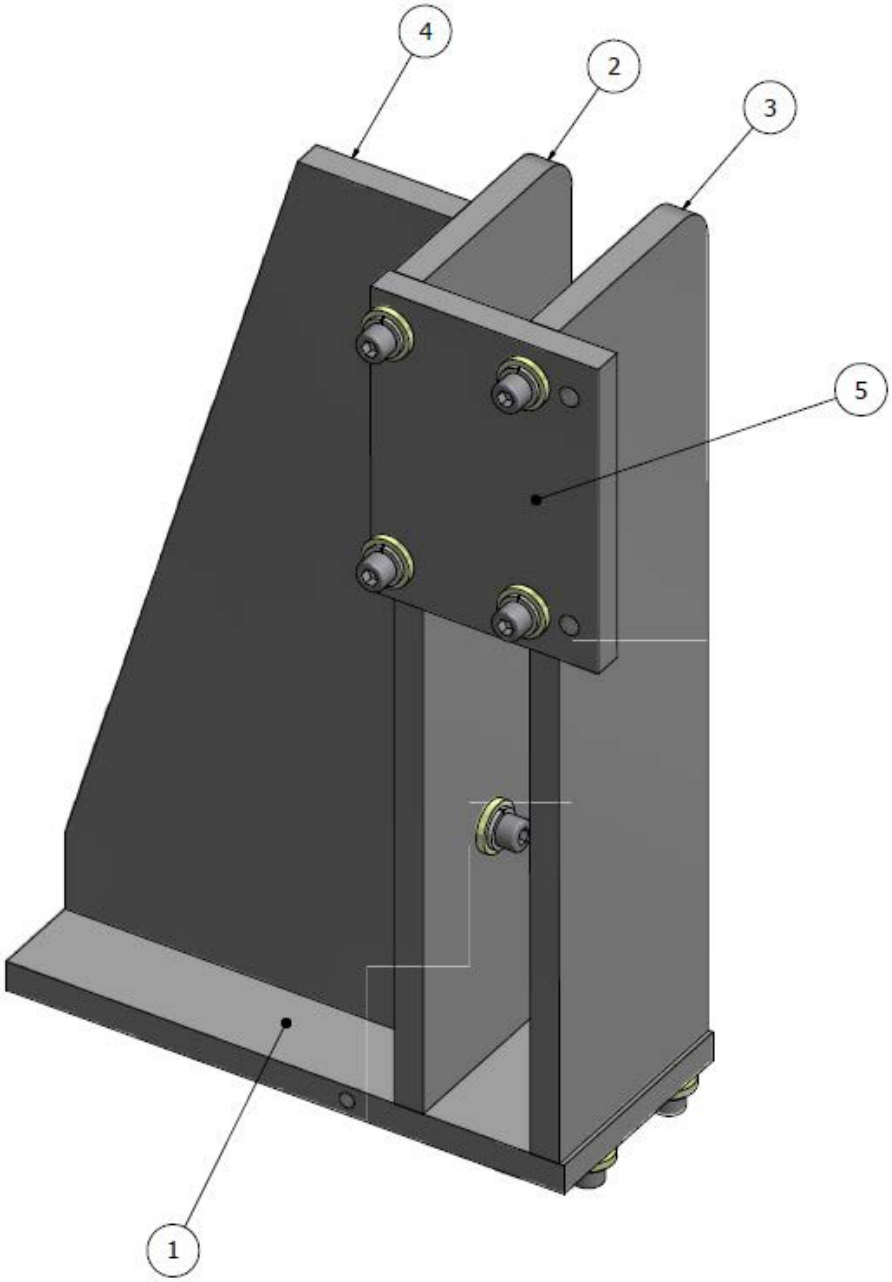
Unwind Assembly 12”--Double Dancer Arm Option



Unwind Assembly 12”--Double Dancer Arm Option

ID#	QTY	PART NUMBER	DESCRIPTION
1A	2	1000-1123 A	Roller,1.88x1.63x5.485,Phenolic
1B	4	MHRO06CB5001	Ball Bearing, Roller End
2	2	1000-1122 A	Shaft,1/2x6.13 1/4-20,5/16-18,SS
3	2	1000-1126 A	End,Roller
4	1	1000-1128 A	Band,Brake - 1/2x10.25
5	1	9609-1004 A	Core,Unwind
6	1	9609-1005 A	Shaft,5/8 x 7.406,5/16-18,3/8-16,SS
7	1	9609-2007	Mount,Brake Band
8	1	9609-2012	Mount,Brake Spring
9	2	9609-0211	Disk,Unwind Assy W/Lock
10	1	41-0221	Assy,Tension Arm,Dual,12"Unwind
11	1	41-2104	Plate,Unwind Mounting
12	1	MHES05005507	Spring,Ext,.055WDx.500ODx2.500L
13	1		Washer, Flat
14	2	MHBB03705003	Bushing,Flange 3/8x1/2x3/8 F 11/16x3/32
15	1	FACL03701SS0	Collar,Clamp 3/8"IDx7/8"Ox3/8W,SS
16A	2	MHRO06CB5001	Ball Bearing, Roller End
16B	1	1000-1121 A	Roller,1.88x1.63x5.985,Phenolic
17	1	1000-1120 A	Shaft,1/2x6.63 1/4-20,5/16-18,SS

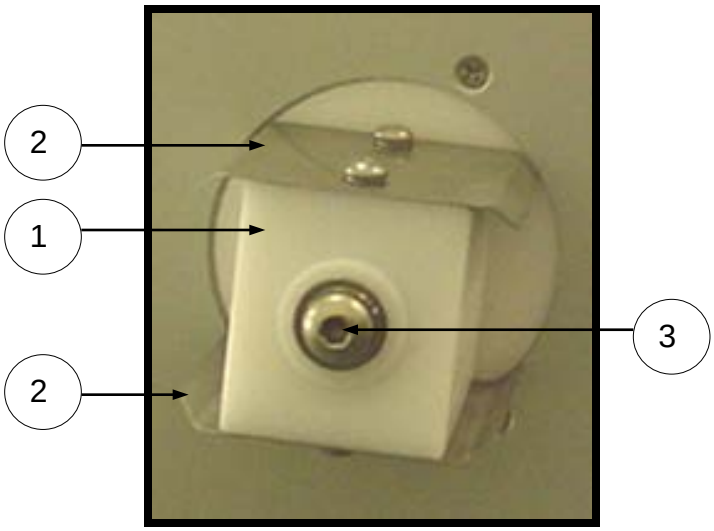
Secondary Unwind Mounting Assembly



Secondary Unwind Mounting Assembly

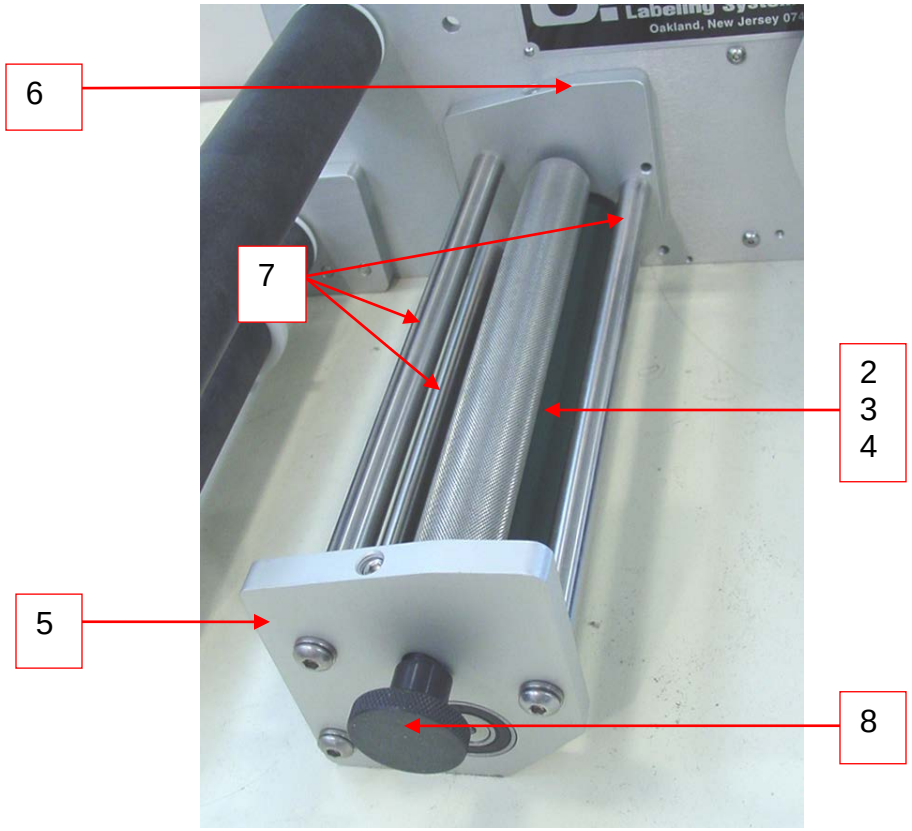
ID#	QTY	PART NUMBER	DESCRIPTION
1	1	40-0288-1002	Plate,Base,Unwind Mount
2	1	40-0288-1003	Gusset,1
3	1	40-0288-1004	Gusset,2
4	1	40-0288-1005	Gusset,3
5	1	40-0288-1006	Plate,Unwind Mounting

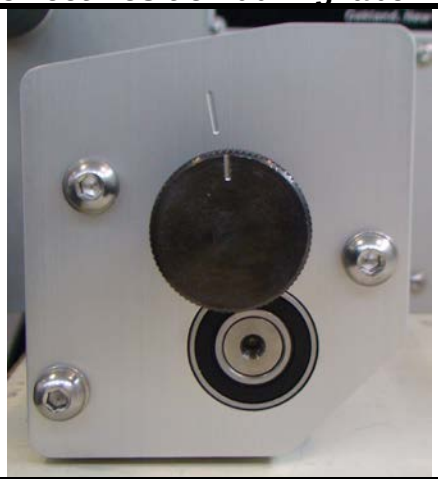
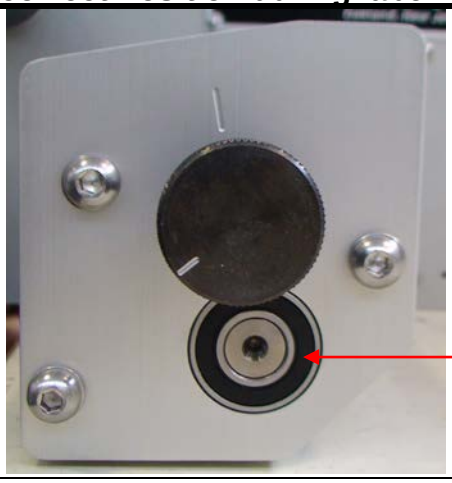
Unwind Core Adapter Let-Off Roller Option



ID#	QTY	PART NUMBER	DESCRIPTION
1	1	40-0191-4002	UNWIND CORE
2	2	40-0191-4001	PLATE, CORE UNWIND
3	1	40-0191-2002	UNWIND ROLL SHAFT

Nip Roller Assembly 7”

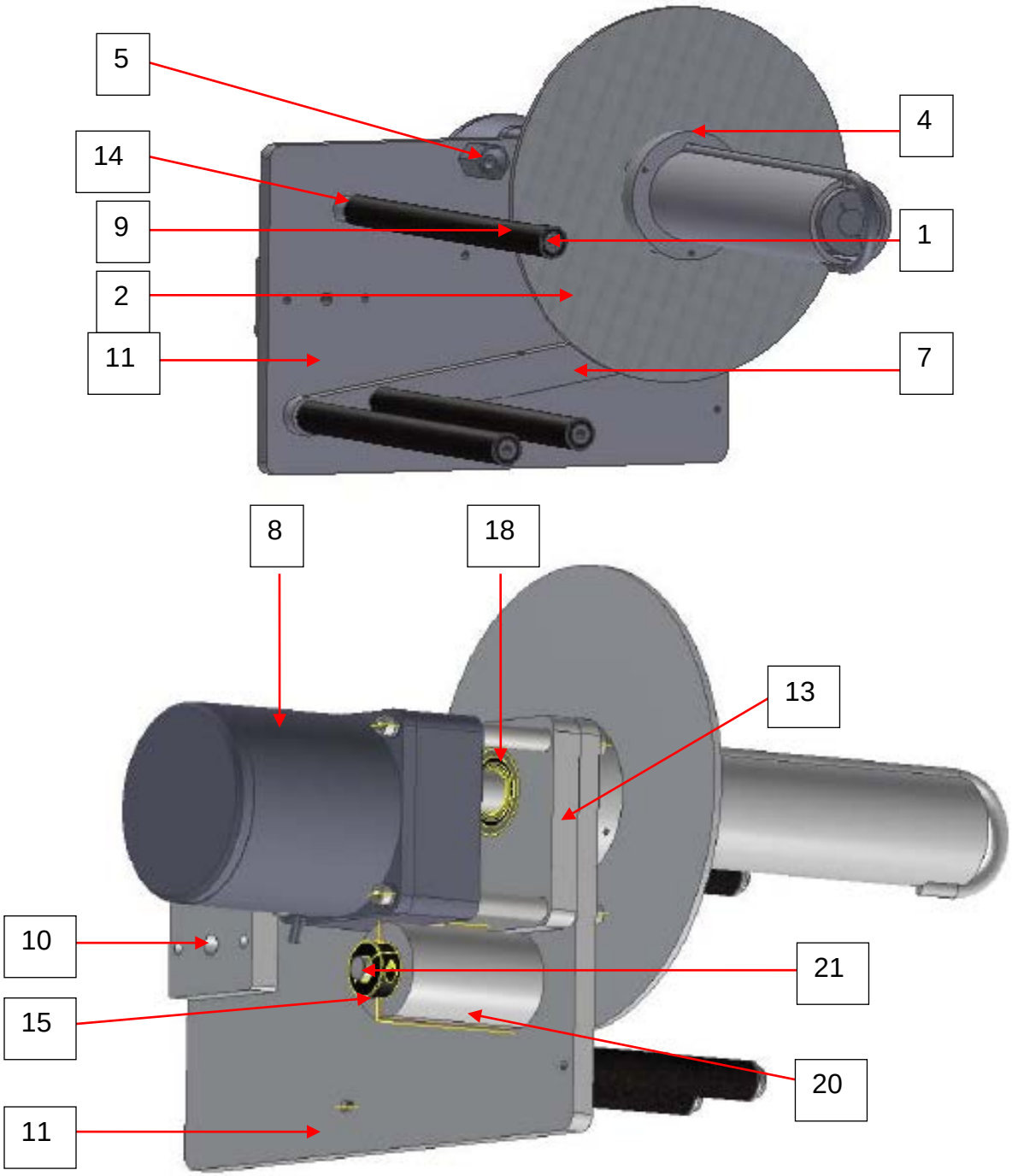


Correct Position during labeling	Incorrect Position during labeling
	

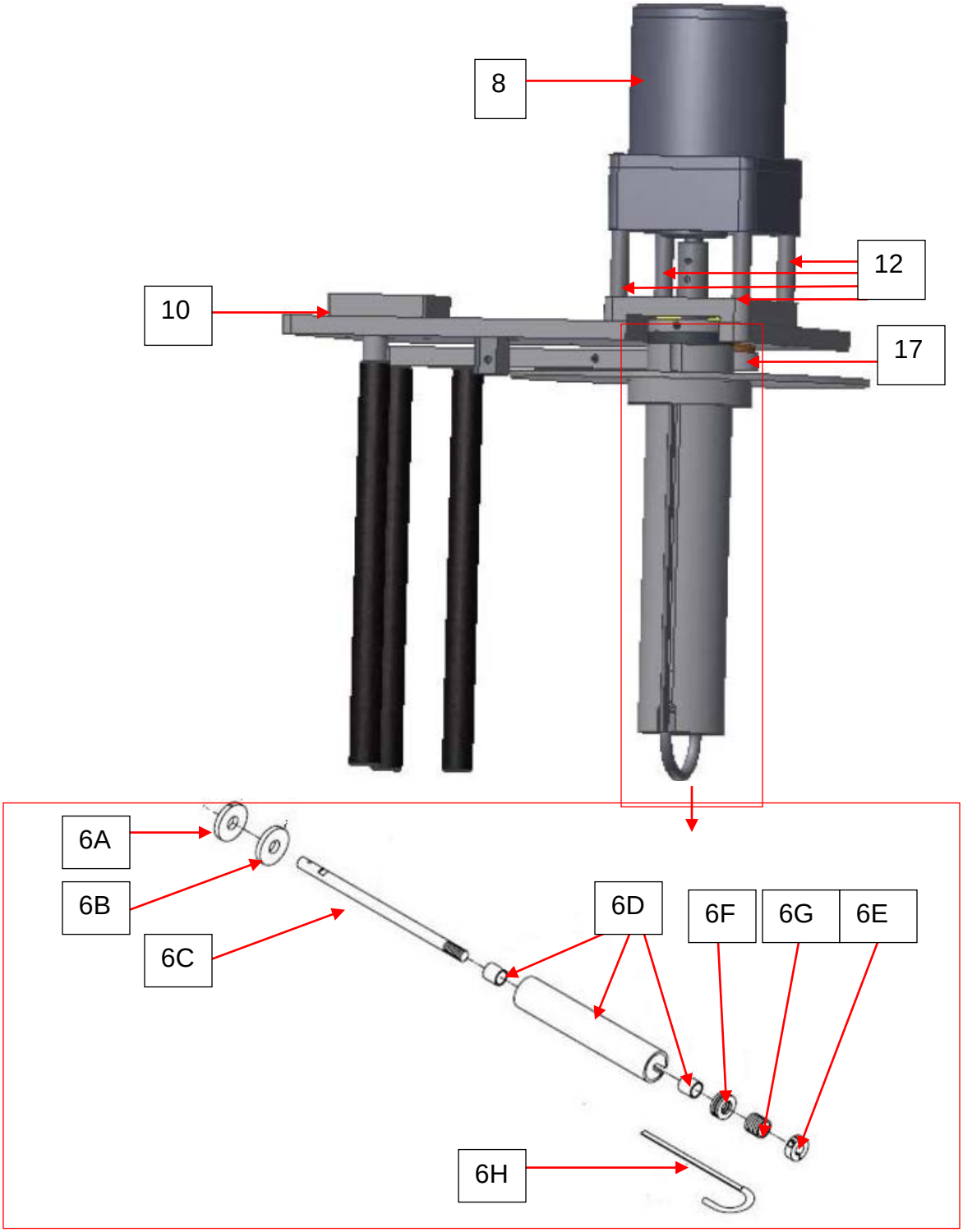
Parts List- Nip Roller Assembly 7”

ID#	QTY	PART NUMBER	DESCRIPTION
1	2	40-0542-2005	Wear Rod
2	1	40-0506-2001	Roller, Knurled Nip, 7”
3	2	PTBB0511200	Ball Bearing. 500 ID 1.125 OD
4	1	40-0506-2002	Shaft, Nip Lift, 7”
5	1	41-1150	Plate, Top – Nip Roller
6	1	41-1151	Plate, Bottom – Nip Roller
7	3	41-1152-7	Tie Bar, Nip Roller
8	1	41-1155	Knob, Modified
9	2	MHCSLC038C11S	Spring Comp. 240 x .038 x 15/16
10	1	PTBB06213700	Ball Bearing 5/8 ID 1 3/8 OD

Power Rewind Assembly



Power Rewind Assembly



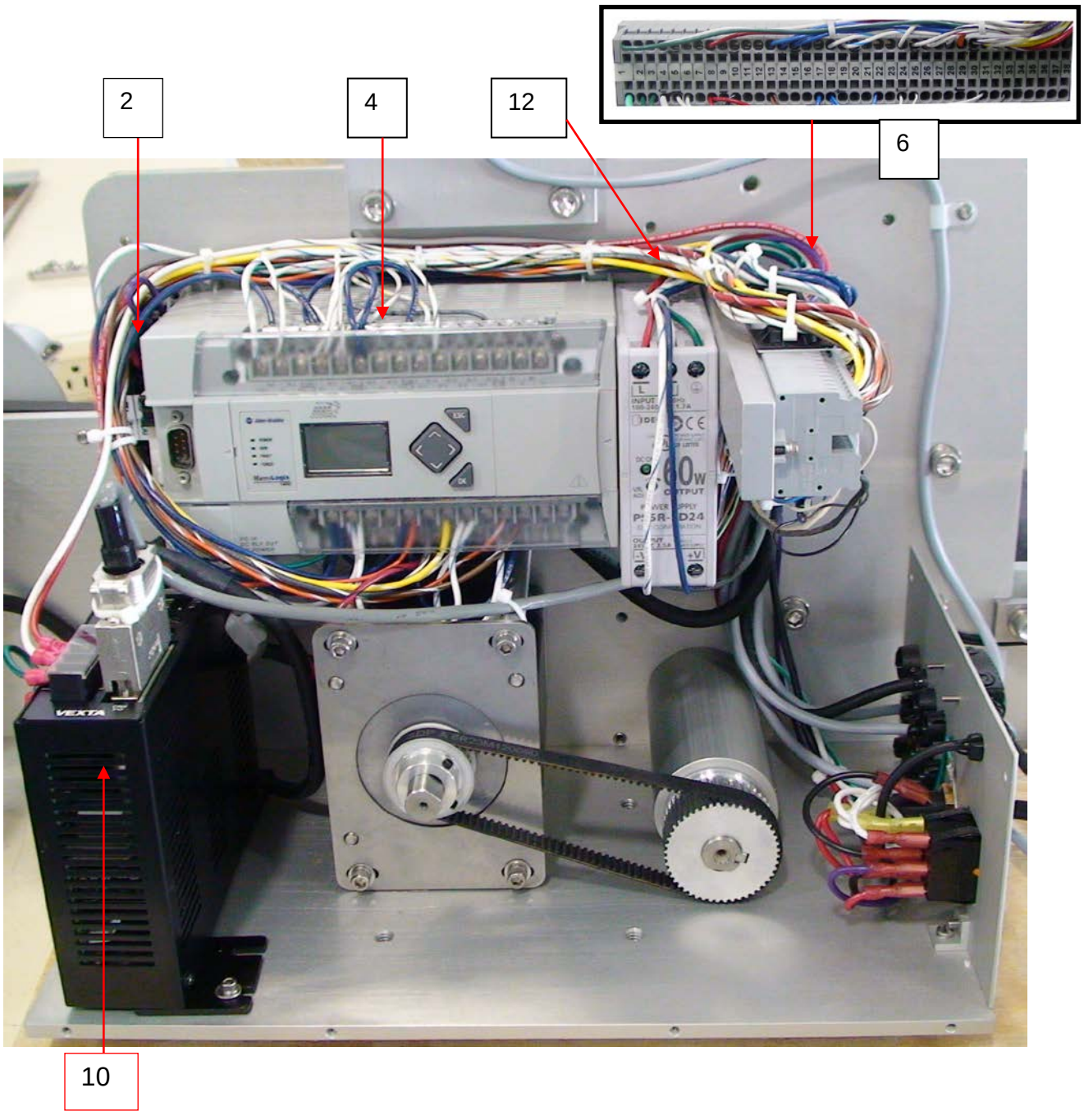
Power Rewind Assembly

ID#	QTY	PART NUMBER	DESCRIPTION
1	3	01-0011 A	Shaft,3/8x8.25 1/4-20 BE,SS
2	1	01-0059-2 B	Disc,Rewind,Candy Cane,7.25 DIA
3	1	40-0506-1034 A	Band,Brake, 13.62"
4	1	40-0542-0060	Rewind Disc Hub
5	1	40-0542-1033-1	Mount,Brake Band
6A	1	10-1191-1009 A	Hub,Back-up, Rewind
6B	1	10-1191-1010-1	Disc,Slip Clutch
6C	1	41-3013	Shaft,Power Rewind,Model 41
6D	1	41-0119-1	Assy,Sub,Roller, Rewind
6E	1	2010-1115 B	Collar,Threaded Modify
6F	1	PTBT06211200	Bearing,Thrust 5/8 Id,Torque#TB-062
6G	1	MHCS08508107	Spring,Compression,Rewind,.845 x.081x3/4
6H	1	087-1002 B	Candy Cane, 7 3/8"Lg.
7	1	41-3001	Arm,Tension
8	1	41-0500	Assy,Sub,Gearmotor Mod.40
9	3	41-3003	Roller,5/8x0.381x8.234,Phenolic
10	1	41-3006	Plate,Nut, Model 41

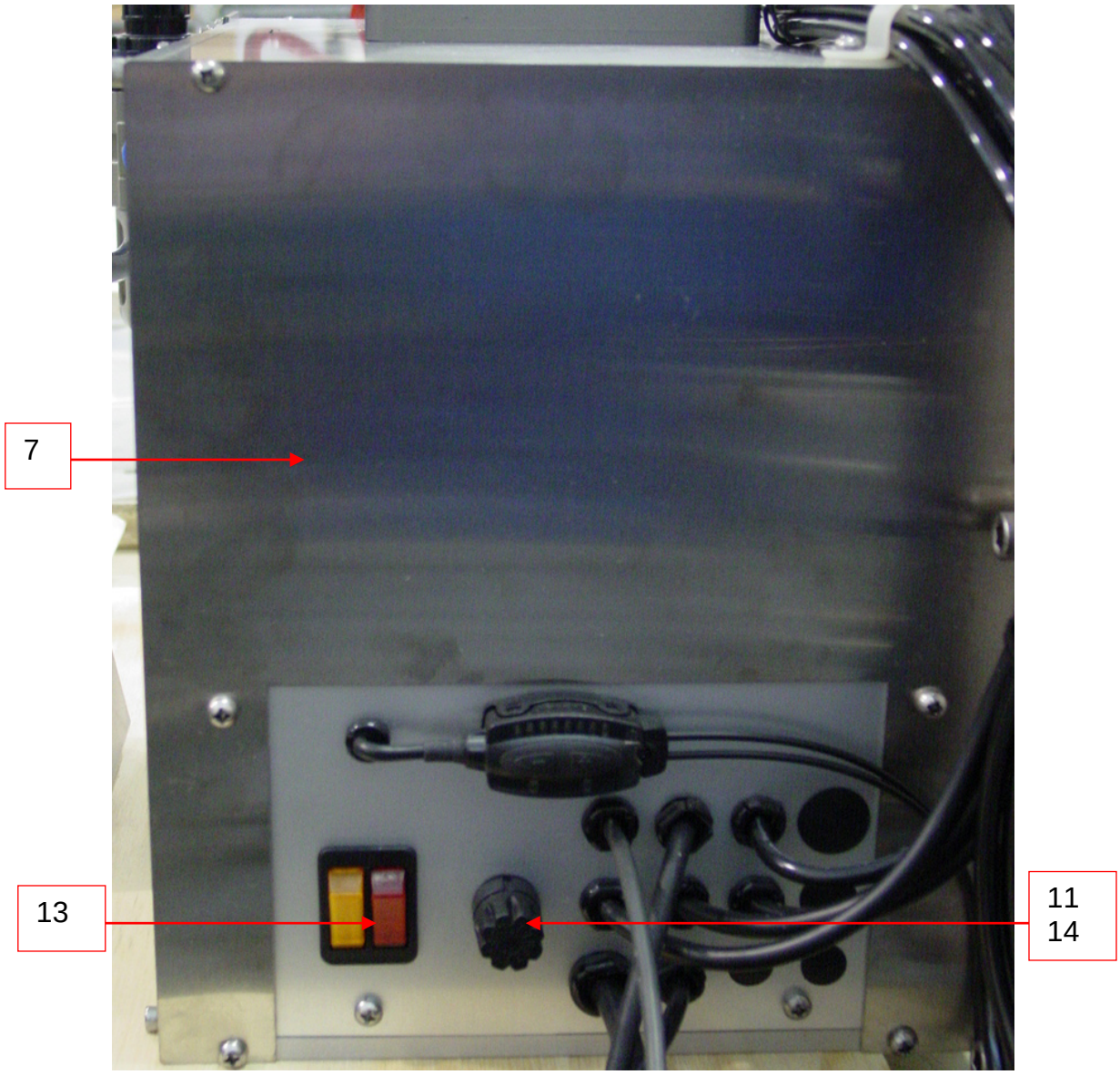
Power Rewind Assembly

ID#	QTY	PART NUMBER	DESCRIPTION
11	1	41-3026	Plate,Mounting,41 Power Rewind
12	4	41-3015	Rod,Motor Mount
13	1	41-3016	Plate,Motor Mount
14	1	41-3201-1	Spacer,3/4"OD x 17/64"ID x 0.500"L,U'Cut
15	1	FACL03701SS0	Collar,Clamp 3/8"IDx7/8"Ox3/8W,SS
16	1	MHBB03705003	Bushing,Flange 3/8x1/2x3/8 F 11/16x3/32
17	1	MHES05004948	Spring,Ext,.049WDx.500ODx3.000L
18	1	PTBB06213700	Ball Bearing 5/8 ID x 1 3/8 OD x 7/16 W.
19	2	PTBB03708700	Bearing,Ball,.375x.875x.344
20	1	41-3025	Support,Tension Arm Shaft
21	1	41-3027	Shaft,Tension Arm

Labeling Head Electrical Components



Labeling Head Electrical Components



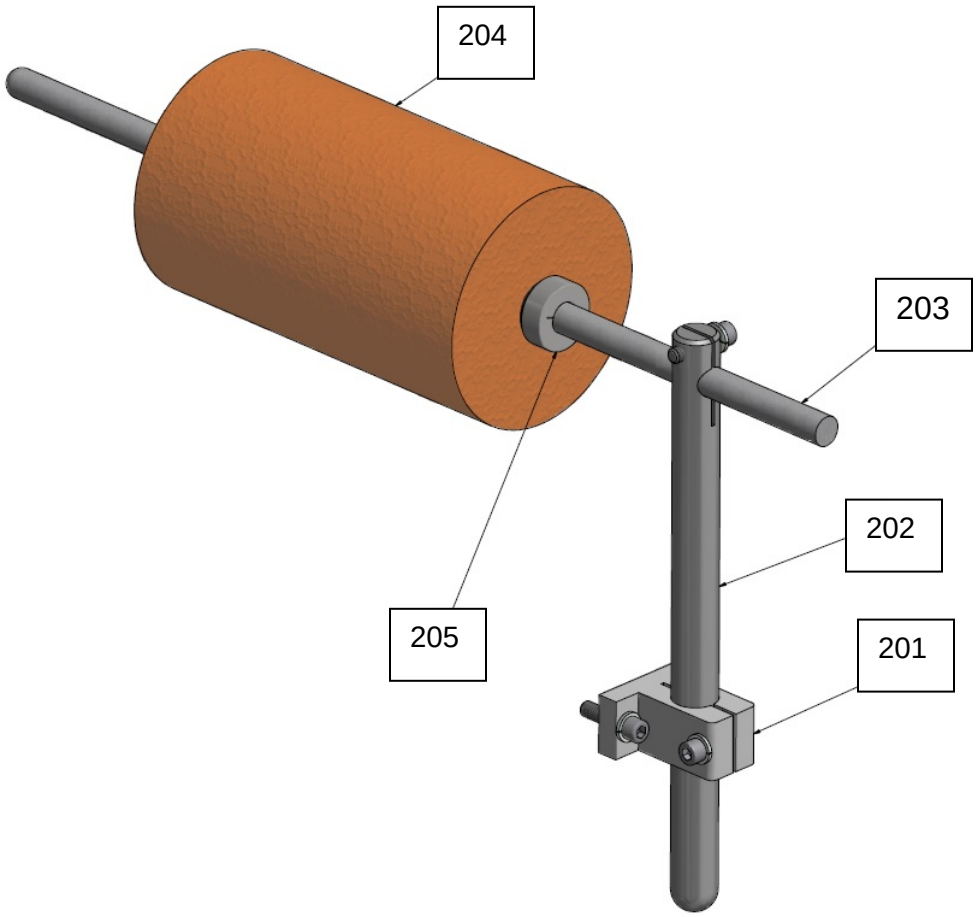
Labeling Head Electrical Components

Labeling Head Electrical Components

ID#	QTY	PART NUMBER	DESCRIPTION
1	1	1492-EBLD4	Barrier,End,Resistor Term
2	3	1492-LD4RB122	Block,Terminal,Resistor,1.2k
3	1	1761-CBL-PM02	Cable,"D"9 to Mini-DIN,RS232,2M
4	1	1766-L32BXB	Plc,20Dc in,6 Relay Out,6Dccout,24V,1400
5	1	2711C-T3M	HMI,3",SER,Touch,Mono,PVc300
6	1	41-0082-W	Assy,Terminals,40,Wago
7	1	41-2049-5	Cover,Front - AB-PVC300
8	1	41-8000	Din Rail,40
9	1	ELCBLM031801	Cable,Power,3 Cond,18AWG,w/Plug
10	1	AS911AAE	Motor,Stepper,w/Drive,Alpha,115VAC
11	1	342838	Holder,Fuse,Straight,3 Ag
12	1	PS5R-SD24	Supply,Power,24VDC,2.5A,DIN
13	1	C5503A5503ABBRA2	Switch,Rocker,Dual,Red/Amber,Neon,120VAC
14	1	3136.25	Fuse,6.25A,250V,1/4x1-1/4,Time Delay
15	1	700-HLT2Z24	Relay,24VDC,SPDT,DIN Rail,AB
16	1	41-1001-2	Enclosure,Mod.,AB-PVC-300

Secondary Roller Assembly

The Secondary Roller Assembly wipes the label onto the surface of the product.



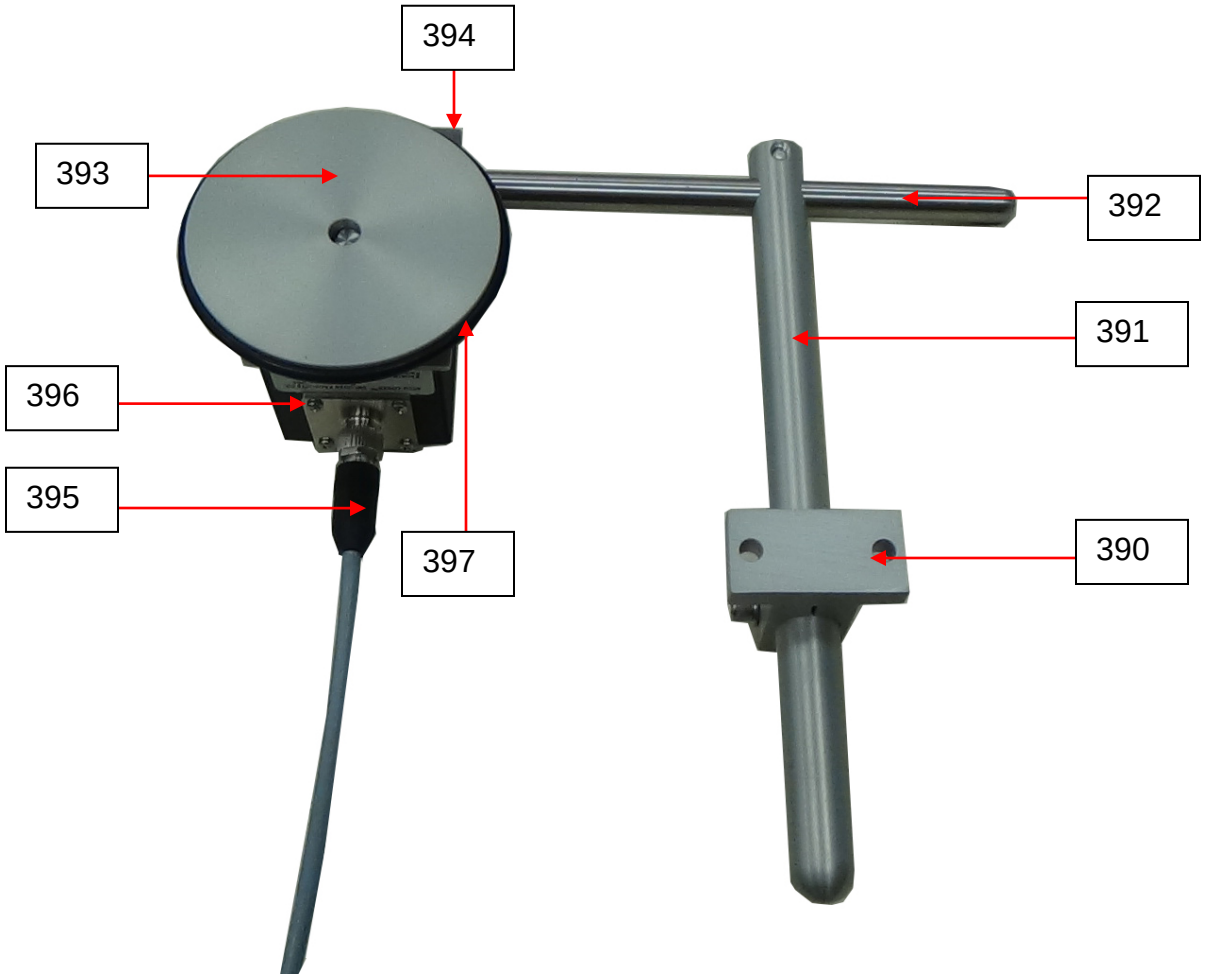
Parts List

ID#	QTY	Part Number	Description
201	1	06-1000 A	Mount,Banner
202	1	06-1001 B	Mount,Photocell Universal 10"L
203	1	40-0288-2002	Shaft,Roller
204	1	CAROS400700	Roller,Sponge 4"Dia X 7"W,Orange
205	2	FACL05001S00	Collar,Clamp 1/2"IDx1-1/8"Ox13/32,SS

SECTION D: ENCODER ASSEMBLY

An encoder provides motion control information on position, count, speed and direction. For more information see Encoder Data Sheet supplied at end of this section.

Parts Call Out



SECTION D: ENCODER ASSEMBLY

Parts Call Out

ID#	Qty	Part Number	Description
390	1	06-1000 A	Mount,Banner
391	1	06-1001 B	Mount,Photocell Universal 10"L
392	1	06-1011 B	Rod, Encoder Mounting
393	1	10-1288-1005 B	Hub,Encoder,Wheel
394	1	10-2002-3000	Plate,Encoder Mounting
395	1	7000-13221-3480500	Cable,M12,5 Cond,F,Shielded,5M
396	1	711-2000-O-S-6-S-J-N	Encoder,2000PPR,Open Coll.,24V
397	1	MHOR339001	O-Ring,Encoder,Buna-N O-Ring,AS568-339,

Model 711 Single Channel Cube

Design Features

- **The Original Industry-Standard Cube**
- **Five Versatile Housing Styles**
- **Thousands of Configurations**
- **Many New Resolutions Available!**

The Model 711 Accu-Coder™ is the original, industry standard Cube encoder. Designed for compatibility with most programmable controllers, electronic counters, motion controllers, and motor drives, it is ideally suited for applications that require a simple, symmetrical, unidirectional square wave output in a single channel format.

The new E-Cube™ version increases critical performance specifications for the most popular resolutions. The E-Cube™ features advanced Opto-ASIC circuitry, a single chip design that eliminates many board level components. This increases the reliability of an already dependable and durable encoder. With new options continually being added, the E-Cube™ just keeps getting better, and better!

Common Applications

Feedback For Counters, PLC's & Motors, Measuring For Packaging, Filling & Materials Handling Machines, Wire Winding , Film Extrusion

Model 711 Ordering Guide

Blue type indicates price adder options. Not all configuration combinations may be available. Contact Customer Service for details.

711 – 0256 – S – HD1 – 6 – S – S – N

MODEL
711 Unidirectional Cube (Single Channel)

CYCLES PER REVOLUTION (CPR)
1-2500
See *CPR Options* below for available resolutions.
(1271 and above is a price adder)

OUTPUT TYPE
S Pull-Up Resistor
O Open Collector
PP Push-Pull
HV Line Driver

HOUSING TYPE
S 2.25" Standard Housing
S1 2.25" Standard Housing with IP50 Felt Shaft Seal[1]
IND12 Industrial Housing with IP65 Shaft Seal
HD1 3" x 3" x 6" Heavy Duty Housing
HD3 Heavy Duty Housing with Conduit Connector & Terminal Strip
HD5 Heavy Duty Housing with 10 mm Outer Bearing
HD10 Heavy Duty Housing with Ultra Heavy Duty Bearings
HD12 Heavy Duty Housing with IP65 Outer Shaft Seal
HD14 Heavy Duty Housing with IP65 Shaft Seal and with Conduit Connector & Terminal Strip
5PY Standard Cube With 5PY Adaptor[9]
EX Explosion-proof Housing

SHAFT DIAMETER[2]
4 1/4", 0.250"[3]
5 5/16", 0.3125"[10]
6 3/8", 0.375"
8 1/2", 0.500"[4]
10 5/8", 0.625"[4]

SHAFT TYPE
S Single
D Double ended[5]

CONNECTOR TYPE[8]
S Standard 6-pin MS Style
Y 7-pin MS Style
X 10-pin MS Style
J 5-pin M12 (12 mm)[5]
K 8-pin M12 (12 mm)[5]
G Gland Nut - 18" Cable[6]
T Solder or Screw Terminal[7]
B Solder Terminal with Conduit Box

MATING CONNECTOR
N No Connector
Y Yes

For specification assistance call Customer Service at 1-800-366-5412

Model 711 CPR Options

Standard Cube: All resolutions from 1 to 900 except where E-Cube™ resolutions are available

E-Cube™ resolutions as follows:

0001 thru 0189*			0193	0200	0205	0210
0240	0250	0256	0276	0298	0300	0305
0308	0315	0333	0350	0360	0400	0480
0500	0512	0580	0597	0600	0700	0720
0800	0840	0960	1000	1024	1200	1250
1270	1800	2000	2048	2500		

*Contact Customer Service For Availability

Contact Customer Service for other disk resolutions; not all disk resolutions available with all output types

NOTES:
1. Available with 0.250" shaft only.
2. Contact Customer Service for custom shaft lengths and diameters.
3. Standard housing only.
4. HD10 housing only.
5. Not available for HD or EX housings.
6. For non-standard cable lengths, add a forward slash (/) plus cable length expressed in feet. Example: G/6 = 6 feet of cable.
7. Screw terminals available for HD and EX housings. Solder terminals available for S and S1 housings.
8. For Mating Connectors, Cables, and Cordsets see www.encoder.com.
9. Only available with 5/16" (0.3125") shaft.
10. Standard or 5PY housing only.

Model 711 Single Channel Cube

Model 711 Specifications
Common to All Cube Housing Styles

Electrical

Input Voltage .....E-Cube™- 4.75 to 28 VDC max for temperatures up to 85º C 4.75 to 24 VDC for temperatures between 85º C and 100º C
Standard Cube- 4.75 to 28 VDC for temperatures up to 70º C
Input Current .....80 mA maximum with no output load
Input Ripple .....100 mV peak-to-peak at 0 to 100 kHz
Output Format .....Incremental- Square wave with single channel
Output Types .....Open Collector- 250 mA max per channel
Pull-Up- 250 mA max per channel
Push-Pull- 20 mA max per channel
Line Driver- 20 mA max per channel (Meets RS 422 at 5 VDC supply)
Freq Response.....E-Cube™- 0 to 125 kHz
Standard Cube- 0 to 20 kHz
Symmetry.....180º (±18º) electrical
Rise Time.....Less than 1 microsecond
Accuracy.....E-Cube™- Within 0.05º mechanical from one cycle to any other cycle, or 3 arc minutes
Standard Cube- Within 0.1º mechanical from one cycle to any other cycle, or 6 arc minutes

Mechanical

Max Speed.....6000 RPM. Higher shaft speeds achievable, contact Customer Service.
Shaft Material.....303 stainless steel
Housing.....Black non-corrosive finished 6063-T6 aluminum
Bearings .....Precision ABEC Ball Bearings
Electrical Conn.....6-, 7-, or 10-pin MS Style, 5-, or 8-pin M12 (12 mm), Gland with 18" cable (foil and braid shield, 24 AWG conductors), Solder Terminal, or Solder Terminal with conduit box

Environmental

Operating Temp.....E-Cube™- 0º to 85º C or 0º to 100º C at 5 to 24 VDC
Standard Cube- 0º to 70º C
Storage Temp.....-25º to +85º C
Humidity.....98% RH non-condensing
Vibration.....10 g @ 58 to 500 Hz
Shock.....50 g @ 11 ms duration

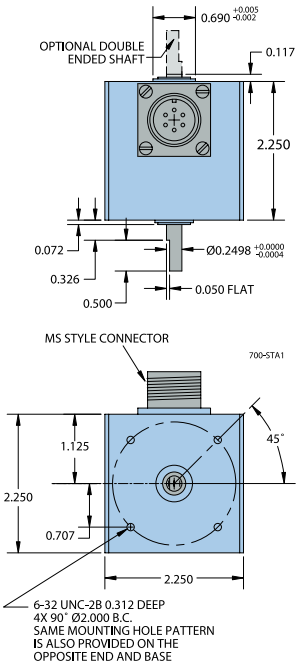
Standard Cube Housing (S, S1)

Standard Cube Housing (S, S1) Specifications

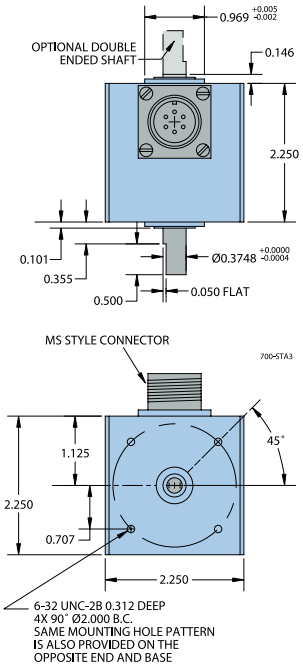
Mechanical

Shaft Size.....0.250" or 0.375"
Shaft Type.....Single or double-ended (specify choice)
Radial Loading.....15 lb maximum (0.250" diameter shaft)
40 lb maximum (0.375" diameter shaft)
Axial Loading.....10 lb maximum (0.250" diameter shaft)
30 lb maximum (0.375" diameter shaft)
Starting Torque.....0.13 oz-in typical for 0.250" shaft
0.38 oz-in typical for 0.375" shaft
Moment of Inertia.....6.5 x 10^{-6} oz-in-sec^2
Mounting.....Tapped mounting holes on three sides for base or face mounting
Weight.....10 oz for standard housing

Cube Housing With 1/4" Shaft (4)



Cube Housing With 3/8" Shaft (6)



Industrial Cube Housing (IND12)

Industrial Housing Features

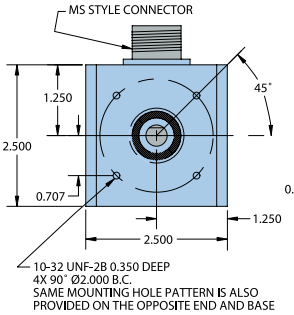
This more robust unit meets requirements between Standard and Heavy Duty housings while retaining the Cube design. The Industrial 12 (IND12) model features an IP65 shaft seal. The tough, sealed aluminum housing has a wall thickness of 0.187" and offers greater protection from wash down, sprays, dust, moisture, shock, vibration, and other hazards found in industrial environments.

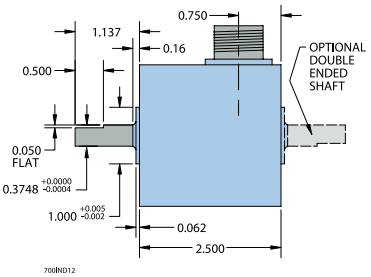
Industrial Cube Housing (IND12) Specifications

Refer to all Standard Cube Housing specifications except as follows:

Mechanical

Shaft Size.....0.375" diameter
Shaft Type .....Single- or Double-Ended Shaft Available
Radial Loading .....40 lb Maximum
Axial Loading .....30 lb Maximum
Starting Torque .....3 oz-in Starting Torque w/IP65 Shaft Seal





All dimensions are in inches with a tolerance of ±0.005" or ±0.01" unless otherwise specified

Heavy Duty Cube Housing (HD12)

The Heavy Duty housing uses a separate 0.375" diameter external shaft and bearing assembly to rotate the shaft of an internally mounted Cube Housing. This provides mechanical isolation from external loads and stress. A flexible coupling between the external shaft and the encoder protects the internal unit from axial and radial loading. The 0.250" aluminum walls protect the encoder from external shock, vibration, and the outside environment.

Heavy Duty Housing Options

- HD 1 Heavy Duty 3" X 6" housing
- HD 3 Heavy Duty w/conduit connector (threaded for 0.500" NPT Conduit) and terminal strip
- HD 5 Heavy Duty w/10 mm outer bearing
- HD 12* Heavy Duty w/IP65 rated outer shaft seal
- HD 14* Heavy Duty w/IP65 rated outer shaft seal, conduit connector (threaded for 0.500" NPT Conduit), and terminal strip

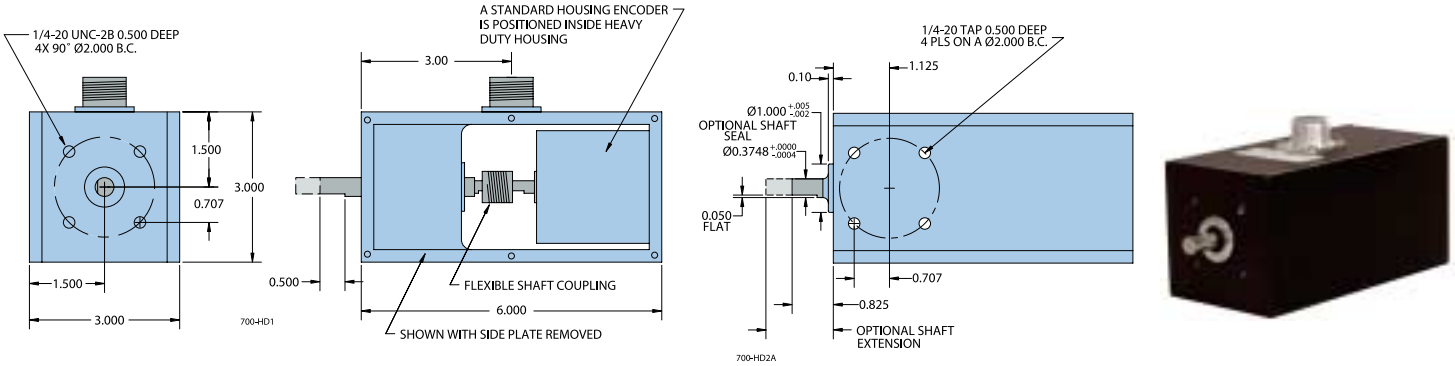
* These units have an outer boss diameter of 1.000"

Heavy Duty Cube Housing (HD12) Specifications

Refer to all cube specifications except as follows:

Mechanical

Max Speed	6000 RPM
Shaft Size	0.375"
Rotation	Either direction
Radial Loading	40 lb maximum (50 lb for HD 5)
Axial Loading	30 lb maximum (35 lb for HD 5)
Bearings	Precision ABEC ball bearings
Starting Torque	1 oz-in; 3 oz-in w/IP65 seal
Mounting	Tapped holes face and base
Weight	3.25 lb



Ultra Heavy Duty Cube Housing (HD10)

The HD 10 Ultra Heavy Duty encoder is designed for use in applications with severe shaft loading conditions. The HD 10 offers two shaft sizes: 0.500" and 0.625". Shaft material is 303 stainless steel. Bearings are conservatively rated at 95 lb radial and 60 lb axial shaft loading. IP65 shaft seal is standard on all units.

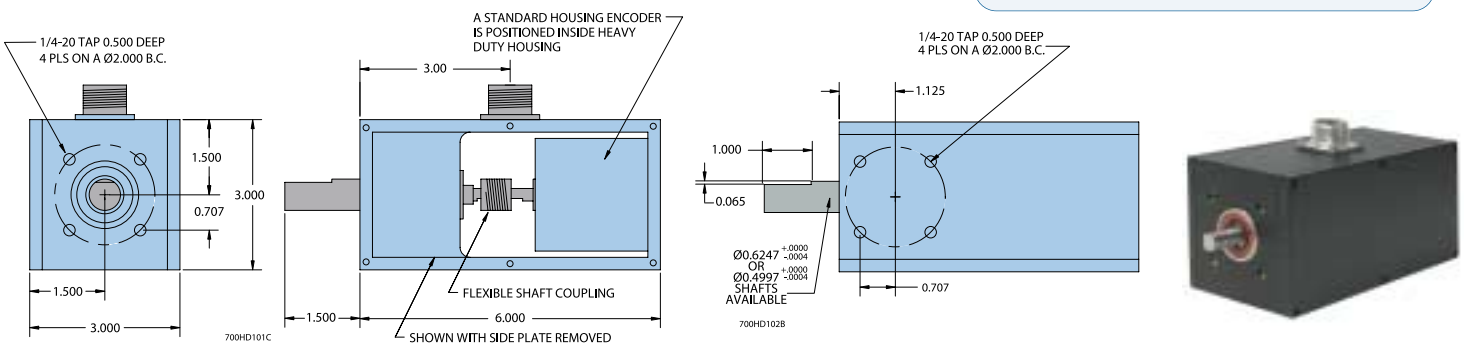
The HD 10 Ultra Heavy Duty housing uses a larger external shaft and R10 bearing assembly to rotate the shaft of an internally mounted Cube Housing. This provides mechanical isolation from external loads and stress. A flexible coupling between the external shaft and the encoder protects the internal unit from axial and radial loading. The 0.250" aluminum walls protect the encoder from external shock, vibration, and the outside environment.

Ultra Heavy Duty Cube Housing (HD 10) Specifications

Refer to all cube specifications except as follows:

Mechanical

Max Speed	6000 RPM
Shaft Size	0.500" or 0.625"
Rotation	Either direction
Radial Loading	95 lb operating
Axial Loading	60 lb operating
Bearings	ABEC precision ball bearings
Bearing Life	15,000 hours at rated load
Starting Torque	3 oz-in IP65 rated
Mounting	Tapped holes face and base
Weight	3.85 lb

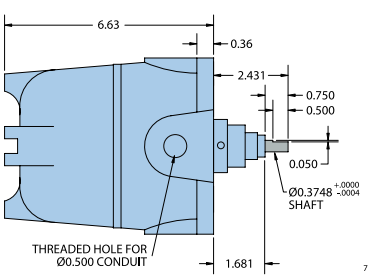


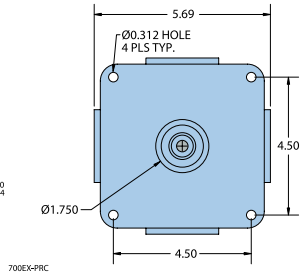
All dimensions are in inches with a tolerance of ±0.005" or ±0.01" unless otherwise specified

Model 711 Single Channel Cube

Explosion-Proof Housing (EX)

An explosion-proof housing is available for installing the Cube Series Accu-Coder™ in hazardous locations. The Cube Series encoder is mounted within the explosion-proof housing and is coupled to the 0.375" shaft assembly by a flexible shaft coupling. This decreases radial and axial loading on the internal encoder shaft and bearings to ensure long life. Electrical connection to the Accu-Coder™ is by an internal barrier terminal strip. A threaded hole for 0.500" NPT conduit is provided.





Explosion-Proof Housing (EX) Specifications

The explosion-proof housing is designed to meet the following:

NEC Class 1, Groups C and D
NEC Class 2, Groups E, F, and G
UL Standard 1203
Class 1, Division 1, Groups C and D
Class 2, Division 1, Groups E, F, and G
CSA Standard C 22.2 No. 30-M 1986
NEMA 7 and NEMA 9

Refer to all cube specifications except as follows:

Mechanical

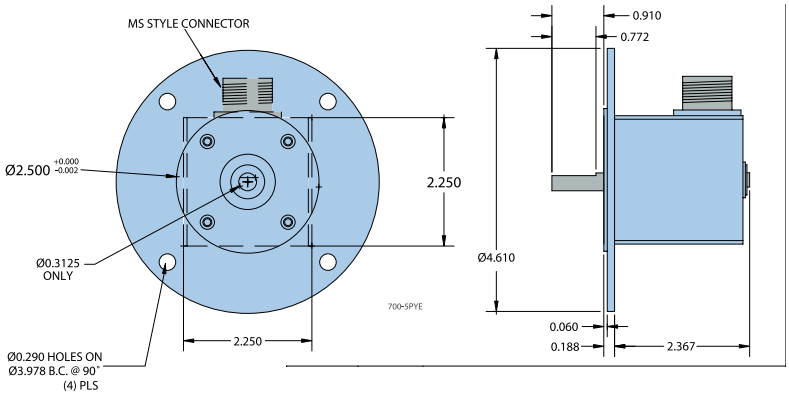
Max Speed .....4000 RPM
Radial Loading .....30 lb operating
Axial Loading .....10 lb operating
Weight .....6 lb
Finish .....Unpainted Aluminum

Cube Series Optional 5PY Adapter (175443)

The all aluminum optional 5PY adapter allows any standard housing Cube Series encoder to replace DC tachometer technology. The 5PY adapter is interchangeable with any 5PY tach generator.

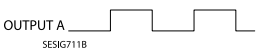
Ordering Information

Order standard housing Cube Series Accu-Coder™ with 5/16"shaft and specify Accessory Part #175443. 5PY adapter kit includes all necessary hardware to attach the adapter to the encoder.



All dimensions are in inches with a tolerance of ±0.005" or ±0.01" unless otherwise specified

Waveform Diagrams



Wiring Table

Function	Gland Cable Wire Color	5-pin M12	8-pin M12	10-pin MS	7-pin MS HV	7-pin MS O, S PP	6-pin MS HV No Index	6-pin MS O, S PP	Term. Block HV No Index	Term. Block O, S, HV, PP
Com	Black	3	7	F	F	F	A	A, F	1	1, 6
+VDC	Red	1	2	D	D	D	B	B	2	2
A	White	4	1	A	A	A	C	D	3	4
A'	Brown	----	3	H	C	----	D	----	4	----
Case	----	----	----	G	G	G	----	----	----	----
Shield	Bare	----	----	----	----	----	----	----	----	----

Rev G 01/06

SECTION D2: PRODUCT SENSORS

PRODUCT SENSING

The Series 40 labeling head can use a variety of different sensors or methods for giving the machine a start signal. The most common method of giving a start signal is with the use of a photo-electric product sensor. Alternatives to using a photo-electric sensor can be using a PLC, relay, or a mechanical switch. Any of these methods are well suited to trigger the LSI labeler.

PHOTO-ELECTRIC SENSORS

Different types of sensors can be used to detect the product. The product size, shape, and color should all be taken into consideration when selecting a product sensor. Physical limitations for mounting the sensor must also be considered. Some of the sensors more frequently used are listed in the next several pages.

Mounting

The sensor should be positioned so it detects the product as it passes in front of the sensor. For many applications the sensor would be mounted over a conveyor. When the product passes in front of the sensor it is detected and a signal is sent to start the labeling cycle. The sensor is normally mounted on an adjustable bracket which allows the sensor to be moved in the direction of product flow. Moving the sensor in the direction of product flow will change the location of the label on the product.

DIFFUSED BEAM SENSOR SM312D

This type of sensor is the most commonly used. The sensor emits a light which reflects off of the product and is then detected by the sensor. The defused beam sensor does not require the use of a reflector. This sensor works well on light colored products where there is an unobstructed area behind the product. This sensor should not be used on dark colors or transparent products.

Sensor Specifications

SUPPLY VOLTAGE: 10 to 30V dc at less than 25mA (exclusive of load). 10% maximum ripple.

OUTPUT CONFIGURATION: One current sourcing (PNP) and one current sinking (NPN) open collector transistor.

SECTION D2: PRODUCT SENSORS

PROTECTION: protected against false pulse on power-up, inductive load transients, power supply polarity reversal. Outputs are protected against continuous overload or short-circuit of outputs.

RESPONSE TIME: sensors will respond to either a "light" or a "dark" signal of 1 millisecond or longer duration, 500Hz max. (Note: 100 millisecond delay on power-up: outputs are non-conducting during this time.) Response time specification is independent of signal strength.

REPEATABILITY OF RESPONSE: 0.3 milliseconds, independent of signal strength.

LIGHT BEAM: visible red (650nm): for use with plastic fiber optics.

CONSTRUCTION: reinforced VALOX® housing, totally encapsulated, stainless steel screws. Meets NEMA standards 1, 2, 3, 3S, 4, 4X, 12, and 13.

CABLE: PVC-jacketed 4-wire cable (6' length) standard. Sensor model SM312FPQD with QD (Quick-Disconnect) connectors is also available; mating cable must be ordered separately.

ADJUSTMENTS: Light/Dark Operate select switch and 15-turn slotted brass screw Gain (sensitivity) adjustment potentiometer (clutched at both ends of travel). Both controls located on rear panel, and protected by a gasketed, clear acrylic cover.

INDICATOR LED: exclusive, patented Alignment Indicating Device system (AID™, US patent #4356393) lights a rear-panel mounted red LED indicator whenever the sensor sees a "light" condition, with a superimposed pulse rate proportional to the light signal strength (the stronger the signal, the faster the pulse rate).

OPERATING TEMPERATURE RANGE: -20 to +70 degrees C (-4 to +158 degrees F).

SECTION D2: PRODUCT SENSORS

Installation and Alignment

Proper operation of the SM312D sensor requires that it be mounted securely and aligned properly. Excessive movement or vibration can result in intermittent or false operation caused by loss of alignment. For best results, final-mount the SM312D in an 18-mm hole by its threaded barrel or use one of the available mounting brackets.

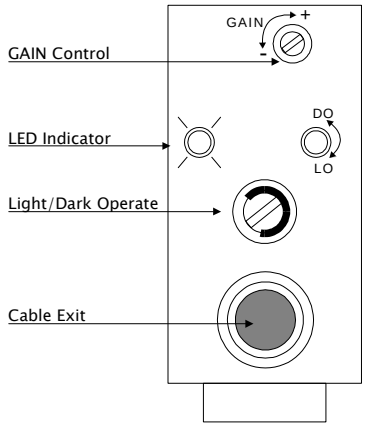
1. Begin with the sensor at the desired distance from the object to be sensed, and at the approximate position where it will be mounted. The background should be as far behind the object as possible (at least three times the distance of the sensor from the object), and as dark a color as possible compared to the object. Ideally, the object should present its largest reflective surface to the sensor.

2. Apply power to the sensor, and advance the 15-turn Gain control to maximum (clockwise end of rotation). If the sensor is "seeing" its reflected light, the sensor alignment LED should be "on". Move the sensor up-down-right-left (include angular rotation) to obtain the fastest alignment LED pulse rate. If a pulse is not observable (too fast to count), reduce the Gain control (counterclockwise rotation) to obtain a countable pulse rate.

3. Repeat the alignment motions after each Gain reduction. When you have found the sensor orientation that produces the fastest pulse rate, mount the sensor solidly in that position. Increase the receiver Gain to maximum. Test the system by removing the object from the sensing position. The receiver LED indicator should go "off". If the LED indicator does not go "off", the sensor is reacting to light reflected from a background surface. Reduce the Gain setting until the alignment indicator goes "off", plus two additional full turns. Again place the object in the sensing position. If the alignment indicator does not come "on", the sensor is receiving as much or more light energy from the background as from the object. Consider the following alternatives:

   - Move the sensor closer to the object and reduce the sensitivity (Gain);
   - Reduce background reflectivity by painting the background with flat-black paint, or by scuffing the background or cutting a hole through it;
   - Tilt the sensor or the background so that the sensing beam is not perpendicular to the background.

Sensor Rear



Adjustment

GAIN Control: 15-turn clutched turn clockwise to

AID System LED Red LED lights the sensor sees its own modulated light and pulses at a rage proportional to the light

Light/Dark Operate : In light- (control fully clockwise), the sensor conducts when an object is present. In operate (control fully counterclockwise), the output conducts when the object is

SECTION D2: PRODUCT SENSORS

RETRO-REFLECTIVE SENSOR SM312LV

This sensor is frequently used to detect products that are dark in color or in applications where the area behind the product is obstructed. This sensor requires the use of a reflector opposite of the sensor. The sensor emits a light which is reflected off of the reflector and detected by the receiver in the sensor. When the product passes through the beam of light it interrupts the signal being received by the sensor. It then gives a signal to fire the labeler.

Sensor Specifications

SUPPLY VOLTAGE: 10 to 30V dc at less than 25mA (exclusive of load). 10% maximum ripple.

OUTPUT CONFIGURATION: One current sourcing (PNP) and one current sinking (NPN) open collector transistor.

PROTECTION: protected against false pulse on power-up, inductive load transients, power supply polarity reversal. Outputs are protected against continuous overload or short-circuit of outputs.

RESPONSE TIME: sensors will respond to either a “light” or a “dark” signal of 1 millisecond or longer duration, (independent of signal strength), 500Hz max. (Note: 100 millisecond delay on power-up: outputs are non-conducting during this time

REPEATABILITY OF RESPONSE: 0.3 milliseconds, independent of signal strength.

LIGHT BEAM: visible red (650nm): model SM312LVAG has a polarizing lens filter.

CONSTRUCTION: reinforced VALOX® housing, totally encapsulated, o-ring sealing, acrylic lenses, stainless steel screws. Meets NEMA standards 1, 2, 3, 3S, 4, 4X, 12, and 13.

CABLE: PVC-jacketed 4-wire cable (6’ length) standard. Sensor model SM312LVQD and SM312LVAGQD with QD (Quick-Disconnect) connector are available; mating cable is ordered separately.

ADJUSTMENTS: Light/Dark Operate select switch and 15-turn slotted brass screw Gain (sensitivity) adjustment potentiometer (clutched at both ends of travel). Both controls located on rear panel, and protected by a gasketed, clear acrylic cover.

INDICATOR LED: exclusive, patented Alignment Indicating Device system (AID™, US patent #4356393) lights a rear-panel mounted red LED indicator whenever the sensor sees a “light” condition, with a superimposed pulse rate proportional to the light signal strength (the stronger the signal, the faster the pulse rate).

OPERATING TEMPERATURE RANGE: -20 to +70 degrees C (-4 to +158 degrees F).

SECTION D2: PRODUCT SENSORS

Installation and Alignment

Proper operation of these sensors requires that they be mounted securely and aligned properly. Excessive movement or vibration can result in intermittent or false operation caused by loss of alignment. For best results, final-mount these sensors in an 18-mm hole by their threaded barrel or use one of the available mounting brackets.

1. Begin with the sensor at the desired distance from the retro target and at the approximate position where it will be mounted. An object at the sensing position should pass through the "core" of the sensor's light beam.

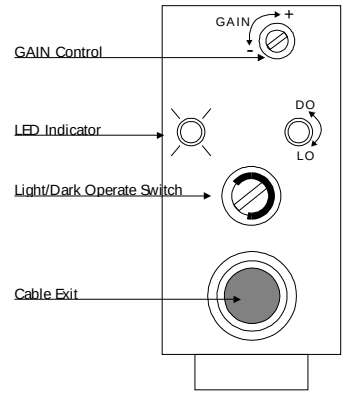
2. Apply power to the sensor, and advance the sensor's 15-turn Gain control to maximum (clockwise end of rotation). If the sensor is "seeing" the reflected light beam, the alignment LED should be "on". Move the sensor up-down-right-left to obtain the fastest receiver LED pulse rate. (Alternatively, the reflector may be moved.) If a pulse is not observable (too fast to count), reduce the Gain control (counterclockwise rotation) to obtain a countable pulse rate. (As an aid to alignment, it may be necessary to further reduce the strength of the light signal by tape-masking a portion of the retro reflective target area.)

3. Repeat the alignment motions after each Gain reduction. When you have found the sensor orientation that produces the fastest pulse rate, mount the sensor (or reflector) solidly in that position. Increase the receiver Gain to maximum. Test the system by placing the object to be detected into the sensing position. The indicator should go "off". If an "LV" model sensors indicator does not go "off" at this point, the sensor is reacting to light reflected from the object ("proxing").

   If proxing occurs, reduce the Gain setting until the alignment indicator goes "off", plus two additional full turns. Remove the object from the sensing position and check that the alignment from the sensing position and check that the alignment indicator Led come "on" and pulses at a rate of at least two beats per second. Confirm that the Led goes "off" when the object is replaced.

   It will help to mount the sensor so that it's light beam is not perpendicular to any flat reflective surfaces on the object (an angle of 10 to 15 degrees is usually sufficient). Also, at distances of a few feet or more, using more than one reflector may increase sensing contrast between object-present and object-absent.

Sensor Rear View



Adjustments:

GAIN Control: 15-turn clutched potentiometer; turn clockwise to increase.

AID System LED Indicator: Red LED lights when the sensor sees its own modulated light source, and pulses at a rage proportional to the received light signal.

Light/Dark Operate Switch In light-operate (control fully clockwise), the sensor output conduct when an object is absent. In dark-operate (control fully counterclockwise), the sensor output conduct when the object is present.

SECTION D2: PRODUCT SENSORS

CONVERGENT BEAM SENSOR SM312CV

This sensor is used the least of all the sensors listed. This sensor is color sensitive and must be mounted at close range to the area being sensed, normally within one inch. It is very useful in detecting large differences in contrast.

Sensor Specifications

SUPPLY VOLTAGE: 10 to 30V dc at less than 25mA (exclusive of load). 10% maximum ripple.

OUTPUT CONFIGURATION: One current sourcing (PNP) and one current sinking (NPN) open collector transistor.

OUTPUT RATING: 150mA maximum each output at 25°C, derated to 100mA at 70°C (derate≈1mA per°C). Output leakage current less than 1 microamp (off-state). Output saturation voltage (PNP output) less than 1 volt at 10mA and less than 2 volts at 150mA. Output saturation voltage (NPN output) less than 200 millivolts at 10mA and less than 1 volt at 150mA.

OUTPUT PROTECTION: protected against false pulse on power-up, inductive load transients, power supply polarity reversal. Outputs are protected against continuous overload or short-circuit of outputs.

RESPONSE TIME: sensors will respond to either a “light” or a “dark” signal of 1 millisecond or longer duration, (independent of signal strength), 500Hz max. (Note: 100 millisecond delay on power-up: outputs are non-conducting during this time. Response Time and Repeatability specifications are independent of signal strength.

REPEATABILITY OF RESPONSE: 0.3 milliseconds.

LIGHT BEAM: visible red (650nm); convergent beam.
SM312CV: spot size 0.05” diameter at 0.65” (16mm) focus point;
SM312CV2: spot size 0.12” diameter at 1.7” (43mm) focus point.

CONSTRUCTION: reinforced VALOX® housing, totally encapsulated, o-ring sealing, acrylic lenses, stainless steel screws. Meets NEMA standards 1, 2, 3, 3S, 4, 4X, 12, and 13.

CABLE: PVC-jacketed 4-conductor cable (6’ length) standard.

ADJUSTMENTS: Light/Dark Operate select switch and 15-turn slotted brass screw Gain (sensitivity) adjustment potentiometer (clutched at both ends of travel). Both controls located on rear panel, and protected by a gasketed, clear acrylic cover.

INDICATOR LED: exclusive, patented Alignment Indicating Device system (AID™, US patent #4356393) lights a rear-panel mounted red LED indicator whenever the sensor sees a "light" condition, with a superimposed pulse rate proportional to the light signal strength (the stronger the signal, the faster the pulse rate).

OPERATING TEMPERATURE RANGE: -20 to +70 degrees C (-4 to +158 degrees F).

Installation and Alignment

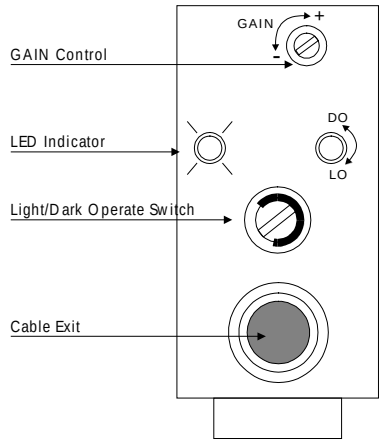
Proper operation of these sensors requires that they be mounted securely and aligned properly. Excessive movement or vibration can result in intermittent or false operation caused by loss of alignment. For best results, final-mount these sensors in an 18-mm hole by their threaded barrel or use one of the available mounting brackets.

Begin with the sensor at the approximate position where it will be mounted. With power applied to the sensor, direct its visible red spot at the object approximately 0.65" (for model SM312CV) or 1.7" (for model SM312CV2) directly in front of the lens. Move the sensor very slightly toward or away from the object while observing the red "AID" indicator on the back of the sensor. Maximum reflected light and optimum sensor alignment to the object are indicated by the fastest Led pulse rate obtainable with Gain control set at the lowest setting required to light obtainable with the Gain control set at the lowest setting required to light the Led. This should occur at the same time that the red sensing spot on the object appears most sharply defined. Mount the sensor at this position and distance.

SECTION D2: PRODUCT SENSORS

Reliable convergent sensing requires that the sensor-to-object distance be held relatively constant. This may be a critical factor, especially when highly reflective background objects are present, or when the background is close to the object. Best results will be attained under the following conditions: constant sensing distance from one object to the next, a background of low reflectivity, and the background as far from the object as possible.

Sensor Rear View



Adjustments:

GAIN Control: 15-turn clutched potentiometer; turn clockwise to increase.

LED Indicator: Red LED lights when the sensor sees its own reflected light from an object, and pulses at a rate proportional to the received light signal.

Light/Dark Operate Switch: In light-operate (control fully clockwise), the sensor outputs conduct when an object is present. In dark-operate (control fully counterclockwise), the sensor outputs conduct when the object is absentor when the darker of the two colors is sensed.

FIBER-OPTIC

Most of the sensors listed in this section are available in a fiber-optic version. The sensors will operate in the same manner as described earlier in this section. The difference is the emitter and receiver are mounted to the end of a fiber-optic cable(s). This type of scanner is used when the standard unit is too large to mount in a restrictive area.

MECHANICAL SWITCH INTERFACE

In certain applications it may be necessary to use a mechanical switch to trigger the labeling head. This is very useful in semi-automatic applications. A switch can be mounted in a fixture which holds the product. When the product is placed in the fixture it will trip the switch and trigger the machine.

Problems/Solutions

PROBLEM	PROBABLE CAUSE	SOLUTION
No Power		
	1. Machine not plugged in	Correct
	2. No main power	Correct
	3. Fuse #1 blown	Replace Fuse
	4. Main Power Switch failure	Replace Switch
	5. Internal wiring faulty or incorrect	Repair
	6. Faulty input power	Correct
Motor Fuse Blown		
	1. Defective or incorrect fuse	Replace with proper fuse
	2. Bind or jam-up in motor, drive chain or web path	Correct binding
	3. Electrical short	Inspect & correct
	4. Motor defective	Replace
No Function Auxiliary		
	1. fuse blown	Replace
	2. Aux component not connected	Connect
	3. Defective Aux control component	Replace
	4. Defective switch	Replace
	5. Defective or broken wires	Inspect & repair
No Label Feed- see Printer OEM manual		
	1. Motor not working	Check motor and wiring
	2. Failed product sensor	Replace sensor
	3. Nip roller disengaged	Release nip lift
Continuous Label Feed – see Printer OEM manual		
	1. Defective jog switch	Replace
Erratic Label Feed		
	1. Nip roller not engaged	Release nip lift
	2. Label unwind brake not installed properly	Re-adjust
	3. Adhesive built up on peeler bar	Clean
	4. Variation in motor speed	Check motor
	5. Threaded around air assist tube	Correct threading

Problems/Solutions

PROBLEM	PROBABLE CAUSE	SOLUTION
Web Breaks		
	1. Label die cut through liner partially or completely	Replace
	2. Improper threading	Check threading
	3. Web guide collar too tight or misaligned	Re-adjust
	4. Worn peeler blade	Inspect & replace
	5. Dancer arm tension too high	Reset
Rewind Does Not Work		
	1. Slip disc worn out	Replace
	2. Rewind clutch adjusted too loose	Re-adjust

CLEANING

To maintain proper operation, your labeler must be kept clean from label and adhesive build-up. During normal operation, the adhesive in the labels may transfer and build-up on the labeler. A mild solvent such as alcohol should be used to remove the adhesive. Labels should be removed, first by tearing off the label material, and then by removing the adhesive with a solvent. When removing adhesive build-up, special attention should be given to the pinch roller, peeler bar, drive roller, photocell spring steel, and any other part that comes in direct contact with the web. If the adhesive build-up is allowed to accumulate, it will affect labeling accuracy and may cause damage to the machine.

NOTE: Never use a razor or any other sharp instrument to remove labels from a roller. Doing this will damage the roller.

To clean the machine, we recommend a mild solvent such as alcohol or Texsolve. If a solvent other than alcohol is used, it should not have an oil base and should dry quickly without leaving any residue. If the solvent is too strong, it may damage the finish of the machine or deteriorate the rollers.

MAINTENANCE

LSI builds machines to require a minimum amount of maintenance. If the regular maintenance is performed, the machine will last for years. However, if maintenance is ignored, it may shorten the life of the machine. The following is a list of the required maintenance required to keep your machine in top operating condition.

1. Keep machine clean from foreign matter, label and adhesive build-up.

2. Periodically check and retighten any screws that may have vibrated loose.

3. Replace any worn or damaged parts with the correct factory replacement. Incorrect or make-shift parts may affect the proper operation of the machine.

4. The machine requires no further lubrication. Check for wear, and replace if necessary, the unwind brake belt and the rewind disc.

5. Check and adjust if necessary any chains or belts installed on the machine.

SECTION P: RECOMMENDED SPARE PARTS

Model 40.20

Qty	Item	Item Description
		Electrical 40 Head AB
2	1492-LD4RB122	Block,Terminal,Resistor,1.2k
1	3136.25	Fuse,6.25A,250V,1/4x1-1/4,Time Delay
1	342838	Holder,Fuse,Straight,3AG
1	41-PLC-AB	PLC,40,AB,Programmed,1400
1	C5503A5503ABBRA2	Switch,Rocker,Dual,Red/Amber,Neon,120VAC
1	PS5R-SD24	Supply,Power,24VDC,2.5A,DIN,Idec
1	41-1303	Pulley,3mmp, 34T, Modification
1	AS911AAE	Motor,Stepper,w/Drive,Alpha,115VAC
1	PTTB120M090	Belt,9mm Wide 120 T HTD
1	7000-12221-2140500	Cable,M12,4 Cond,F,5m,Std.
1	SM312DQDP	Sensor,Photo,DiffuseProximity Qd Pigtail
1	7000-12221-2140500	Cable,M12,4 Cond,F,5m,Std.
		Base Labeler
3	PTBB06213700	Ball Bearing 5/8 ID x 1 3/8 OD x 7/16 W.
1	9609-2044	Pulley,48 Teeth
2	MHRO06CB5001	Roller,End,Ball Bearing,"KMS Bearings"
2	PTBB05011200	Bearing,Ball,.500x1.125x.312
2	MHCSLC038C11S	Spring,Comp,.038WDx.240ODx.938L
2	PTBT05009300	Bearing,Thrust 1/2"ID,CS-Plastic Retaine
		Unwind Assembly
4	MHRO06CB5001	Roller,End,Ball Bearing,"KMS Bearings"
2	1000-1126 A	End,Roller
2	1000-1128 A	Band,Brake - 1/2x10.25
2	FACL03701SS0	Collar,Clamp 3/8"IDx7/8"Ox3/8W,SS
4	MHBB03705003	Bushing,Flange 3/8x1/2x3/8 F 11/16x3/32
2	MHES05004502	Spring,Ext,.045WDx.500ODx2.250L

Model 40.20

Qty	Item	Item Description
		Powered Rewind Assembly
1	40-0506-1034 A	Band,Brake
1	087-1002 B	Candy Cane, 7 3/8"Lg.
1	10-1191-1010 A	Disc,Felt
1	MHCS08508107	Spring,Comp 0.845 X 0.081 X 0.75
1	PTBT06211200	Bearing,Thrust 5/8 Id,Torque#TB-062
1	FACL03701SS0	Collar,Clamp 3/8"IDx7/8"Ox3/8W,SS
1	MHES05004948	Spring,Unwind
2	PTBB03708700	Bearing,Ball,.375x.875x.344
1	PTBB06213700	Bearing,Ball 0.375x0.625
1	MHBB03705003	Bushing,Flange 3/8x1/2x3/8 F 11/16x3/32
		Peeler Bar Assembly
2	MHRO06CB5001	Roller,End,Ball Bearing,"KMS Bearings"
1	9609-1061 A	Spring,Label Sensor,Pressure
1	FI22FP	Sensor,Amplifier,Thru-Beam,2m Cable
2	MHCC187000ST	Collar,Plastic Spring 1-7/8 ID
1	PIRS46UHFM	Fiber,Plastic,Aluminum Block
1	PIT66U	Fiber,Plastic,Opposed,79" Long
		Low Label/Web Break Alarm Package (Optional)
2	MQDC-406	Cable,M12,4 Cond.,F,2m
2	SM312CVQDP	Sensor,Convergent,M12 QD Pigtail
1	DL1BEB	Bulb,24VDC,Alarm,6.5W,XVB
1	XVDLS34	Alarm Red,No Bulb,50mm,w/Base
		Secondary Roller Assembly
1	CAROS400700	Roller,Sponge 4"Dia X 7"W,Orange
2	FACL05001S00	Collar,Clamp 1/2"IDx1-1/8"Ox13/32,SS

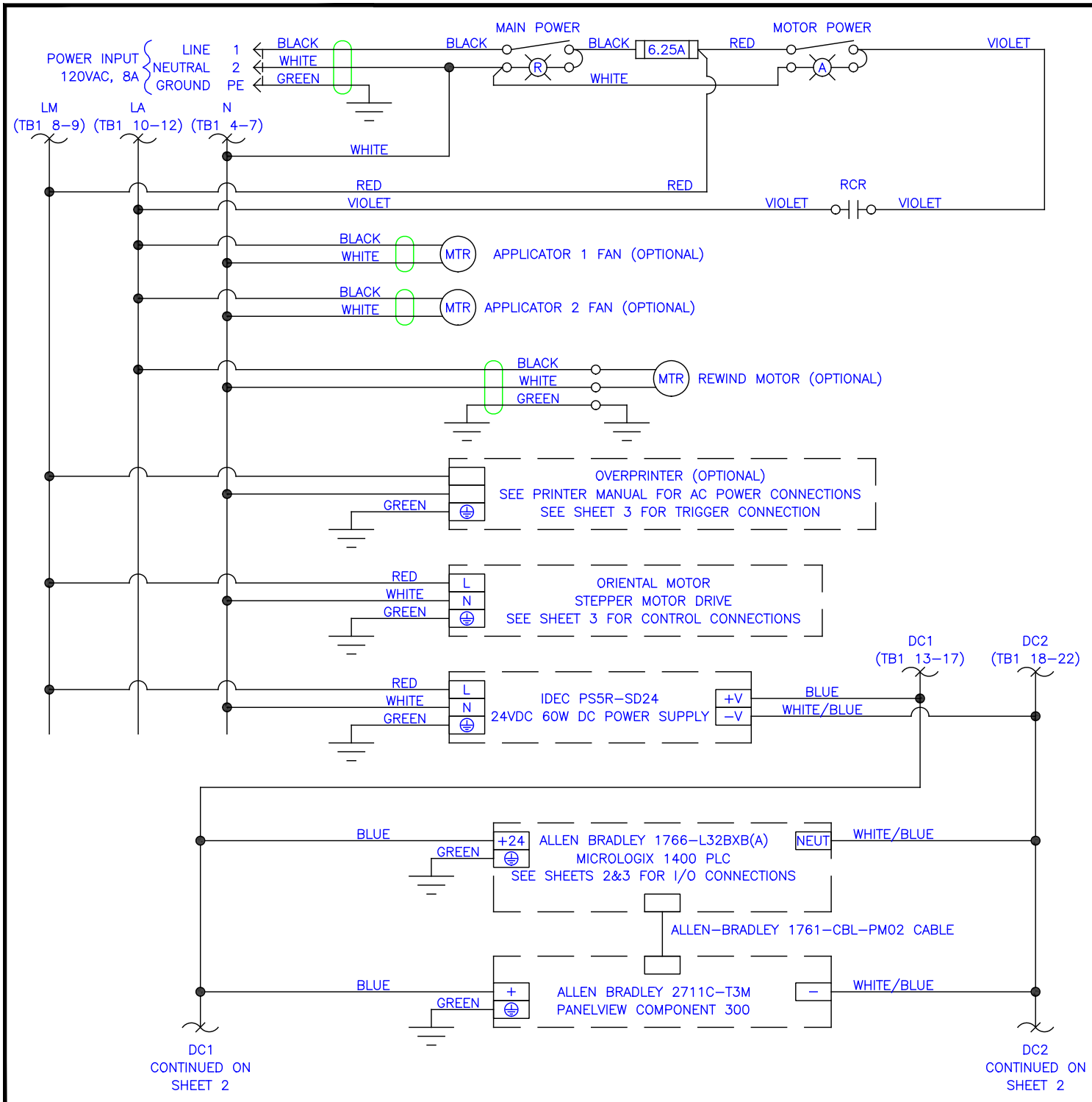
powered by Pro Mach

Appendix A

Electrical

Labeling Head

Schematics



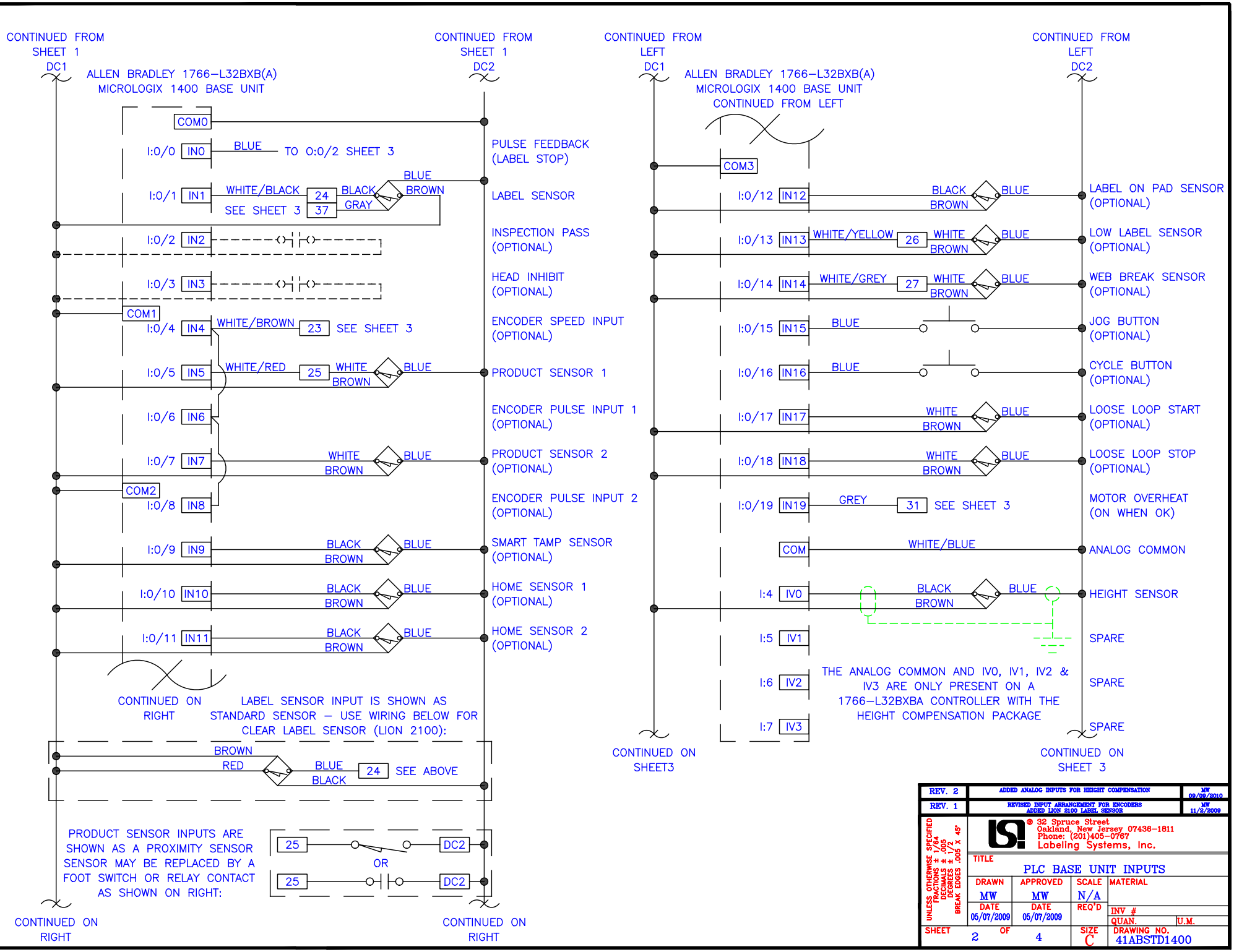
® 32 Spruce Street
Oakland, New Jersey 07436–1811
Phone: (201)405–0767
Labeling Systems, Inc.

UNLESS OTHERWISE SPECIFIED
FRACTIONS ± 1/64
DECIMALS ± .005
DEGREES ± 1/2
BREAK EDGES .005 X 45°

TITLE: POWER DISTRIBUTION

DRAWN	APPROVED	SCALE	MATERIAL
MW	MW	N/A	
DATE 05/07/2009	DATE 05/07/2009	REQ'D	INV #
			QUAN. U.M.

SHEET 1 OF 4 | SIZE C | DRAWING NO. 41ABSTD1400



REV.		
REV. 2	ADDED ANALOG INPUTS FOR HEIGHT COMPENSATION	MW 09/09/2010
REV. 1	REVISED INPUT ARRANGEMENT FOR ENCODERS ADDED LION 2100 LABEL SENSOR	MW 11/2/2009

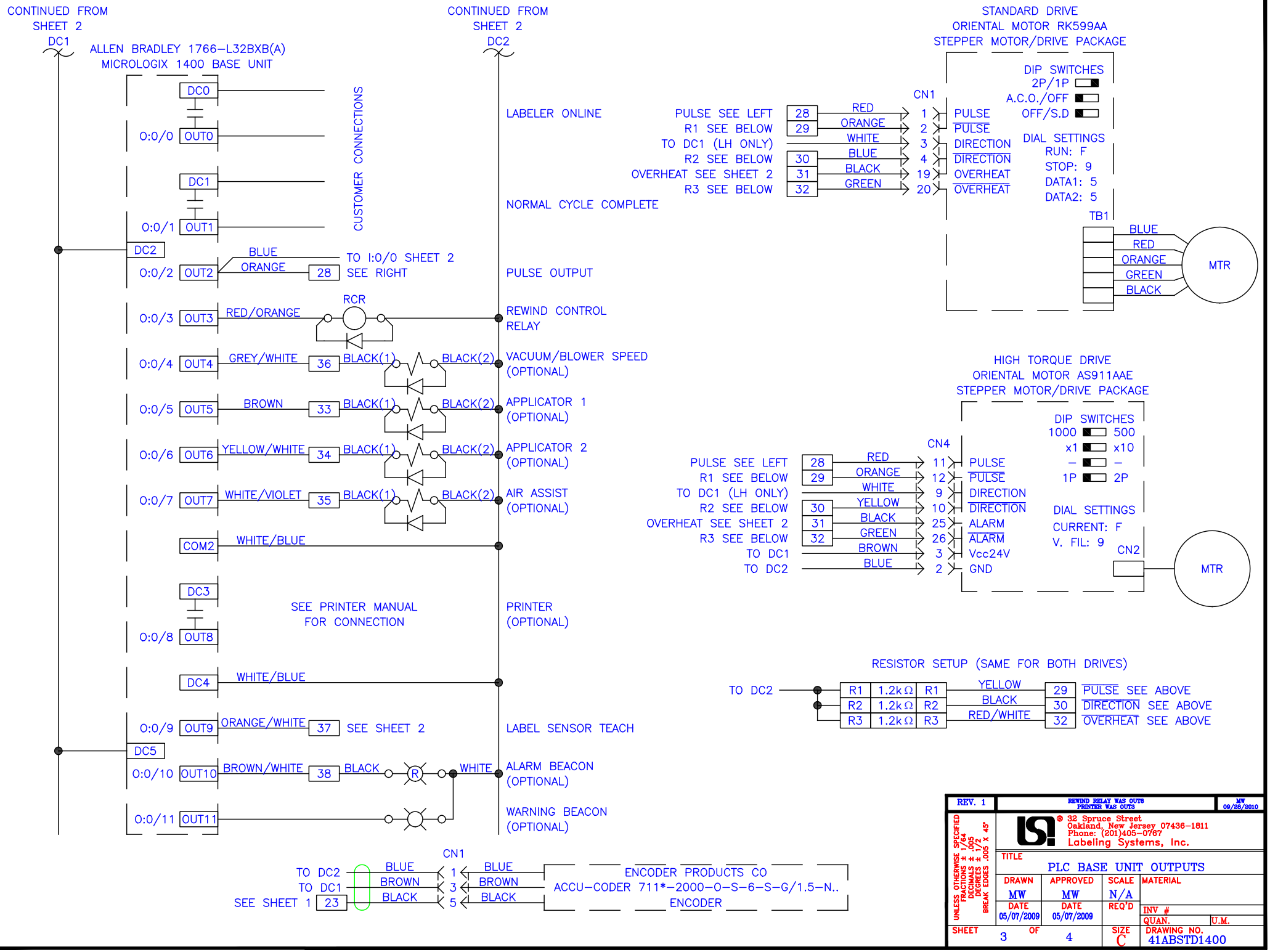
UNLESS OTHERWISE SPECIFIED
FRACTIONS ± 1/64
DECIMALS ± .005
DEGREES ± 1/2
BREAK EDGES .005 X 45°

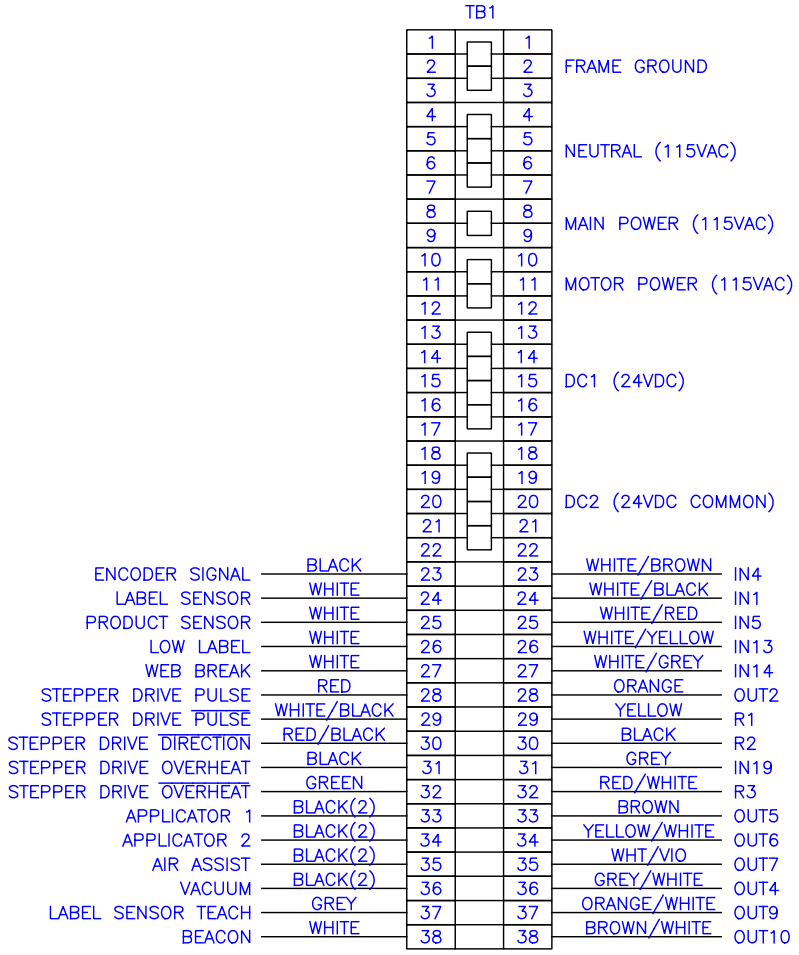
32 Spruce Street
Oakland, New Jersey 07436-1811
Phone: (201)405-0767
Labeling Systems, Inc.

TITLE: PLC BASE UNIT INPUTS

DRAWN	APPROVED	SCALE	MATERIAL
MW	MW	N/A	
DATE 05/07/2009	DATE 05/07/2009	REQ'D	INV #
			QUAN. U.M.

SHEET 2 OF 4 | SIZE C | DRAWING NO. 41ABSTD1400


CONTINUED FROM SHEET 2
DC1
ALLEN BRADLEY 1766-L32BXB(A)
MICROLOGIX 1400 BASE UNIT
DC0
0:0/0 OUT0
DC1
0:0/1 OUT1
CUSTOMER CONNECTIONS
DC2
BLUE
ORANGE
0:0/2 OUT2
28
TO I:0/0 SHEET 2
SEE RIGHT
RCR
0:0/3 OUT3
RED/ORANGE
0:0/4 OUT4
GREY/WHITE
36
BLACK(1)
BLACK(2)
0:0/5 OUT5
BROWN
33
0:0/6 OUT6
YELLOW/WHITE
34
0:0/7 OUT7
WHITE/VIOLET
35
COM2
WHITE/BLUE
DC3
0:0/8 OUT8
SEE PRINTER MANUAL
FOR CONNECTION
DC4
WHITE/BLUE
0:0/9 OUT9
ORANGE/WHITE
37
SEE SHEET 2
DC5
0:0/10 OUT10
BROWN/WHITE
38
BLACK
R
WHITE
0:0/11 OUT11
CONTINUED FROM SHEET 2
DC2
LABELER ONLINE
NORMAL CYCLE COMPLETE
PULSE OUTPUT
REWIND CONTROL RELAY
VACUUM/BLOWER SPEED (OPTIONAL)
APPLICATOR 1 (OPTIONAL)
APPLICATOR 2 (OPTIONAL)
AIR ASSIST (OPTIONAL)
PRINTER (OPTIONAL)
LABEL SENSOR TEACH
ALARM BEACON (OPTIONAL)
WARNING BEACON (OPTIONAL)
CN1
TO DC2
TO DC1
SEE SHEET 1
23
BLUE
BROWN
BLACK
1
3
5
ENCODER PRODUCTS CO
ACCU-CODER 711*-2000-O-S-6-S-G/1.5-N..
ENCODER
STANDARD DRIVE
ORIENTAL MOTOR RK599AA
STEPPER MOTOR/DRIVE PACKAGE
DIP SWITCHES
2P/1P
A.C.O./OFF
OFF/S.D
DIAL SETTINGS
RUN: F
STOP: 9
DATA1: 5
DATA2: 5
CN1
PULSE SEE LEFT
R1 SEE BELOW
TO DC1 (LH ONLY)
R2 SEE BELOW
OVERHEAT SEE SHEET 2
R3 SEE BELOW
28
29
30
31
32
RED
ORANGE
WHITE
BLUE
BLACK
GREEN
1
2
3
4
19
20
PULSE
PULSE
DIRECTION
DIRECTION
OVERHEAT
OVERHEAT
TB1
BLUE
RED
ORANGE
GREEN
BLACK
MTR
HIGH TORQUE DRIVE
ORIENTAL MOTOR AS911AAE
STEPPER MOTOR/DRIVE PACKAGE
DIP SWITCHES
1000 500
x1 x10
1P 2P
DIAL SETTINGS
CURRENT: F
V. FIL: 9
CN4
PULSE SEE LEFT
R1 SEE BELOW
TO DC1 (LH ONLY)
R2 SEE BELOW
OVERHEAT SEE SHEET 2
R3 SEE BELOW
TO DC1
TO DC2
28
29
30
31
32
RED
ORANGE
WHITE
YELLOW
BLACK
GREEN
BROWN
BLUE
11
12
9
10
25
26
3
2
PULSE
PULSE
DIRECTION
DIRECTION
ALARM
ALARM
Vcc24V
GND
CN2
MTR
RESISTOR SETUP (SAME FOR BOTH DRIVES)
TO DC2
R1 1.2kΩ R1
R2 1.2kΩ R2
R3 1.2kΩ R3
YELLOW
BLACK
RED/WHITE
29
30
32
PULSE SEE ABOVE
DIRECTION SEE ABOVE
OVERHEAT SEE ABOVE
REV. 1
REWIND RELAY WAS OUT6
PRINTER WAS OUT3
MW
09/28/2010
UNLESS OTHERWISE SPECIFIED
FRACTIONS ± 1/64
DECIMALS ± .005
DEGREES ± 1/2
BREAK EDGES .005 X 45°
32 Spruce Street
Oakland, New Jersey 07436-1811
Phone: (201)405-0767
Labeling Systems, Inc.
TITLE
PLC BASE UNIT OUTPUTS
DRAWN MW 05/07/2009
APPROVED MW 05/07/2009
SCALE N/A
MATERIAL
DATE
REQ'D
INV #
QUAN.
U.M.
SHEET 3 OF 4
SIZE C
DRAWING NO. 41ABSTD1400



UNLESS OTHERWISE SPECIFIED
FRACTIONS ± 1/64
DECIMALS ± .005
DEGREES ± 1/2
BREAK EDGES .005 X 45°

REV. 1

SHEET 4 OF 4

SIZE C

DRAWN MW 04/30/2009

APPROVED MW 04/30/2009

REQ'D N/A

SCALE

MATERIAL

INV #

QUAN.

U.M.

DRAWING NO. 41ABSTD1400

TITLE

TERMINAL BLOCK LAYOUT

TERMINAL 34 WAS PRINTER

ISI
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Labeling Systems, Inc.

MW 09/28/2010