



ID-1000
ID-10001
(Cognex DataMan Interface)

BARCODE INSPECTION, SIGNAL OUTPUT, AND REJECT
SYSTEM

OPERATOR AND MAINTENANCE MANUAL



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1. DESCRIPTION:

The ID-1000 barcode inspection system will inspect for presence of a matching and readable barcode label on a product. Barcode placement must be consistent and in full view of the entire field of view from the scanner. The system will read a barcode if it is present, of readable quality, and within the trigger and scan speed capabilities of the system. The system is controlled by a ID 1000 series automatic identification controller. The electrical enclosure is to be mounted no more than 6 feet from the system components. The electrical enclosure will need to be connected to 24VDC from the external power supply or another 24VDC supply. It will draw less than 2 amps of current at maximum operating conditions.

2. WARRANTY:

HSA USA will warranty the performance and components of the ID 1000 system for 1 year after installation. The system will meet the specifications of performance stated in the description of the system under consistent set-up. HSAUSA will not be responsible for changes in the set up of the system or modifications made to the system after the date of installation.

3. ELECTRICAL:

- ENCLOSURE** – Stainless Steel Cabinet.
- SUPPLY POWER** – 24VDC
- FUSES** – Resettable Fusing.

4. SYSTEM COMPONENTS:

STANDARD FEATURES:

- (1) ID 1000 Auto ID controller
- (1) Scanner interface – (scanner not included)
- (1) HSA-3003-4R reflex photoeye
- (1) HSA-9009-3R relay interface cable
- (1) HSA-3041 photoeye mounting bracket
- (1) HSA-3042 reflector mounting bracket

ACCESSORIES AND OPTIONS:

- (1) HSA-9082-5R three color stack light
- (1) HSA-3003-4R reflex photoeye for reject
- (1) HSA-3041 photoeye mounting bracket
- (1) HSA-3007-CYL-MF3 cylinder reject
- or:
- (1) HSA-3008-AIR-MF3 air blow reject
- (1) HSA-3005-0100-M5 encoder

RECOMMENDED SPARE PARTS:

- (1) Scanner – (Cognex DataMan) DM100
- (1) HSA-3004-4R or HSA-3003-4R trigger photoeye, reject photoeye
- (1) HSA-9115HD-FWC scanner cable, 3M
- (1) HSA-9009-3R machine relay interface cable, 3M
- (1) HSA-9082-5R three color stacklight
- (1) HSA-3007-CYL-MF3 or HMS-3008-AIR-MF3 reject mech.
- (1) HSA-3005-0100-M5 encoder



5. SYSTEM OPERATION:

READY

A green lamp will indicate the system is “Ready”. The system receives a signal from the trigger input device (typically a photoeye) to start a reading cycle. If the scanner reads a “Match” barcode it will allow the system to run.

NO READ

In the event of a “No Read” shut down condition, the machine relay interface will become active and an amber lamp will illuminate at the end of the reading cycle. A “No Read” may also activate an optional reject mechanism to discard the product from the production line. The product to be rejected may be tracked on the production line with an optional encoder to reject at a place later than the inspection area. The number of consecutive “No Read” conditions before shut down is programmable from 1-255 through the SETUP function on the controller.

Increasing the number of consecutive “No Read” or disabling the consecutive “No Read” will help prevent nuisance shut down conditions during a change in the presentation of the product to the scanner. This would be common on a machine that involves a splice or some type of change over that will vary the scanning position for a short period of time. When the setting is more than 1 consecutive “No Read” it is important to understand that there is a possibility for wrong product to pass through the system undetected. If this is the case an optional reject mechanism and encoder for tracking the “No Read” product should be implemented on the system. A reject verification sensor should also be added in order to verify the reject has taken place.

MISMATCH

In the event of a “Wrong Bar Code” condition, a steady red lamp will illuminate on the stacklight . A “Wrong Bar Code” condition will activate the machine relay interface in order to stop production or cause a reject to occur if this option is selected by the user.

RESET

The “RESET” on the front of the control panel will reset the system from a “No Read” or “Wrong Bar Code” condition. (Note: If reject is enabled, hitting reset will not reset the rejecting mechanism, and even if problem is correct with the product, the reject will still fire per reject settings. This may cause a one good product to be rejected.)

SCANNER ERROR

If the barcode scanner offers a “health” output, it can be implemented to ensure it is operating properly. If there is an absence of the “health” output from the scanner, the system will indicate this on the display as well as a flashing red lamp on the optional stack light. This condition will activate the machine relay interface preventing production.

TEACH

The system can learn a new “Match” barcode by presenting a barcode to the scanner while in the “TEACH” mode. The “TEACH” mode is activated by the “TEACH” button on the front of the controller. . The system will indicate it is in "TEACH" mode by using the HMI screen reading

“THE NEXT CODE WILL BE LEARNED” along with a flashing green lamp on the stacklight. If it does not read a bar code during the Teach cycle “No Read” will display in the “Learned Code”.

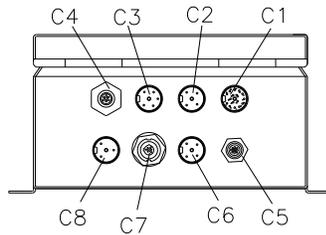
The “Teach” sequence will then need to be repeated.

INSPECTION CRITERIA: The control system is designed to meet the following conditions of the inspection criteria.

1. Confirm presence of a readable barcode on the product.
2. Confirm the barcode matches on the just scanned product to that of the taught data.
3. Provide a machine relay interface signal on “Wrong Bar Code”, after the set number of consecutive ”No Read”, or “Missing Reject” conditions.
4. Provide an optional reject output to a reject mechanism to discard any individual product producing a “No Read” condition.

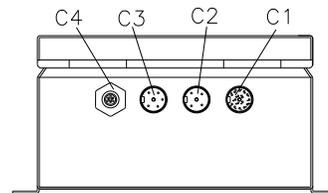
6. SYSTEM INTERFACE AND COMPONENT CONNECTIONS

The ID 1000 system is ready to interface to an external stop circuit and components. Two different models are available. Both are shown in Figure 2.



Control Component Option
ID 1000

- C1 – Scanner Interface
- C2 – Trigger Photoeye
- C3 – Stacklight
- C4 – Power Supply
- C5 – Encoder
- C6 – Reject Photoeye
- C7 – Reject Mechanism Activation
- C8 – Relay Interface

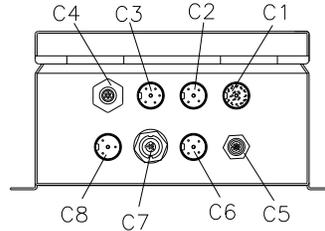


External Interface Option
ID 1001

- C1 – Scanner Interface
- C2 – External Interface
- C3 – Stacklight
- C4 – Power Supply

Figure 2. Interface connections located on back of control panel.

Control Components Model: The control components model uses individual connectors on the cabinet for all components to be attached. This section describes the connectors used on this model.



BAR CODE SCANNER (C1): The barcode scanner interface consists of a cable from the control panel that interfaces with the barcode scanner / imager. The Cognex DataMan scanner / imager has a high density DB15 male connector. This connector mates with the HSA-9115HD-15F-FWC barcode scanner cable. The scanner connections terminated inside the control panel are as follows (other variations are available, please contact manufacturer for details):

PIN #	COLOR	DESCRIPTION
1	RED	10-28VDC
2	ORG	TXD
3	LT BLU/WHT	RXD
4	WHT	PWR/SIG GND
5	BLK	TRIGGER (-)
6	RED/BLK	
7	RED/WHT	
8	GRN	
9	GRN/WHT	TRIGGER (+)
10	WHT/BLK	
11	BLK/WHT	
12	LT BLU	
13	LT BLU/BLK	
14	ORG/BLK	
15	GRN/BLK	

PC Connection to Scanner: Figure 3 shows the DB9 (J15) female connector used for direct connection from PC to scanner for scanner setup. This can be done with extension cable HSA 9109. Be sure to disconnect any cables connected to J15 and J17 labeled on board, before connecting PC to the scanner and also the connector to the HMI.

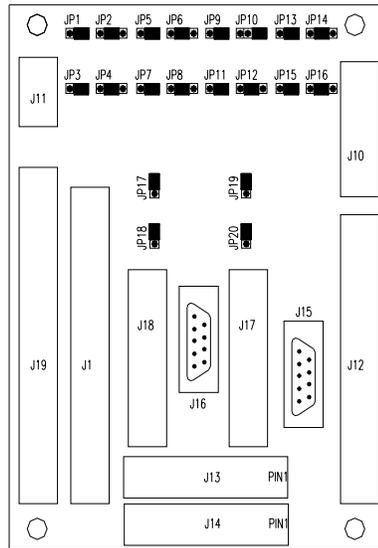
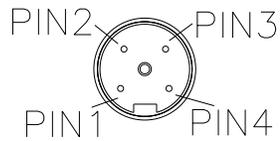


Figure 3. DB9 female connector for scanner programming can be found on the board inside the control panel labeled as J15 Serial.

TRIGGER PHOTOEYE (C2): The trigger photoeye senses the product in position for inspection. The barcode scanner will inspect for a “Match” bar code condition at the start of the trigger signal.

The system is provided with a HSA-3003-4R reflex mode NPN photoeye. A variety of other photoeyes are also available and may be used based upon conditions of a specific application. Contact your sales or service representative for photoeye options.

The following diagram shows connection to the 4 pin connector mounted in the control panel for the use of any trigger device with 24VDC power and an NPN output signal:



- PIN 1 – NPN INPUT FROM TRIGGER DEVICE
- PIN 2 – VDC COMMON
- PIN 3 – 24VDC
- PIN 4 – NO CONNECTION

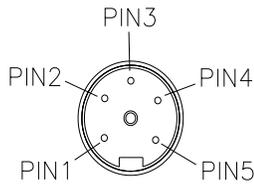
***PANEL MOUNT VIEW**

(NOTE: Because the trigger is wired directly to the external scanner or device, be cautious when selecting NPN or PNP for triggering your device.)

STACK LIGHT (C3): The optional stack light, HSA-9082-5R, interfaces with the 5 pin connector on the ID 1000 control panel. The stack light can be mounted near the control panel and offer visible indication of the system status from more points of view than the indicator screens on the front of the control panel.

The stack light has red, amber, and green lamps that match the indication of the front panel.

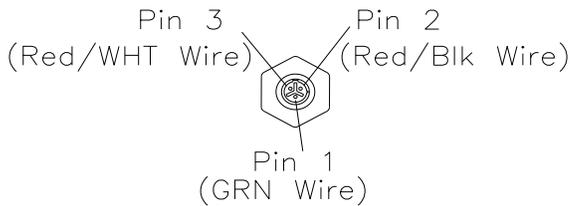
The following diagram shows connection to the 5 pin connector mounted in the control panel:



- PIN 1 – AUDIBLE ALARM
- PIN 2 – VDC COMMON
- PIN 3 – +24VDC “GREEN” SIGNAL
- PIN 4 – +24VDC “AMBER” SIGNAL
- PIN 5 – +24VDC “RED” SIGNAL

*PANEL MOUNT VIEW

POWER CONNECTOR (C4): The system is provided with a 120VAC external power supply that can be plugged in or connected to 120VAC 50/60Hz power. This power supply provides 24Vdc required of the system. Use power supply part number HSA-97-100004-15. For the external interface model, this connector is not hooked up internally as a default. The connector may be connected using the following diagram.



- PIN 1 - GND
- PIN 2 - CHAS. GND
- PIN 3 - +Vdc

ENCODER (C5): The encoder is used to track a product that has caused a “No Read”, and/or “Wrong Bar Code”, or Both conditions and needs to be rejected at a place downstream of the spot of inspection. The encoder is **NOT** included in the system and must be ordered separately.

The encoder input into the controller can be set to reject the product at a specific location as it travels away from the spot of inspection.

The resolution of the encoder and type of coupling device to the production line will determine the accuracy of the operation. The recommended encoder is the HSA-3005-2500-M5 kit w/ 2500 ppr including a wheel and mounting bracket. Resolution can be determined by the following formula:

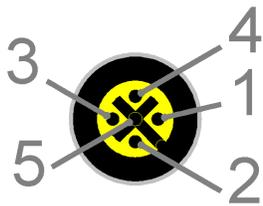
R = Resolution of one encoder pulse
C = Distance product travels revolution based on circumference of wheel
PPR = Pulses per revolution

$$R = C / PPR$$

With a 4” wheel moving at the same rate as the product (riding directly on the conveyor or shaft that is equal to the product speed) and a 2500 ppr encoder, resolution is as follows:

$$R = C / PPR$$
$$R = 4'' / 2500 \qquad \text{therefore } R = 0.0016''$$

Encoder connections on the panel are as follows:



- PIN 1 - +24 VDC
- PIN 2 – NPN INPUT FROM ENCODER
- PIN 3 – DC COMMON
- PIN 4 – NO CONNECTION
- PIN 5 - GND

*PANEL MOUNT VIEW

REJECT PHOTOEYE (C6): The reject photoeye senses the product after it has been rejected from the production line with the reject mechanism. The reject photoeye is **NOT** provided with the system and must be ordered separately.

The standard reject photoeye is the HSA-3003-4R reflex photoeye. A variety of other photoeye types are available and may be needed based upon conditions of a specific application. Contact your sales or service representative reject photoeye options.

The following diagram shows connection to the 4 pin connector mounted in the control panel for the use of any reject verify device with 24VDC power and an NPN output signal:



*PANEL MOUNT VIEW

REJECT MECHANISM (C7) The reject mechanism may discard any individual product that causes a “No Read”, and/or “Wrong Bar Code”, condition when it is enabled. The reject mechanism is not provided with the system and must be ordered separately. This connection is tied to a relay contacts and the user must supply power for the reject mechanism.

Recommended options for the reject mechanism are the HSA-3007-CYL-MF3 air cylinder, or the HSA-3008-AIR-MF3 air blast solenoid reject.

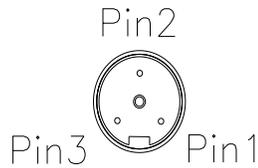
Reject mechanism panel connections:



*PANEL MOUNT VIEW

RELAY INTERFACE (C8): The relay interface offers a dry contact connection between the ID 1000 control system and production equipment. The relay interface is a three pin connector that mates with the HSA-9009-3R machine relay interface cable.

A custom interface may be provided with the following diagram of the connector mounted in the control panel:



* PANEL MOUNT VIEW

NO ALARMS (Normally Operating Mode)

- PIN 1 – RELAY COMMON
- PIN 2 – RELAY CONTACT OPEN
- PIN 3 – RELAY CONTACT CLOSED

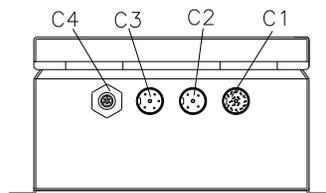
ALARMS ACTIVE

- PIN 1 – RELAY COMMON
- PIN 2 – RELAY CONTACT CLOSED
- PIN 3 – RELAY CONTACT OPEN

NO SYSTEM POWER

- PIN 1 – NO CONNECTION
- PIN 2 – RELAY CONTACT CLOSED
- PIN 3 – RELAY CONTACT OPEN

External Interface Model: The external interface uses one cable to send all control signals to the machine. This system is easy to integrate into existing wiring or controls on the machine to which it interfaces. This section describes the connectors used on this model.



BAR CODE SCANNER (C1): The barcode scanner interface consists of a cable from the control panel that interfaces with the barcode scanner / imager. The Cognex DataMan has a high density DB15 male connector. This connector mates with the HSA-9115HD-15F-FWC barcode scanner cable. The scanner connections terminated inside the control panel are as follows (other variations are available, please contact manufacturer for details):

PIN #	COLOR	DESCRIPTION
1	BLK	10-28VDC
2	ORG	TXD
3	LT BLU/WHT	RXD
4	WHT	PWR/SIG GND
5	GRN	TRIGGER (-)
6		
7		
8		
9	LT BLU/BLK	TRIGGER (+)
10		
11		
12		
13		
14		
15		

PC Connection to Scanner: Figure 4 shows the DB9 (J15) female connector used for direct connection from PC to scanner. This can be done with extension cable HSA-9109. Be sure to disconnect any cables connected to J15 and J17 labeled on board, before connecting PC to the scanner.

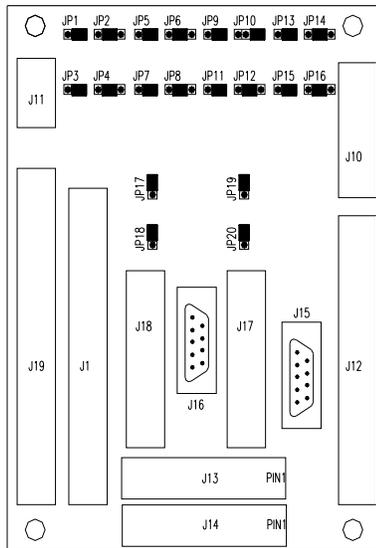
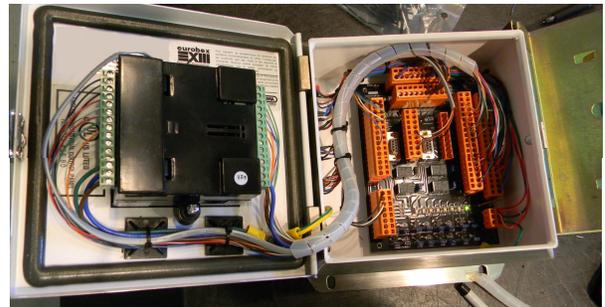


Figure 4. DB9 female connector for scanner programming can be found on the board inside the control panel labeled as J15 Serial.



EXTERNAL INTERFACE (C2): The HSA-9115-RDE-F-10M cable is used for interfacing the machine. Each pin on the connector has the control signals used for interfacing. The chart below indicated the wire colors associated with the control signals.

PIN #	COLOR	DESCRIPTION
A	RED	System Trigger
B	ORG	Reject Detect
C	LT BLU/WHT	Encoder
D	WHT	PWR/SIG GND
E	BLK	Chas. GND
G	RED/BLK	Relay 1 (COM)
H	RED/WHT	Relay 1 (see connection notes)
I	GRN	Relay 1 (see connection notes)
R	GRN/WHT	Relay 2 (COM) (Reject)
K	WHT/BLK	Relay 2 (NO) (Reject)
L	BLK/WHT	Relay 2 (NC) (Reject)
M	LT BLU	24VDC
N	LT BLU/BLK	Spare
O	ORG/BLK	Spare
P	GRN/BLK	Spare

Installation Notes:

-System Trigger – User must supply 24Vdc PNP or NPN signal to trigger controller.

-Reject Detect – Used for detection of rejected product, user must supply 24Vdc PNP or NPN signal to signal controller.

-Encoder – User must supply 24Vdc NPN open collector encoder signal

-PWR/SIG GND –DC COM.

-Chas. Gnd – Common connection point to the chassis on the system.

-Relay1 Machine Stop Interface internal wire colors –

NO ALARMS (Normally Operating Mode)

RED/BLK – RELAY COMMON
 GRN – RELAY CONTACT OPEN
 RED/WHT – RELAY CONTACT CLOSED

ALARMS ACTIVE

RED/BLK – RELAY COMMON
 GRN – RELAY CONTACT CLOSED
 RED/WHT – RELAY CONTACT OPEN

-Relay 3 Power Relay internal wire colors

SYSTEM POWER ON:

RED/BLK – RELAY COMMON
 GRN – RELAY CONTACT CLOSED
 RED/WHT – RELAY CONTACT OPEN



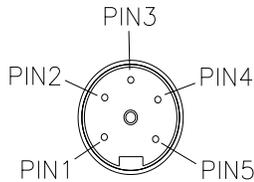
- Relay2 –Reject mechanism dry contact signal interface. +24VDC and DC Com can be sourced from terminals on J13 and J14 if needed for a reject device. An external source can also be used to supply power to a device as relay connections for the dry contact are as follows

- NO ALARMS (Normally Operating Mode)**
 RED/BLK – RELAY COMMON
 GRN – RELAY CONTACT OPEN
 RED/WHT – RELAY CONTACT CLOSED
- ALARMS ACTIVE**
 RED/BLK – RELAY COMMON
 GRN – RELAY CONTACT CLOSED
 RED/WHT – RELAY CONTACT OPEN

STACKLIGHT (C3): The optional stack light, HSA-9082-5R, interfaces with the 5 pin connector on the ID 1000 control panel. The stack light can be mounted near the control panel and offer visible indication of the system status longer range than the indicator screens on the front of the control panel.

The stack light has red, amber, and green lamps that match the indication of the front panel.

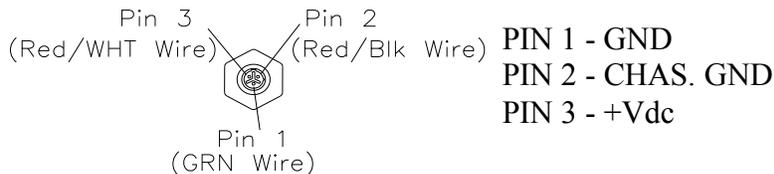
The following diagram shows connection to the 5 pin connector mounted in the control panel:



- PIN 1 – AUDIBLE ALARM
- PIN 2 – VDC COMMON
- PIN 3 – +24VDC “GREEN” SIGNAL
- PIN 4 – +24VDC “AMBER” SIGNAL
- PIN 5 – +24VDC “RED” SIGNAL

*PANEL MOUNT VIEW

POWER CONNECTOR (C4): The system is provided with a 120VAC external power supply that can be plugged in or connected to 120VAC 50/60Hz power. This power supply sources 24VDC. Use power supply part number H-9724-MF3. For the external interface (XI) model, the external connector can be used but is not connected internally as default configuration to prevent damage from accidental connection to multiple power sources.



- PIN 1 - GND
- PIN 2 - CHAS. GND
- PIN 3 - +Vdc

7. CONTROLLER:

The system is controlled by a 100 series Auto ID Controller:

SYSTEM INPUTS:

I0- Photoeye, "Trigger"
I1- Spare
I2- Encoder
I3- Photoeye, "Reject Verify"
I4- Spare
I5- "Wrong Code"
I6- "No Read"
I7- "Scanner Health"

SYSTEM OUTPUTS:

Q0- Relay (Machine Interface)
Q1- Reject Output
Q2- Power Detect Relay
Q3- Spare
Q4- Red Lamp
Q5- Amber Lamp
Q6- Green Lamp
Q7- Audible Alarm

SCANNER OUTPUTS:

OUT1- "Wrong Code"
OUT2- "No Read"
OUT3- "Scanner Ready"

(The Scanner Outputs are setup in the scanner setup program.)

8. INSTALLATION AND SERVICE

CONTROL PANEL MOUNTING:

-The control panel should be mounted within range of the cables connecting the relay interface cable, trigger photoeye, stack light, reject photoeye, reject mechanism, encoder, and scanner. Standard cable lengths are 3 meters. The cables will require enough extra slack to be secured to the chassis of equipment. **Therefore, mounting of the system components will need to be closer to the control panel than the actual cable length.**

-The control panel should be mounted with indicators in view of the production personnel or equipped with a stack light in view of the production personnel.

CONNECTING POWER:

-The system is provided with a 120VAC external power supply that can be plugged in or connected to 120VAC 50/60Hz power.

MACHINE RELAY INTERFACE CONNECTION:

-Use the HSA-9009-3R cable to interface with production equipment to stop production. The HSA-9009-3R can be connected to the control panel with the three pin mini connector attached to it. The following dry contact relay connections are available from the leads at the end of the HSA-9009-3R cable:

NO ALARMS (Normally Operating Mode)

BLK(PIN1) – RELAY COMMON

BLU(PIN2) – RELAY CONTACT OPEN

BRN(PIN3) – RELAY CONTACT CLOSED

ALARMS ACTIVE

BLK(PIN1) – RELAY COMMON

BLU(PIN2) – RELAY CONTACT CLOSED

BRN(PIN3) – RELAY CONTACT OPEN

NO SYSTEM POWER

BLK(PIN1) – NO CONNECTION

BLU(PIN2) – RELAY CONTACT CLOSED

BRN(PIN3) – RELAY CONTACT OPEN

TRIGGER PHOTOEYE MOUNTING:

-Mounting of the trigger photoeye and the scanner should be related to allow an entire visible barcode to be seen by the scanner during the trigger cycle. The scanner will be triggered for the entire duration that the photoeye senses a product. The following picture shows the relation of the photoeye aligned with the scanner so that when a package is sensed the scanner will be triggered. The photoeye cable is to be connected to the 4 pin mini connector on the back of the panel.

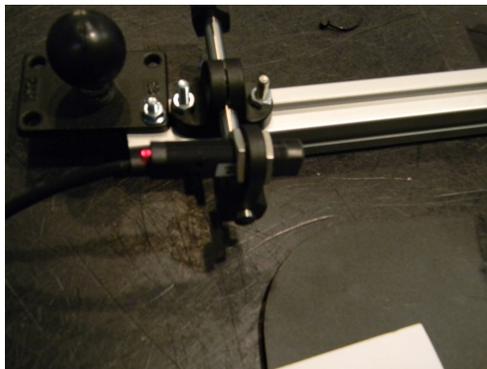


Figure 5. Photoeye is mounted to trigger scanner on the leading edge of product. The scanner / imager should view the entire barcode at the trigger point.

STACKLIGHT:

- Mount the stack light in a visible place using the right angle bracket supplied with the stack light assembly. Connect the stack light to the 5 pin connector on the back of the panel.

REJECT PHOTOEYE:

- Mount the reject photoeye in a position where any rejected product will pass through the sensing range of the reject photoeye.
- The reject photoeye must see a rejected product after the reject mechanism has been activated.
- The reject photoeye is intended to alert a problem with the reject mechanism or production line that will not allow a product to be rejected. If a product is not sensed by the reject photoeye the system will activate the machine relay interface and flash the yellow lamp on the control panel. Connect the reject photoeye to the bottom 4 pin connector on back of panel.

REJECT MECHANISM:

- Two standard reject mechanisms are available: HSA-3007CYL-MF3, air cylinder reject or the HSA-3008AIR-MF3, air blow reject.
- The reject mechanism should be mounted within 10 feet of the barcode inspection area. A product to be rejected from a “No Read”, “Wrong Bar Code” or Both condition will be tracked with the encoder to the position of the reject mechanism after it leaves the inspection area.
- The use of the encoder may be eliminated if the reject mechanism is mounted directly after the inspection area and the signal is programmed to trigger after the reading gate on a “No Read”, “Wrong Bar Code” or Both condition.
- The reject mechanism should be mounted in a position where it will contact the product in the center of its mass. The opposite side of the reject mechanism should be a clear area to allow the product to be clearly rejected from the production line. See figure 6 for example of HSA-3007CYL-MF3, air cylinder reject mechanism mounting.



Figure 6. Reject Mechanism Mounting

ENCODER:

-The encoder needs to be coupled to the drive system that the product is moving on. The HSA-3005-2500-M5 encoder includes a standard mounting bracket and encoder wheel. The wheel may be installed to ride directly on a conveyor belt or roller that is related directly to the distance traveled by the product. If the ratio of the distance traveled by the product equals the distance traveled by the wheel, then one revolution of the encoder wheel equal distance traveled by the product on the production line. Figure 7 shows a direct conveyor mount using the 12” encoder wheel:

Figure 7. Direct conveyor encoder mounting



-The system will then need to be programmed with the reject distance:

The distance from the spot of inspection to the spot of rejection can be programmed into the controller using the following formula:

W = ratio of the distance traveled by the wheel: distance traveled by the product

R = Resolution of encoder

D = Distance from point of inspection to point of rejection

PI = Pulse inputs from Detection to point of rejection

$$PI = D / R$$

Example: If W=1, R = 0.0016” and D = 24” then

$$PI = (D / R) \times W$$

$$PI = (24” / 0.0016”) \times 1 = 15,000$$

-This value is to be entered in the controller program as the **“Reject Distance in Pulses”**. This can be found in the setup menus in the controller.

BAR CODE SCANNER:

-The bar code scanner should be mounted 2-4” inches from the product for optimum reading results. The scanner should also be at 15-20° angle off of a perpendicular line from the face of the scanner to the barcode to be read. See figure 8 below:

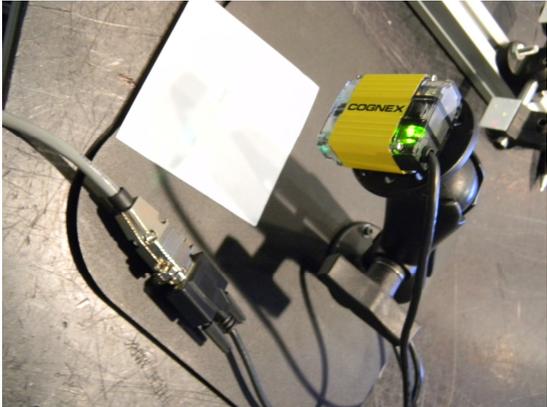
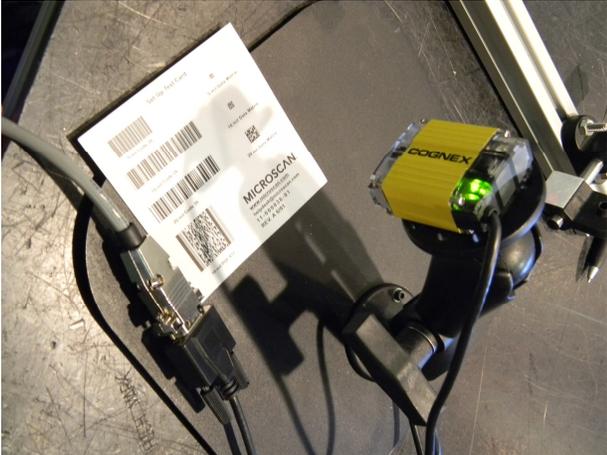


Figure 8. Scanner / imager mounted at 15-20° angle off perpendicular line from scanner face to barcode and a distance of 2-4” from scanner to barcode. Focal distance of scanner imager must be configured with Cognex software.

Figure 9. Correct scanner imager mounting with bar code in view of field of view upon trigger.



9. DISPLAY, INDICATORS, NAVIGATION AND DEFINITIONS (SPECIAL FEATURES)

OPTIONAL STACKLIGHT INDICATION:

- MISMATCH - Steady Red
- SCANNER NOT READY – Flashing Red
- NO READ – Steady Amber
- MISSING REJECT – Flashing Amber
- REJECT ERROR – Flashing Amber
- TRIGGER ERROR – Flashing Amber
- READY – Steady Green
- TEACH – Flashing Green

The diagram shown in Figure 12 shows the location and names of the buttons on the ID 1000 Series controller. The following section describes what each of the buttons does, and how to navigate into and out of screens, and indicates what each screen is intended for.

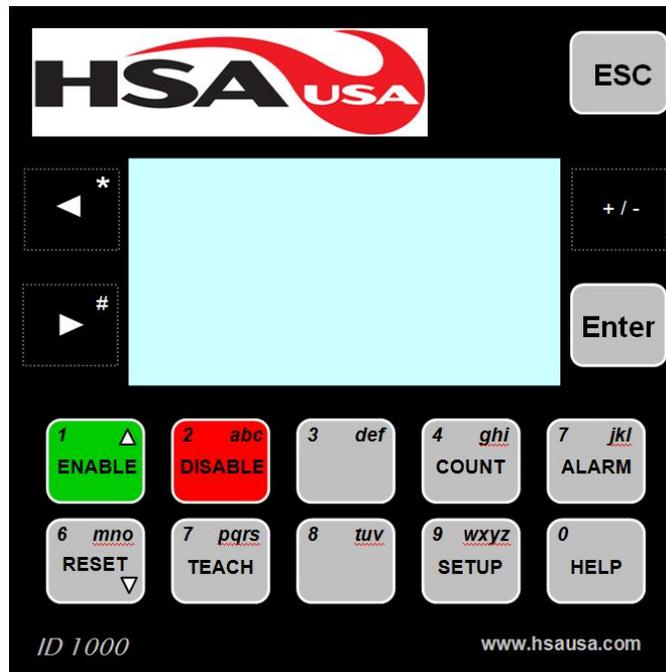


FIGURE 12. Control Buttons

BUTTONS:



Use this Button to Go Back from the Current Screen to a Screen that was Previously Displayed.



These Buttons are used for navigating screens and for data entry.



Use this Button to accept a Data Entry as valid. When pressed, the data entered is stored into memory.



Use this Button to Enable the system after it has been Disabled. This button puts The system back into normal operation.



Use this Button to Disable the system. Disabling the system does not affect the machine interface relay and disables all functions going to the controller, except the setup, count, help, and alarm keys. This button may be password protected as defined in password setup options.



Use this key to display current count values such as the following:

- Triggers
- MisMatches
- NoReads
- Matches
- Consecutive NoRead Alarms
- No Rejects Detected
- Trig. P.E. Alarms
- Rejt. P.E. Alarms
- Scanner Errors

The counts may be reset using the “RESET” key while in the count screen. This feature may be password protected as defined in password setup options.



Use this Button to Display Alarms that have occurred. Up to 999 alarms may be displayed in the buffer and scrolled through using the arrow keys. The alarms may be deleted using the option in the setup menu. Note that this will clear all alarm information.



Use this Button to Reset Alarms and Reset Counts in the count screen. This button may be password protected when using it in combination with the count screen as defined in password setup options.

7 pqrs
TEACH

Use this button to teach a new Barcode. This is normally done by pressing the teach button, placing the barcode of interest in front of the scanner, and triggering the scanner. Once in teach mode, the only way to escape is to recycle power. This button may be password protected as defined in password setup options.

9 wxyz
SETUP

This button setups the following parameters:

- Consecutive No Reads before Alarm
- Timed PE Error before Alarm
- Timed NoReject Detected before Alarm
- Password Enable/Disable
- Change Passwords
- Reject Method for No Read, MisMatches, Both, or Disable
- Disable Reject PE
- Setup Encoder Distance to Reject
- Setup Timed Distance to Reject
- Clear Alarm History
- Reject On Duration

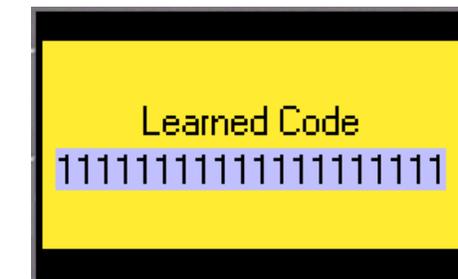
This button is ALWAYS password protected as defined in password setup options.

0
HELP

Use this button to display various help topics including Software Ver and Contact information.

DISPLAYS:

Learned Code Display (Default Start Up Display) – This display indicates the code that the scanner presently learned. This displays the code that all codes will be compared too.



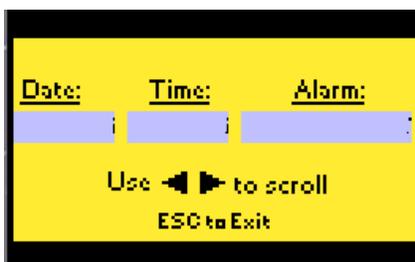
System Stopped – This display indicates the system is presently in stop condition. The machine interface relay is not affected, but all other operations are disabled. The system was stopped by pressing the disable key, which may be password protected. The only keys that will affect this screen are the setup, help, alarm, and enable keys.

*Press Disable Key to
Enter this Screen
Password Protected*



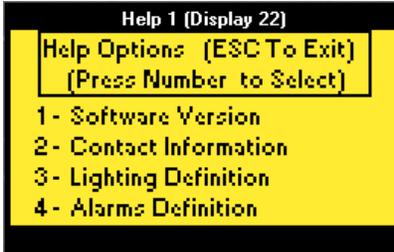
Alarm History – This display shows the alarm history. It indicates alarms that have occurred with the data and time of occurrence. Use the Alarm button to enter this screen and the left/right arrows to scroll through the alarm history. Notice only one alarm is shown at a time.

*Press Alarm Key to
Enter this Screen
(Esc to Return)*



Help Screen – This display shows various help options. Use the help key to enter this screen. Press the number you want to view. Once in that option selection, use the arrows to scroll through the various displays. Use escape to return back to a previous area.

*Press Help Key to
Enter this Screen
(Esc to Return)*



Next Code will be Learned – This display indicates that the teach function is in process. Use the teach key to enter this screen, which may be password protected. Once in this mode, the only way to exit is to either complete the teach function (See Teach Button Section) or to recycle power.

*Press Teach Key to
Enter this Screen
Password Protected*



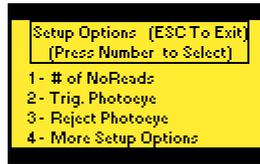
ALARM SCREEN – This display shows the current alarms and will activate the machine interface relay. Use the left/right arrows to see if there are more alarms pending. Pressing reset acknowledges all alarms and clears them. If not, then troubleshooting will have to be performed on the indicated problem indicated by the alarm. The following alarms are indicated:

- | | |
|--------------------|--------------------|
| Consecutive NoRead | Rejt. PE Error |
| Mismatch | No Reject Detected |
| Trig. PE Error | Stack Overflow |
| | Stack Data Move |



Setup Options Menus– These menus allow user to choose adjustments to the settings in the controller. The following section shows how to navigate and what each screen does for setup.

*Press Setup Key to
Enter Menu
Password Protected
(Esc to Return)*



Press
1 Key

Press
2 Key

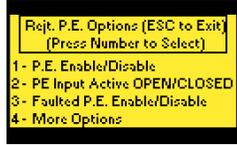
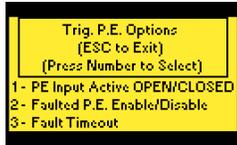
Press
3 Key

Press
4 Key

of NoReads– Use this screen to select a number of Consecutive NoReads before Stop. The number that is entered will caused an alarm to be issued after consecutive noreads have been reached (unless the number entered is zero for disable function). Just type in number and hit enter. Once the number has been entered, you need to exit this screen and return to this screen to enter a new value.

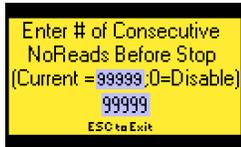
Trig. Photoeye– This screen shows setup options for the Trig. Photoeye. Press number to select, esc to exit.

Reject Photoeye– This screen shows setup options for the Reject Photoeye. Press number to select, esc to exit.



Press 1 Key Press 2 Key Press 3 Key

Press 1 Key Press 2 Key Press 3 Key Press 4 Key



Cont. A

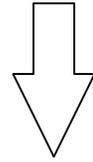
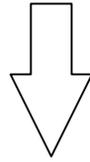
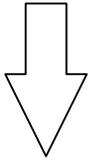
Cont. B

Cont. C

Cont. A

Cont. B

Cont. C



Trig. P.E. Options
(ESC to Exit)
(Press Number to Select)

- 1- PE Input Active OPEN/CLOSED
- 2- Faulted P.E. Enable/Disable
- 3- Fault Timeout

Rejt. P.E. Options (ESC to Exit)
(Press Number to Select)

- 1- P.E. Enable/Disable
- 2- PE Input Active OPEN/CLOSED
- 3- Faulted P.E. Enable/Disable
- 4- More Options

Setup Options—
This screen is a continuation of more setup options available. Press number to select, esc. to exit.

Press 1 Key

Press 2 Key

Press 3 Key

Press 1 Key

Press 2 Key

Press 3 Key

Press 4 Key

Setup Options (ESC To Exit)
(Press Number to Select)

- 1- Reject/Encoder Parameters
- 2- Password Setup
- 3- Audible Alarms
- 4- Clear Alarm History

Press 1 Key

Press 2 Key

Press 3 Key

Press 4 Key

PE Input Active OPEN/CLOSED— Use the left/right arrow keys to select ACTIVE OPEN/ACTIVE CLOSED, esc to exit. This function is actually related to the PE error. Within the programming logic there is either a NO or NC input for the PE. If the OPEN is selected, the input that is active is the NO input. If CLOSED is selected the input that is active is NC input. These apply to the Trigger PE. Default is set to NC being active.

Faulted PE Enable— Use the left/right arrow keys to enable faulty PE detection, esc. to exit. If the PE is missing or blocked an alarm will be triggered until the PE problem is corrected.

Fault Timeout— Enter a time for the PE error to be detected. Use number keys to enter, and press enter to accept entry. Once entry has been accepted, you need to exit this screen and enter this screen again to change a value. A value less than 00:00:00.09 is considered disabled.

Trig. P.E. Fault Enable or Disable

Disable

Use ◀ ▶ to Select or ESC to Exit

Enter Trig. PE Fault Timeout
(Less than 00:00:00.09 = Disable)

Current = HH:MM:SS.hh

HH:MM:SS.hh

ESC to Exit

Trig. P.E. Input in Controller
Default (Active CLOSED)
Active OPEN/Active CLOSED

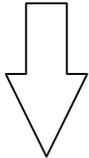
ACTIVE CLOSED

Use ◀ ▶ to Select or ESC to Exit

Cont. D

Cont. E

Cont.D



Rejt. P.E. Options (ESC to Exit)
(Press Number to Select)
1- P.E. Enable/Disable
2- PE Input Active OPEN/CLOSED
3- Faulted P.E. Enable/Disable
4- More Options

Press 1 Key

Press 2 Key

Press 3 Key

Press 4 Key

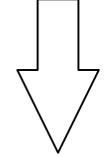
Rejt. PE Options—
This screen shows more options for the Rejt. PE available. Press number to select or esc. to exit.

Rejt. P.E. Options (ESC to Exit)
(Press Number to Select)
1- Fault Timeout
2- Reject Detect Timeout

Press 1 Key

Press 2 Key

Cont.E



Setup Options (ESC To Exit)
(Press Number to Select)
1- Reject/Encoder Parameters
2- Password Setup
3- Audible Alarms
4- Clear Alarm History

Press 1 Key

Press 2 Key

Press 3 Key

Press 4 Key

Reject PE Enable/Disable— Use the left/right arrow keys to enable reject PE., esc. to exit. This is useful if the reject is being used and no detection is needed for a product. Or during setup procedures to keep it out of the way.

Rejt. P.E.
Enable/Disable
Disable
Use ◀ ▶ to Select or ESC to Exit

PE Input Active OPEN/CLOSED— Use the left/right arrow keys to select ACTIVE OPEN/ACTIVE CLOSED, esc to exit. This function is actually related to the PE error. Within the programming logic there is either a NO or NC input for the PE. If the OPEN is selected, the input that is active is the NO input. If CLOSED is selected the input that is active is NC input. These apply to the Trigger PE. Default is set to NC being active.

Rejt. P.E. Input in Controller
Default (Active CLOSED)
Active OPEN/Active CLOSED
ACTIVE CLOSED
Use ◀ ▶ to Select or ESC to Exit

Faulted PE Enable— Use the left/right arrow keys to enable faulty PE detection, esc. to exit. If the PE is missing or blocked an alarm will be triggered until the PE problem is corrected.

Rejt. P.E. Fault
Enable or Disable
Disable
Use ◀ ▶ to Select or ESC to Exit

Fault Timeout— Enter a time for the PE error to be detected. Use number keys to enter value, and press enter key to accept entry. Once entry has been accepted, you need to exit this screen and enter this screen again to change a value. A value less then 00:00:00.09 is considered disabled. Press Esc. to exit.

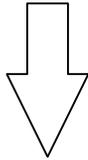
Enter Trig. PE
Fault Timeout
(Less than 00:00:00.09 = Disable)
Current = HH:MM:SS.hh
HH:MM:SS.hh
ESC to Exit

Reject Detect Timeout— Enter a time for the Reject PE to detect a rejected product. Time for detection can be from 0 to 3 sec. Use number keys to enter value, and press enter key to accept entry. Once entry has been accepted, you need to exit this screen and enter this screen again to change a value. Press Esc to exit.

Enter Rejt. Detect
Fault Timeout
(Greater than 00:00:03.00 = 3sec)
Current = HH:MM:SS.hh
HH:MM:SS.hh
ESC to Exit

Cont.F

Cont.F



Setup Options (ESC To Exit)
 (Press Number to Select)

- 1- Reject/Encoder Parameters
- 2- Password Setup
- 3- Audible Alarms
- 4- Clear Alarm History

Press 1 Key

Press 2 Key

Press 3 Key

Press 4 Key

Reject Encoder Options– This screen shows setup options for the Reject and Encoder Setup Parameters. The Track Method selected will allow the Reject Options to be viewed. Press 1 to choose Tracking Method (N=None, E=Encoder, OST=OneShoT). Esc to Exit.

Password Options– This screen shows setup options for password parameters. Press number to select, esc to exit.

Audible Alarm Enable– Use left/right arrow keys to enable/disable audible alarm feature, esc to exit. The alarm will sound during any alarm condition.

Clear Alarm History– By pressing reset, the entire alarm history will be erased. Press esc. to exit.

Password Options (ESC To Exit)
 (Press Number to Select)

- 1- Edit Operator Password
- 2- Enable Operator Passwords
- 3- Edit Maintenance Password

Audible Alarm
 Enable or Disable

Disable

Use ← → to Select or ESC to Exit

Press and Hold Reset
 until Alarm History is
 Cleared

ESC to Exit

Reject Options (ESC to Exit) (Number to Select)

1- Track Method N

Pos: 106, 0

Reject Options (ESC to Exit) (Number to Select)

1- Track Method E

- 2- Reject Error Type
- 3- Time After Track
- 4- Reject ON Duration
- 5- Reject Distance
- 6- Enc. Freq. Div

Press 1 Key

Press 2 Key

Press 1 Key

Reject Options (ESC to Exit) (Number to Select)

1- Track Method OST

- 2- Reject Error Type
- 3- Time After Track
- 4- Reject ON Duration

Press 1 Key

Press 2 Key

Press 3 Key

Press 4 Key

Press 5 Key

Press 6 Key

Press 3 Key

Cont G

Press 1 Key Press 2 Key

Press 3 Key Press 4 Key

Cont K

Cont L

Cont H

Alarm History Cleared– When this display appears, the alarm history has been successfully cleared. Press esc to exit.

Alarm History
 Cleared

ESC to Exit

Cont.G

Cont.K

Cont.L

Cont.H

Reject_Tracking Options– This screen shows tracking options for the Reject and Encoder Setup Parameters. The Track Method selected will allow the Reject Options to be viewed. Press 1,2, or 3 to choose Tracking Method (Enable will be displayed next to tracking method selected) Esc to Exit goes back to **Reject Encoder Options** Display.

Track Method OST– The OST is intended for a single pulse from the encoder port. When enabled, there is no tracking, but a single pulse will indicate the product has reached it's destination.

Track Method E– The E is intended for using an encoder to track a product. When enabled, all tracking functions are available.

Password Options (ESC To Exit)
(Press Number to Select)
1 - Edit Operator Password
2 - Enable Operator Passwords
3 - Edit Maintenance Password

Reject Options (ESC to Exit)
(Number to Select)
1- Track Method **OST**
2 - Reject Error Type
3 - Time After Track
4 - Reject ON Duration

Reject Options (ESC to Exit)
(Number to Select)
1- Track Method **E**
2 - Reject Error Type
3 - Time After Track
4 - Reject ON Duration
5 - Reject Distance
6 - Enc. Freq. Div

Press 1 Key Press 2 Key

Press 1 Key Press 2 Key Press 3 Key Press 4 Key Press 5 Key Press 6 Key

Press 3 Key

Tracking (ESC To Exit)
(Press Number to Select)
1 - Encoder
2 - One Shot Trigger
3 - None

Press ESC Key

Reject Type (Enable)– Selecting these items chooses which condition a reject is supposed to occur. Selecting a number in this screen will automatically set the chosen item to be active. Press esc to exit.

Reject Type (ESC To Exit)
(Press Number to Select)
1 - Mismatch
2 - NoRead
3 - Both
4 - None (Disable)

Time after Encoder– Use this parameter to enter a timer after encoder pulses are finished, or in the absence of encoder. After the timer expires a reject event will occur. Use number keys to enter value, and press enter key to accept entry. Once entry has been accepted, you need to exit this screen and enter this screen again to change a value.

Enter Time to Reject after Encoder Distance is Reached
(0 = Disable)
Current = HH:MM:SS.hh
HH:MM:SS.hh
ESC to Exit

Encoder Pulses per Unit– Use this parameter to set how many pulses per unit distance is required. By selecting numbers other than 1, the amount of pulses needed for a given distance increases. For most applications keep this set to 1. Use number keys to enter value, and press enter key to accept entry. Once entry has been accepted, you need to exit this screen and enter this screen again to change a value.

Enter Encoder Pulse per Unit
(Current = 99999;1=Default)
99999
ESC to Exit

Reject_On Duration– The screen set the time the reject output is to remain on. This is useful for air mechanisms or delayed reject responses. Use number keys to enter value, and press enter key to accept entry. Once entry has been accepted, you need to exit this screen and enter this screen again to change a value.

Enter Time for Reject Output to Remain On
Current = HH:MM:SS.hh
HH:MM:SS.hh
ESC to Exit

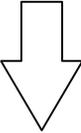
Reject_Distance– Enter the distance in pulses that the encoder will count to fire the reject output. Use number keys to enter value, and press enter key to accept entry. Enter 0 to disable. Once entry has been accepted, you need to exit this screen and enter this screen again to change a value.

Enter Reject Distance in Pulses for Encoder
(Current = 99999;0=Disable)
99999
ESC to Exit

Cont.I



Cont.1

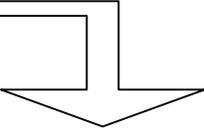
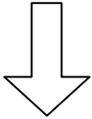
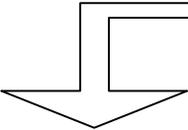


Password Options (ESC To Exit)
(Press Number to Select)
1 - Edit Operator Password
2 - Enable Operator Passwords
3 - Edit Maintenance Password

Press 1 Key

Press 2 Key

Press 3 Key



Edit Operator Password- Enter a new numeric only password for operator functions. Operator functions include teach, disable, or reset count Press ESC to exit. The default password is 55428.

Enable Operator Passwords- Select which operator function is to be password protected using numbers. Then using left/right arrow keys enable/disable the chosen operator function. Operator functions include teach, disable, or reset count Press ESC to exit.

Edit Maintenance Password- Enter a new numeric only password for (maintenance) setup screen. The password cannot be disabled, but only changed. Press ESC to exit. The default password is 55428.

Enter New Operator Password
(Default 55428)
(Current Password = 9999999999)
9999999999
ESC to Exit

Enable Operator Password
(Press Number to Select)
(ESC To Exit)(Use ← → to Enable)
1- TEACH = Disabled
2- STOP = Disabled
3- COUNT = Disabled

Enter New Maint. Password
(Default 55428)
(Current Password = 9999999999)
9999999999
ESC to Exit

APPENDIX A

TROUBLE SHOOTING

<u>CONDITION:</u>	<u>POSSIBLE CAUSES AND SOLUTION:</u>
-FLASHING RED LAMP	<ol style="list-style-type: none">1. Bar code scanner not connected; reconnect2. Bar code scanner setup program lost; down load configuration file to scanner3. Bar code scanner is faulty; replace.
-FLASHING AMBER LAMP	<ol style="list-style-type: none">1. Trigger photoeye is blocked or misaligned; realign or clear debris2. Reject photoeye is blocked or misaligned; Realign or clear debris3. Reject product was not detected: check sensor alignment with rejected product position.
-SYSTEM IS ACTIVE BUT STOP RELAY SIGNAL IS INTERRUPTING MACHINE PRODUCTION	<ol style="list-style-type: none">1. Machine relay interface cable is faulty, check relay interface cable connections.
-POWER IS CONNECTED TO SYSTEM BUT SYSTEM IS INACTIVE	<ol style="list-style-type: none">1. Power supply is faulty; check for LED on power supply in panel, check for voltage (24VDC) from power supply replace if bad.2. DC power connection is loose, check for voltage across terminals.
-CONTINUOUS “NO READS”	<ol style="list-style-type: none">1. Scanner is not aligned; check to make sure laser crosses all elements of bar code simultaneously.2. Scanner is not in range; verify scanner is mounted 2”-4” from barcode during reading cycle.3. Scanner is seeing reflectivity of substrate; angle scanner 15-20° off perpendicular angle of substrate.