# HLP-150 CIGARETTE PACKING MACHINE



USER GUIDE OPERATION MANUAL

#### **FOREWORD**

#### **Notes About Documents**

This description is intended only for use by trained specialists in the field of control and automation engineering who understand the applicable national standards. The following documents, notes, and explanations must be followed when installing and operating components. It is the duty of technical personnel to use the documents issued at the time of each installation and commissioning.

Responsible staff shall ensure that the application or use of the described product meets all safety requirements, including all relevant laws, regulations, guidelines and standards.

#### **Statement**

This document has been carefully prepared. However, the described product is still being developed. We reserve the right to revise and amend this document at any time and without prior notice. Claims for product modifications that have been provided should not be made based on the data, diagrams and descriptions in this document.

## **TABLE OF CONTENTS**

FORE\	WORD	1
TABLE	E OF CONTENTS	2
LIST C	OF IMAGES	3
SUMM	IARY	4
CONT	ROL PANEL	5
1.	Main Control Panel	. 5
2.	Button Control Panel	. 7
3.	Temperature Control	10
4.	Emergency Switch	12
SCRE	EN FUNCTIONS HLP-150	13
1.	Status	15
2.	Tracing Reject	17
3.	Cams	19
4.	Input	24
5.	Output	26
6.	Auxiliary	27
7.	Product Summary	29
8.	Count Product	31
9.	Info	32
CI OSI	ING	33

## **LIST OF IMAGES**

Figure 0.1 HLP-150 Cigarette Packing Machine	4
Figure 1.1 Main Control Panel	5
Figure 1.2 Main Control Panel Layout	6
Figure 1.3 Button Control Panel Position	7
Figure 1.4 Button Control Panel Layout	8
Figure 1.5 Agitator Control Switch	9
Figure 1.6 Temperature Control	. 10
Figure 1.7 Temperature Control Layout	. 10
Figure 1.8 Position of Emergency Switch	. 12
Figure 2.1 Initial display of the HLP-150 screen	. 13
Figure 2.2 Status Button	. 15
Figure 2.3 Status Screen Display When an Error Occurs	. 15
Figure 2.4 Error-Free Status Screen Display	. 16
Figure 2.5 Reject Position Screen Display	. 17
Figure 2.6 Cigarette Pack Parts	. 18
Figure 2.7 Screen Display Cams	. 19
Figure 2.8 Cam Application Examples on Sensors	. 21
Figure 2.9 Control Panel	. 22
Figure 2.10 Sensor lose end and lose filter	. 22
Figure 2.11 Fiber Amplifier	. 22
Figure 2.12 Degree Cam Encoder	. 23
Figure 2.13 Screen Display 1 Input I0.0 – I4.1	. 24
Figure 2.14 Screen Display 2 Input I4.2 – I6.1	. 24
Figure 2.15 Display Screen Ouput Q0.0 - Q2.7	. 26
Figure 2.16 Auxiliary Screen Display	. 27
Figure 2.17 Product Summary Screen Display	. 29
Figure 2.18 Product Count Screen Display	. 31
Figure 2.19 Machine Information Display	. 32

#### SUMMARY

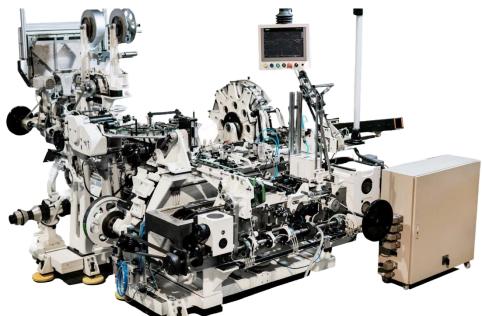


Figure 0.1 HLP-150 Cigarette Packing Machine

The document will also place special emphasis on the automatic control system integrated with the HLP-150 cigarette packaging machine. This automatic control system is one of the excellent features that make this machine very reliable in the modern cigarette industry. With leading artificial intelligence, the HLP-150's automated control system manages and supervises every aspect of the cigarette packaging process with incredible precision.

The use of automatic control systems not only increases production efficiency, but also ensures consistency and reliability in each cigarette pack produced. With the ability to automatically adjust operational parameters according to needs, these machines can optimize production output without sacrificing quality. In addition, the automatic control system on the HLP-150 is also equipped with intelligent sensors that can automatically detect and handle various potential problems during the production process, thus minimizing the risk of damage and machine downtime.

Thus, it can be concluded that the presence of an automatic control system on the HLP-150 cigarette packaging machine is not only a technological innovation, but also a smart investment for cigarette companies that prioritize efficiency, quality, and reliability in their operations.

## **CONTROL PANEL**

## 1. Main Control Panel



Figure 1.1 Main Control Panel

Control panels that have a wide range of functions are designed to improve efficiency and ease of use in a variety of applications, allowing users to quickly access various features or operations by pressing specific buttons. Each button on this panel is usually created to perform a specific task so that the user can operate the device or system more intuitively and effectively.

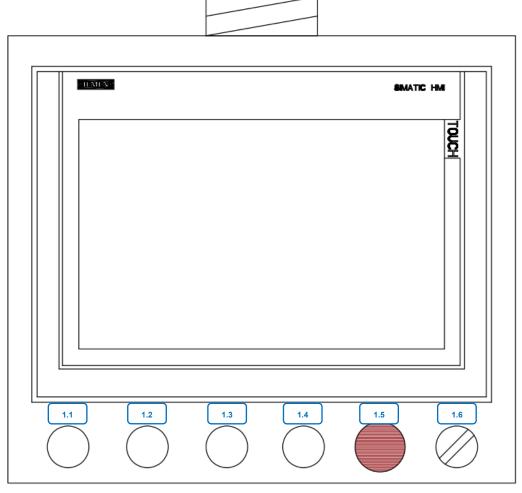


Figure 1.2 Main Control Panel Layout

Position Function	Description			
	MAIN CONTROL PANEL			
1.1	A button that serves to reset the alarm/error that appears on the screen.			
1.2	The button that serves to run the machine as long as the button is pressed at inch speed.			
1.3	The button that serves to start the machine.			
1.4	A button that functions to reject products manually.			
1.5	A button that serves to stop the running of the engine.			
1.6	Selector that functions to turn on/off the vacuum motor.			

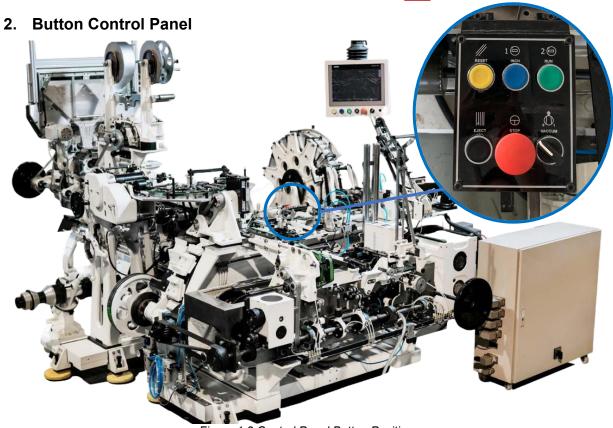


Figure 1.3 Control Panel Button Position

In addition to the main control panel, this machine is also equipped with an additional control panel in the form of buttons. The difference is, this additional control panel is not equipped with an HMI screen like on the main control panel. The control panel of this button serves to provide direct control over engine operations, such as activating or disabling certain functions, regulating the running of the machine, and even stopping without the need for interaction through the screen.

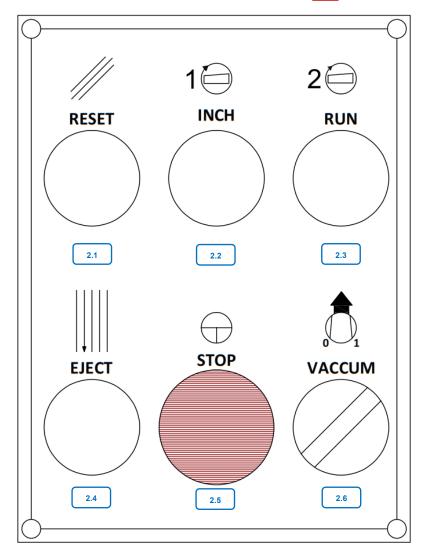


Figure 1.4 Button Control Panel Layout

Position Function	Description			
	BUTTON CONTROL PANEL			
2.1	A button that serves to reset the alarm/error that appears on the screen.			
2.2	The button that serves to run the machine as long as the button is pressed at inch speed.			
2.3	The button that serves to start the machine.			
2.4	A button that functions to reject products manually.			
2.5	A button that serves to stop the running of the engine.			
2.6	Selector that functions to turn on/off the vacuum motor.			

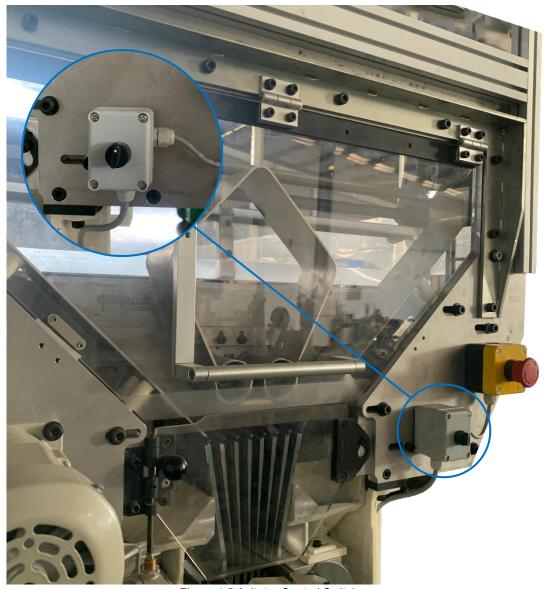


Figure 1.5 Agitator Control Switch

There are also additional controls on this machine in the form of switches. This switch serves to provide direct control (on / off) of the agitator without the need for interaction through the screen.

## 3. Temperature Control



Figure 1.6 Temperature Control

In addition to several control panels, this machine is also equipped with additional heater controls. With this control, users can adjust the temperature on the heater as needed without having to constantly interact through the screen. This provides additional flexibility and makes it easier for users to adjust settings according to specific preferences or requirements.

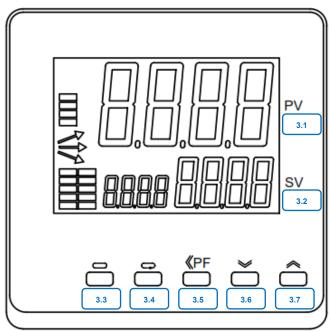


Figure 1.7 Temperature Control Layout

Position Function	Description				
	Temperature Control				
3.1	Displays the actual value of the heater temperature being measured.				
3.2	Displays the setting value of the heater temperature.				
3.3	If pressed once, it serves to go to the level of adjustment.  If pressed for at least 3 seconds, it serves to go back to the original settings.				
3.4	The button that serves to go to other parameter settings.				
3.5	The button that serves to move the digits of the parameter you want to change.				
3.6	The button that serves to increase the value of the selected parameter digits.				
3.7	The button that serves to reduce the value of the selected parameter digits.				

## 4. Emergency Switch

In addition to the button control panel, emergency buttons are also found on some parts of the engine as an emergency precaution. With placement in multiple locations, such as around the engine area or in places easily accessible to the operator, this emergency button makes it possible to immediately stop engine operation in emergency situations or urgent circumstances without having to search for the main control panel. This increases safety and responsibility in machine operation.

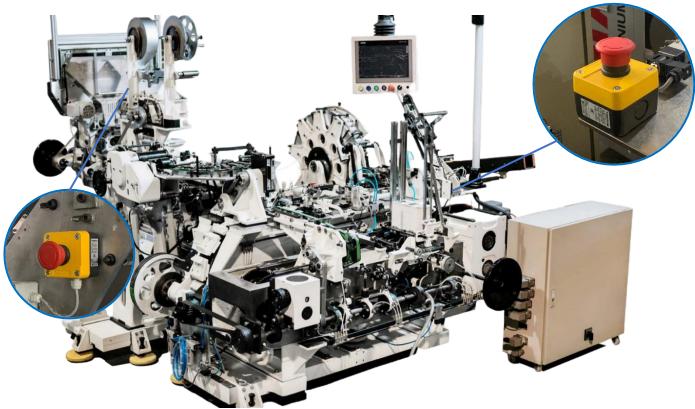


Figure 1.8 Emergency Switch Position

#### **SCREEN FUNCTIONS HLP-150**

The HMI HLP-150 display is an important user interface in machine operation, offering a number of diverse and functional menus. Through this screen, users can easily access various features and functions that are essential in running the machine.

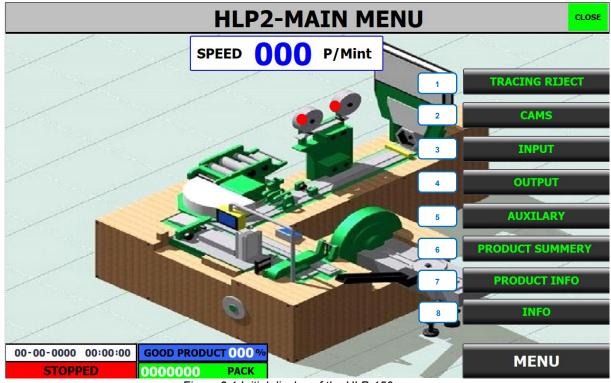


Figure 2.1 Initial display of the HLP-150 screen

When the device is activated, the HMI HLP-150 screen will display an interactive menu button that allows users to explore the various features available. Some of the menus presented include, Tracing Reject, Cams, Input, Output, Auxiliary, Product Summary, Product Info, and Machine Information. By presenting detailed menus, this interface gives users the ability to control specific HLP-150 operations, as well as monitor machine performance more effectively.

Position Function	Description			
	SCREEN START VIEW			
1	The button that serves to bring to the Tracing Reject menu.			
2	The button serves to bring to the Cams menu.			
3	The button that serves to bring to the Input menu.			
4	The button that serves to bring to the Output menu.			
5	The button that serves to bring to the Auxiliary menu.			
6	The button that serves to bring to the Product Summary menu.			
7	The button that serves to bring to the Product Info menu.			
8	The button serves to bring to the Info menu.			

#### 1. Status



Figure 2.2 Status Button

By pressing the "STATUS" button, the HMI screen will display the status of the machine. With easy navigation, users can see the position of errors that occur on the machine.

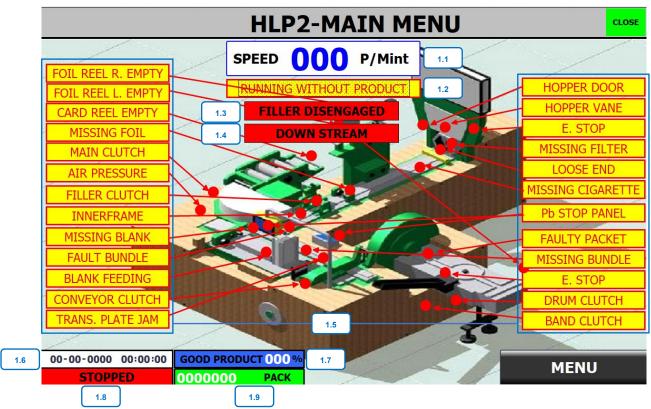


Figure 2.3 Status Screen Display When an Error Occurs

Position Function	Description				
STATUS					
1.1	Displays the speed of the machine in packing cigarettes (packs per minute).				
1.2	Displays a notification when the machine will start in the absence of the product, when this setting is activated the entire sensor system will not work.				
1.3	Display filler sensor information has been disabled.				
1.4	Displays an error on the HLP coupling machine.				

1.5	Displays errors that occurred on the machine in real time. The error display will still appear before the section is fixed and the reset button is pressed.			
1.6	Displays the actual time contained on the machine (DD-MM-YYYY, HH:MM:SS).			
1.7	Displays the amount of good product in percent form.			
1.8	Displays the status of the machine.  STOPPED: Status display when the machine stops.  READY: Status display when the machine is ready to run.  RUNNING: Status display when the machine is running.			
1.9	Displays the number of products that have been produced.			

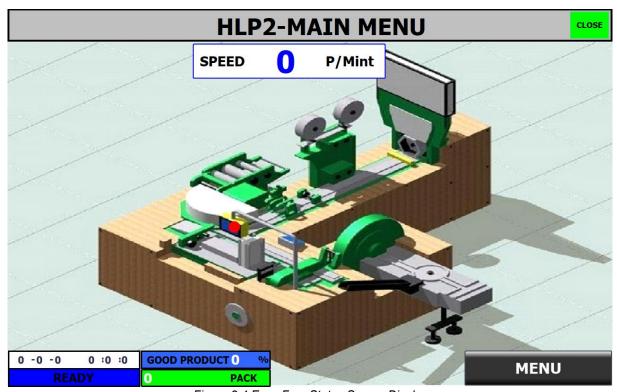


Figure 2.4 Error-Free Status Screen Display

On the Home screen when the machine is ready (no errors), the screen will not display a description of the error that occurred and its position on the machine. In this condition, the machine is ready to run.

## 2. Tracing Reject

On the screen Tracing Reject, there is information Rejection like Blank Feeding, Missing Bundle, Blank Missing, Inner Frame, Missing Foil, Missing Cigarette, Missing Filter, and Loose End. Under normal conditions, positions 0-20 will be displayed in green to indicate that everything is running normally, when the product occurs Rejection, one of the positions will be marked in red accordingly Rejection that happens to the machine.

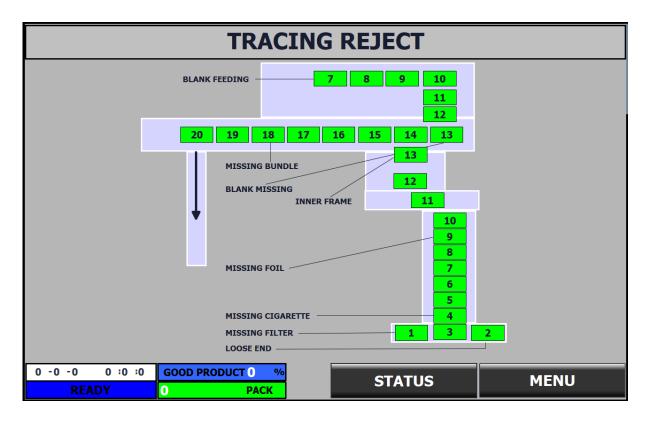


Figure 2.5 Reject Position Screen Display

In Tracing Reject, there are positions that have been numbered. This positioning is a register of paths traversed by the cigarette pack. At certain number positions, there are several inspections that allow cigarette packs that do not meet the inspection requirements to be rejected. 

Green color indicates the position there is a cigarette pack.

Red color indicates that the position does not have a cigarette pack.

Position Description				
Tracing Reject				
NOTE	BLANK FEEDING: Double detected or damaged cigarette cartons.  MISSING BUNDLE: The entire pack of cigarettes is lost or damaged.			

BLANK MISSING: Lost or damaged cigarette cartons.

INNER FRAME: The inner paper on cigarettes is lost or damaged.

MISSING FOIL: The foil on the cigarette is lost or damaged.

MISSING CIGARETTE: Cigarettes in the pack are less than the

amount they should be.

MISSING FILTER: The filter on the cigarette is gone.

LOOSE END: The tobacco tip of the cigarette is not completely filled.

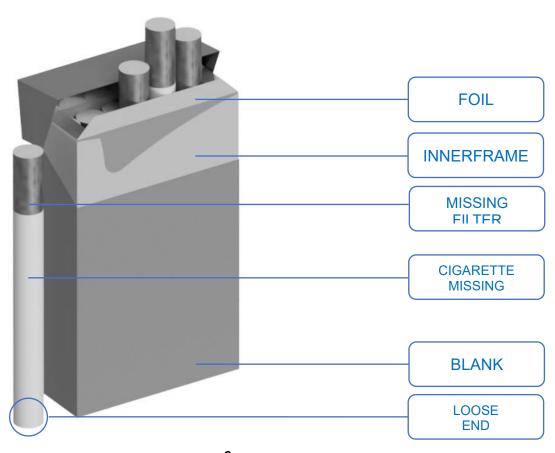


Figure 2.6 Cigarette Pack Parts

#### 3. Cams

On the Cams screen, users can adjust the degree on 13 types of Cam Parameters, such as Loose End & Miss Filter, Cigarette Missing, Missing Foil, to Blank Cancel. The display shows a degree called (Cam Degrees).

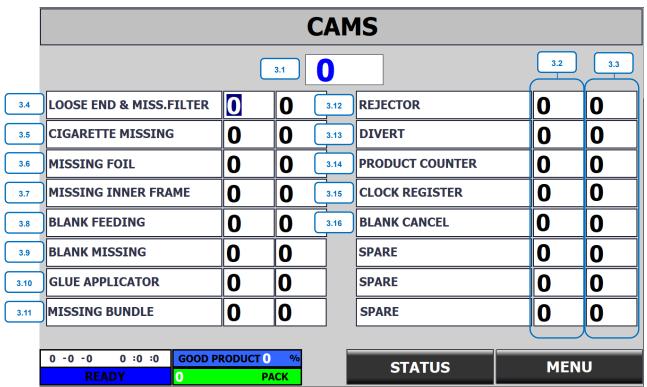


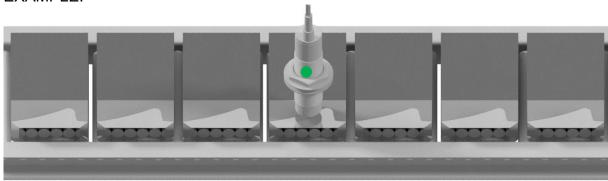
Figure 2.7 Screen Display Cams

Position Function	Description			
	CAM Parameters			
3.1	Displays the actual value of degrees according to the encoder according to the running of the machine to identify the entire Cam Parameter.			
3.2	Setting the degree parameter value that is used as a benchmark for each sensor is lit.			
3.3	Setting the degree parameter value that is used as a benchmark for each sensor is off.			
3.4	Identify cigarettes with incompletely filled tobacco tips/cigarettes that do not have filters.			
3.5	Identify the number of cigarettes according to the standard.			

3.6	Identify cigarette foil.			
3.7	Identify the inner wrapper of the cigarette.			
3.8	Identify missing or double cigarette cartons when packed.			
3.9	Identify out-of-place cigarette cartons.			
3.10	Identify the adhesive glue on cigarette pack paper.			
3.11	Identify cigarette packets as a whole.			
3.12	Identify the rejected cigarette pack.			
3.13	Identify the cigarette pack holder on the link up.			
3.14	Identify the number of packed cigarettes produced.			
3.15	Identify the course of the machine in packaging cigarettes.			
3.16	Identify cigarette cartons doesn't work for packing because cigarettes aren't up to standard.			

The main function of this cam is to ensure that the signal from the sensor is only in a certain position. The degree value obtained through the encoder with a count every 360° is 1 pack of cigarettes on the line. This is done to prevent the sensor from detecting outside of the sensor's duties. If the degree value is not adjusted, it may result in improper sensor readings resulting in improper execution.

#### **EXAMPLE**:



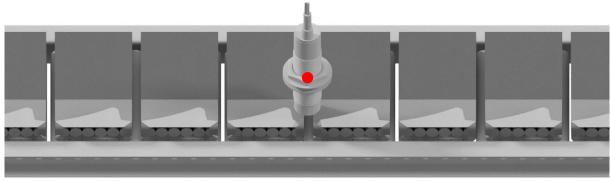


Figure 2.8 Cam Application Examples on Sensors

In the example, it is shown that with the correct parameter cam value setting, the sensor will only signal when the sensor is aligned on the foil on each pack of cigarettes in the path. When the foil pack part of the cigarette has passed through the sensor, the signal from the sensor will not be executed.

To get point 0 from the Cam Parameter:

Through the lose end sensor and lose filter.

 Make sure the filler is on and make sure the lose end and lose filter sensors are not disabled (on the Settings screen).

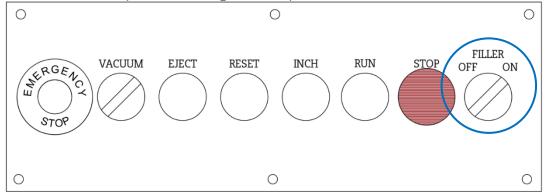


Figure 2.9 Control Panel

• Inch until the position of the lose end sensor and lose filter right on the cigarette that must be detected.



Figure 2.10 Sensor lose end and lose filter

• Pay attention to the fiber amplifier on the panel box. Make sure the fiber amplifier gets the signal at the highest level.

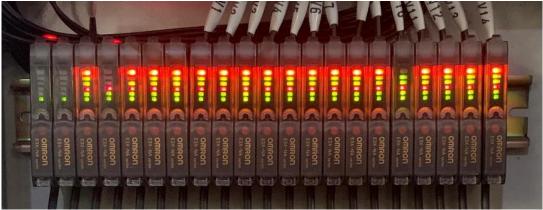


Figure 2.11 Fiber Amplifier

 Adjust the position of the encoder by rotating it clockwise to 0° at the degree cam.



Figure 2.12 Degree Cam Encoder

## 4. Input

On the Inputs Information screen display, each input address has an indicator, a green indicator on the address indicates an active address, while a red indicator on the address indicates an inactive address.

INPUTS			
IO.0 ENCODER A	I1.0 Pb RESET HMI	I2.2 BLANK MISSING	I3.2 SPARE
IO.1 ENCODER B	I1.1 Pb INCHING HMI	I2.3 BLANK FEEDING	I3.3 MISSING FILTER
IO.2 SPARE	I1.2 Pb RUN HMI	I2.4 AIR PRESSURE	I3.4 SPARE
IO.3 ENCODER Z	I1.3 Pb EJECT HMI	I2.5 MAIN CLUTCH	I3.5 SPARE
IO.4 Pb MAIN INCH	I1.4 OVER HEAD CONV.	I2.6 HOPPER DOOR	I3.6 SPARE
IO.5 Pb MAIN RUN	I1.5 FAULTY BUNDLE	I2.7 HOPPER VANES	I3.7 MANUAL HOPPER
IO.6 Pb MAIN EJECT	I2.0 MISSING BUNDLE	I3.0 LOOSE END	I4.0 CIGARETTE MISS.
IO.7 Pb STOP	I2.1 GLUE SENSOR	I3.1 SPARE	I4.1 FOIL BOBBIN L.
0 -0 -0 0 :0 :0 GOOD PRODUCT 0 %  READY 0 PACK INPUT 2 STATUS MENU			

Figure 2.13 Screen Display 1 Input I0.0 – I4.1

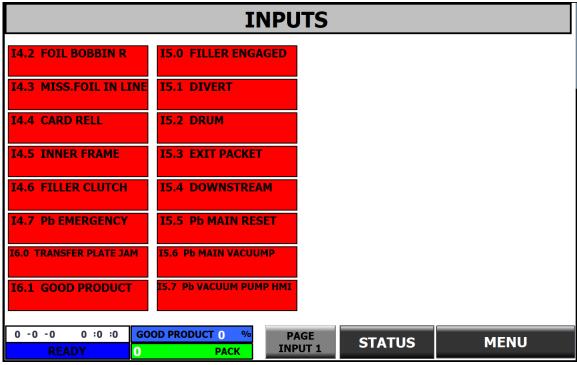


Figure 2.14 Screen Display 2 Input I4.2 – I6.1

Input HLP-150			
10.0-10.7		I1.0-I1.5	
10.0	Encoder A	11.0	Pb Reset HMI
10.1	Encoder B	11.1	Pb Inching HMI
10.2	Spare	<i>I1.2</i>	Pb Run HMI
10.3	Encoder Z	11.3	Pb Eject HMI
10.4	Pb Main Inch	11.4	Over Head Conv
10.5	Pb Main Run	<i>I1.</i> 5	Faulty Bundle
10.6	Pb Main Eject		
10.7	Pb Stop		
	12.0-12.7		13.0-13.7
<i>1</i> 2.0	Missing Bundle	13.0	Loose End
<i>I</i> 2.1	Glue Sensor	<i>13.1</i>	Spare
<i>1</i> 2.2	Blank Missing	13.2	Spare
<i>1</i> 2.3	Blank Feeding	13.3	Missing Filter
12.4	Air Pressure	13.4	Spare
<i>1</i> 2.5	Main Clutch	13.5	Spare
<i>1</i> 2.6	Hopper Door	13.6	Spare
12.7	Hopper Vanes	13.7	Manual Hopper
	14.0-14.7	15.0-15.7	
14.0	Cigarette Miss	15.0	Filler Engaged
14.1	Foil Bobbin L	<i>15.1</i>	Divert
14.2	Foil Bobbin R	15.2	Drum
14.3	Miss.Foil In Line	<i>15.3</i>	Exit Packet
14.4	Card Rell	15.4	Downstream
14.5	Inner Frame	15.5	Pb Main Reset
14.6	Filler Clutch	15.6	Pb Main Vacuum
14.7	Pb Emergency	15.7	Pb Vacuum Pump HMI
16.0-16.1			
16.0	Transfer Plate Jam		
<i>16.1</i>	Good Product		

## 5. Output

OUTPUTS			
Q0.0 RUNNING	Q1.0 DIVERT	Q2.0 GLUE DISK	
Q0.1 SPARE	Q1.1 BLANK BLOCK	Q2.1 SPARE	
Q0.2 EJECTOR	Q1.2 SPARE	Q2.2 SPARE	
Q0.3 TOP GLUE VALVE	Q1.3 SPARE	Q2.3 SPARE	
Q0.4 LUBRICATION	Q1.4 SPARE	Q2.4 SPARE	
Q0.5 HOPPER MOTOR	Q1.5 SPARE	Q2.5 SPARE	
Q0.6 MAIN BRAKE	Q1.6 SPARE	Q2.6 SPARE	
Q0.7 VACUUM PUMP	Q1.7 SPARE	Q2.7 SPARE	
0 -0 -0 0 :0 :0 <b>G</b>	OOD PRODUCT 0 %	STATUS	MENU

Figure 2.15 Display Screen Ouput Q0.0 - Q2.7

Output HLP-150				
Q0.0-Q0.7			Q1.0-Q1.7	
Q0.0	Running	Q1.0	Divert	
Q0.1	Spare	Q1.1	Blank Block	
Q0.2	Ejector	Q1.2	Spare	
Q0.3	Top Glue Valve	Q1.3	Spare	
Q0.4	Lubrication	Q1.4	Spare	
Q0.5	Hopper Motor	Q1.5	Spare	
Q0.6	Main Brake	Q1.6	Spare	
Q0.7	Vacuum Pump	Q1.7	Spare	
	Q2.0-Q2.7			
Q2.0	Glue Disk			
Q2.1	Spare			
Q2.2	Spare			
Q2.3	Spare			
Q2.4	Spare			
Q2.5	Spare			
Q2.6	Spare			
Q2.7	Spare			

## 6. Auxiliary

On the Auxiliary screen users can set various settings related to engine operation, this includes settings such as engine speed, oil lubrication mode and even link up settings. Users can adjust settings according to different working conditions.

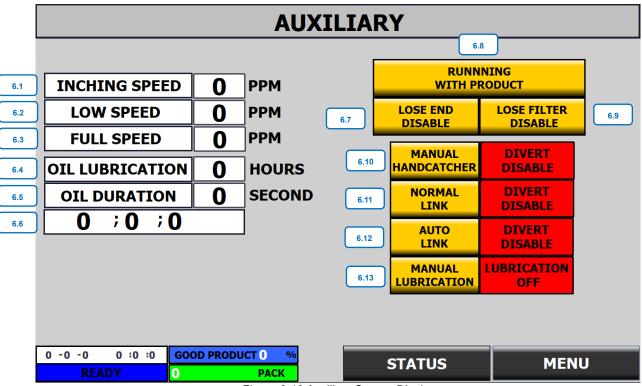


Figure 2.16 Auxiliary Screen Display

Position Function	Description	
	Auxiliary	
6.1	Setting the engine speed at the time the Inch button is pressed.	
6.2	Regulation of engine speed at low speed conditions.	
6.3	Engine speed regulation at high speed conditions (Maximum 150ppm).	
6.4	Timing (hourly) for engine injection oil. When the time is right, oil is injected. This process repeats regularly.	
6.5	Displays the calculation of the time duration (seconds) for engine injection oil.	
6.6	Displays the time how long the machine is working (HH:MM:SS).	

6.7	The setting used when the machine will run in the absence of the product, when this setting is activated the entire sensor system will not work.
6.8	button to enable/disable sensors that identify that the tobacco tip of the cigarette is not completely filled.
6.9	button to enable/disable sensor that identifies that cigarette filter is missing or damaged.
6.10	Button to activate the manual handcatcher that will bring the cigarette pack directly to the handcatcher. This means that the operator only uses HLP and there is no coupling with other machines.
6.11	Button to enable link ups consistently.
6.12	Button to activate link ups automatically. If there is a problem with the coupling machine, then within a certain duration the link up will be closed until the coupling machine returns to running normally.
6.13	Button to select the oil mode that injects the engine automatically or manually (when the button is pressed only).

## 7. Product Summary

In the Product Summary menu display, showing the time schedule in shift 1, shift 2, and shift 3, users can adjust the work schedule of the machine according to their needs. On this screen users can also see the products produced in each shift such as good product, fault product.

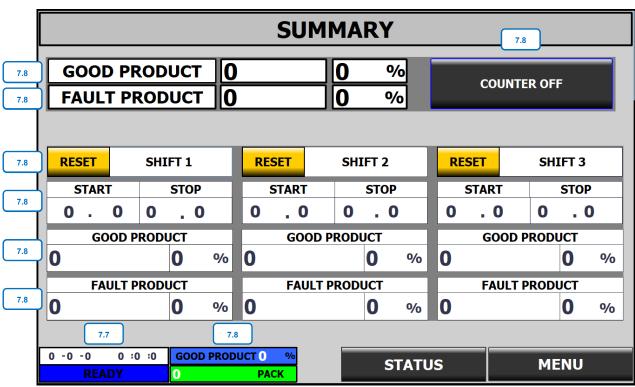


Figure 2.17 Product Summary Screen Display

Position Function	Description	
	PRODUCT SUMMARY	
7.1	Displays the number and percentage of Good Product packed cigarettes.	
7.2	Displays the number and percentage of packed cigarette fault products.	
7.3	Button to disable the calculation (counter) of all packed cigarette production.	
7.4	Button to reset the production of packaged cigarettes on each shift (shift 1, shift 2, and shift 3).	
7.5	Settings for start and end times on each shift (shift 1, shift 2, and shift 3).	

7.6	Displays the total number and percentage of good products produced in each shift (shift 1, shift 2, and shift 3).
7.7	Displays the total number and percentage of fault products produced in each shift (shift 1, shift 2, and shift 3).

#### 8. Count Product

On the Product Count screen display, there is a classification consisting of 6 types of product faults that can be detected, the types of faults include Loose End, Lose Filter, Cigarette Missing, Innerframe, Blank Missing, and Bundle Missing.

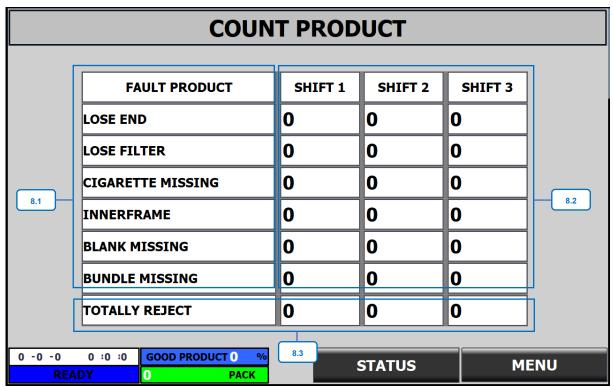


Figure 2.18 Product Count Screen Display

Position Function	Description		
	Count Product		
	Types of fault products.		
	LOSE END: The tobacco tip of the cigarette is not completely filled.		
	LOSE FILTER: The cigarette filter is missing or damaged.		
8.1	CIGARETTE MISSING: The cigarettes in the pack are less than they should be.		
	INNERFRAME: The inner paper on cigarettes is missing or damaged.		
	BLANK MISSING: The cigarette cartons is missing or damaged.		
	BUNDLE MISSING: The entire pack of cigarettes is missing or damaged.		
8.2	Displays the number of <i>fault products</i> that occur in each <i>shift</i> ( <i>shift</i> 1, <i>shift</i> 2, and <i>shift</i> 3)		

8.3	Displays the total number of <i>rejects</i> in each <i>shift</i> ( <i>shift</i> 1, <i>shift</i> 2, and <i>shift</i>
	3).

#### 9. Info

On the Machine Information screen users can easily find out the information on the machine such as Machine Name, Machine Serial Number, Version Number, Manufacturing Date and Electrical Program of the machine.

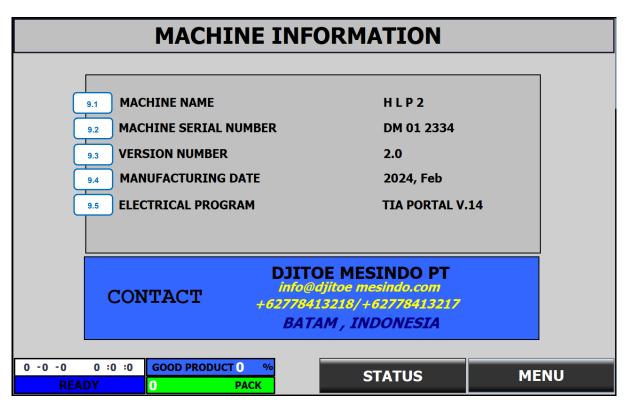


Figure 2.19 Machine Information Display

Position Function	Description	
	MACHINE INFORMATION	
9.1	Displays information about the machine name.	
9.2	Displays information about the serial number of the machine.	
9.3	Displays the version information of the program used on the machine.	
9.4	Displays machine manufacturing time information.	
9.5	Displays the application information of the program used.	

#### **CLOSING**

Thus, we close the HLP-150 cigarette packaging machine manual as a complete source of information to ensure efficient operations and optimal production results. We hope that this guide will provide a clear and deep understanding for users to be able to manage this machine well.

For further questions or technical assistance, please contact our customer service team. Thank you for your trust in choosing our products, and hopefully the HLP-150 cigarette packaging machine will make a positive contribution to the smooth running of your business.

