
Loader & Unloader User Guide

Version 2.1
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Part No: 24000600

for Side-Mount models:

24000016 - Magazine Loader
24000017 - Magazine Unloader
24000018 - Large Magazine Loader
24000019 - Large Magazine Unloader



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Safety Notices

General Safety

The system is built in accordance with modern technology and the current safety regulations, nevertheless, due to movable components, incorrect use, or other external influences, remaining hazards during operation cannot be totally eliminated.

For user and operator safety, as well as to avoid material damage, all safety guidelines in this manual must be observed.

Operation and maintenance functions should only be performed by qualified and trained personnel.

Any work on the electrical components of the machine may only take place by, or under the supervision of a certified electrician.

The system may only be used for its intended purpose when in perfect technical working order.

Changes to the machine may only be carried out with the specific permission of the manufacturer. This also applies to changes to the system software.

In case of malfunctions, especially with the power supply or compressed air supply, the machine must be powered off immediately.

All malfunctions, especially those that concern safety must be eliminated immediately.

Spare parts must be in accordance with the manufacturer specification; therefore, only original spare parts should be used.

Machine parts on which repairs, inspection or maintenance work is being carried out must, if specified, be disconnected from the power supply. Neighboring parts must be covered, and the voltage must be checked for those parts disconnected from the power supply.

In case of defect, use the Emergency Stop button on the operator panel to stop the machine.

Customer-applicable local guidelines for accident prevention must be added to this user manual.

CAUTION Notices

Despite adhering to all applicable safety guidelines, some hazards remain which should be taken note of for operation of the system:



CAUTION: Do not touch cables or connectors or reach inside moving parts even when the machine is stopped using the Emergency Stop button as electrical hazards and pinching or cutting hazards may still exist.



CAUTION: Never reach into the area where magazines are raised and lowered between the fixed and moving elements of the lift system or hand injuries may be the result.

WARNING Notices

Despite adhering to all applicable safety guidelines, some hazards remain which should be taken note of for operation of the system:



WARNING - HIGH VOLTAGE: Electrical Risks - Do not touch cables or connectors before the machine has completely released all stored energy. The machine main power supply and several internal components are supplied with 230V AC. Direct contact with this voltage is very dangerous for human beings. Even if the machine is stopped by normal procedure or by pressing the E-stop button, some components and assemblies remained charged.



WARNING - HIGH VOLTAGE: Live Voltages after Main Switch Off - Any spare part replacement or maintenance work to be carried out on or near the components of the AC input line may only be started after the machine is disconnected from the AC supply (house line). These components carry dangerous electrical energy even when the main switch is turned off.

Many components still carry dangerous electrical energy even when the main switch of the machine is turned off. For example: bright yellow colored wires and components marked with a warning label.

To release any hazardous stored electrical energy, wait 10 minutes after switching off the system. This will allow any charged capacitors to discharge to a safe level. After 10 minutes, it is safe to begin maintenance work anywhere inside the machine.



WARNING: High Temperature Risks - Some parts are heated to very high temperatures. Operators should be careful to avoid touching these parts.



WARNING: Emergency Stop - The Emergency Stop button can be used to instantly break off the safety circuit and stop all machine movement in case of an emergency. This does NOT remove all machine movement from the machine. The computer and monitor remain energized, as well as all DC power supplies considered non-critical. After using the Emergency Stop function in an emergency, the mushroom button has to be unlatched and the safety circuit has to be switched on again. For Emergency Stop button locations, refer to [Controls](#) (pg 8).

For safety's sake, the Emergency Stop function must be tested weekly.

Test methods: Push the Emergency Stop button and then check whether all motors are disabled (lost torque) immediately every time. If so, the Emergency Stop function is operating normally.

Warranty

General Warranty. Subject to the remedy limitation and procedures set forth in the Section “Warranty Procedures and Remedy Limitations,” GPD Global warrants that the system will conform to the written description and specifications furnished to Buyer in GPD Global’s proposal and specified in the Buyer’s purchase order, and that it will be free from defects in materials and workmanship for a period of one (1) year. GPD Global will repair, or, at its option, replace any part which proves defective in the sole judgment of GPD Global within one (1) year of date of shipment/invoice. Separate manufacturers’ warranties may apply to components or subassemblies purchased from others and incorporated into the system. THIS WARRANTY IS EXPRESSLY IN LIEU OF ANY AND ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

Limitations. GPD Global reserves the right to refuse warranty replacement, where, in the sole opinion of GPD Global the defect is due to the use of incompatible materials or other damages from the result of improper use or neglect.

This warranty does not apply if the GPD Global product has been damaged by accident, abuse, or has been modified without the written permission of GPD Global.

Items considered replaceable or rendered unusable under normal wear and tear are not covered under the terms of this warranty. Such items include fuses, lights, filters, belts, etc.

Warranty Procedures and Remedy Limitations. The sole and exclusive remedy of the buyer in the event that the system or any components of the system do not conform to the express warranties stated in the Section “Warranties” shall be the replacement of the component or part. If on-site labor of GPD Global personnel is required to replace the non-warranted defective component, GPD Global reserves the right to invoice the Buyer for component cost, personnel compensation, travel expenses and all subsistence costs. GPD Global’s liability for a software error will be limited to the cost of correcting the software error and the replacement of any system components damaged as a result of the software error. In no event and under no circumstances shall GPD Global be liable for any incidental or consequential damages; its liability is limited to the cost of the defective part or parts, regardless of the legal theory of any such claim. As to any part claimed to be defective within one (1) year of date of shipment/invoice, Buyer will order a replacement part which will be invoiced in ordinary fashion. If the replaced part is returned to GPD Global by Buyer and found by GPD Global in its sole judgment to be defective, GPD Global will issue to Buyer a credit in the amount of the price of the replacement part. GPD Global’s acceptance of any parts so shipped to it shall not be deemed an admission that such parts are defective.

Specifications, descriptions, and all information contained in this manual are subject to change and/or correction without notice.

Although reasonable care has been exercised in the preparation of this manual to make it complete and accurate, this manual does not purport to cover all conceivable problems or applications pertaining to this machine.

Introduction

This manual describes how to use the side-mount conveyor-module Loader and Unloader. Using single or dual trays, the Loader and Unloader perform fully automatic magazine handling for a single-lane MAX Series dispense machine per SMEMA specifications. Additionally, the Loader and Unloader can operate individually and separately from the MAX Series.

Use of this Manual

This manual contains all important information needed for optimal use of a Loader and Unloader system. It contains instructions for the safe and intended use of a Loader and Unloader system, to which users must strictly adhere.

These instructions are the foundation for reliable function and long life of a Loader and Unloader system. They help avoid danger, minimize downtime and keep repair costs to a minimum. It is important that all personnel dealing with operation, maintenance and inspection strictly adhere to the guidelines within this manual.

Theory of Operation

1. Magazines filled with substrates are manually placed on the Loader tray(s). Empty magazines are manually placed on the Unloader tray(s).
2. The lift system moves a Loader magazine to the programmed position and ejects substrates for processing in the MAX Series dispense machine.
3. After successful processing, the treated substrates are transferred by conveyor into an Unloader magazine.

Loader

A sensor detects the presence of a magazine on the tray. If a magazine is detected, the lift system moves the magazine to the programmed position and the Eject Pusher pushes a substrate from the magazine slot into the dispense machine. If the magazine slot is empty, the lift system moves to the next magazine slot. If all substrates have been ejected, the lift system transports the magazine on the second tray to the programmed position. The operator may exchange the empty magazine with a full one. If both magazines are empty, the system stops and warns the operator.

Unloader

A sensor detects the presence of a magazine on the tray. If a magazine is detected, the lift system moves the magazine to the programmed position, the Inject Pusher pushes a substrate from the dispense machine into a magazine slot, and then the lift system moves to the next magazine slot. If the magazine is full, the lift system transports the magazine on the second tray to the programmed position. The operator may exchange the full magazine with an empty one. If both magazines are full, the system stops and warns the operator.

Features

- Side-mount design
- Eject Pusher for product-to-conveyor (Loader)
- Inject Pusher for conveyor-to-magazine (Unloader)
- Touch screen interface
- SMEMA communications
- Operates individually, as part of and separately from MAX Series dispense machine.

Installation

Transport & Storage

- Only suitable and licensed transportation equipment may be used.
- Do not work or stand under suspended objects.
- Immediately upon receipt, delivery must be checked to be sure it is complete and intact. Any damages must be recorded in the presence of carrier.



CAUTION: Avoid jolts and hard bumps during transport to protect equipment from damage.

Scope of Supply

The following standard modules have been integrated in processing system and delivered together.

- Side-mount Magazine Loader
- Side-mount Magazine Unloader
- Cable for SMEMA communications per Loader/Unloader
- *Side-Mount Loader & Unloader User Guide*

Facility Requirements

Refer to [Specifications](#) (pg 20).

Connections

All power and air cables supplied by the facility for the machine must be in conformance with technical regulations and be in perfect technical condition. Refer to [SMEMA Communication](#) (pg 21).

Install on MAX Series Dispenser

Installation includes bolting a mounting plate to the Loader or Unloader, then bolting the mounting plate to the frame of a MAX Series machine while adjusting the position of the Loader Eject Pusher or Unloader Inject Pusher with the machine conveyor. Then adjust the tray(s) on the Loader or Unloader for magazine size.

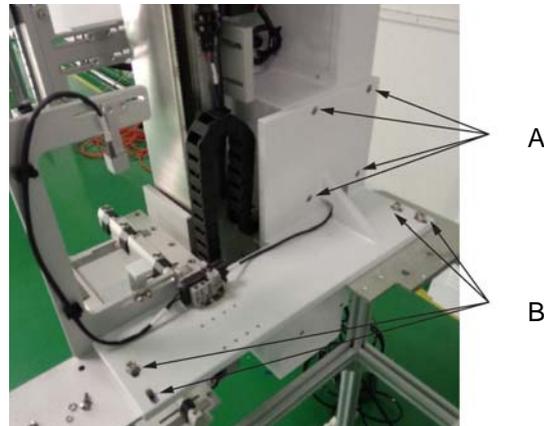
Tools Required:

- Allen wrench sets, metric and U.S. standard
- Sample substrate

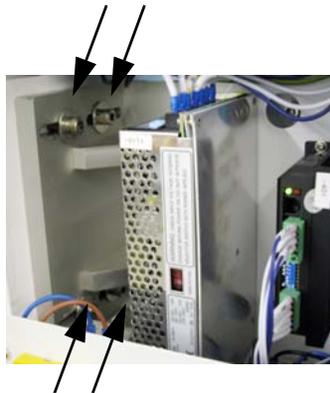
Mounting to MAX Series

1. Secure the provided mounting plate to the Loader with four (4) bolts (Figure 1, Item A).

Figure 1: Mounting plate secured to Loader



2. Secure the mounting plate to the MAX Series frame with four (4) bolts (Figure 1, Item B).
3. Carefully align Loader position with the MAX Series conveyor using the adjustment screws accessible inside the Loader rear panel:
 - a. Adjust Loader for pitch and front-to-back position with four (4) Y axis adjustment plate screws.



- b. Adjust Loader angle with the four (4) X axis adjustment screws.

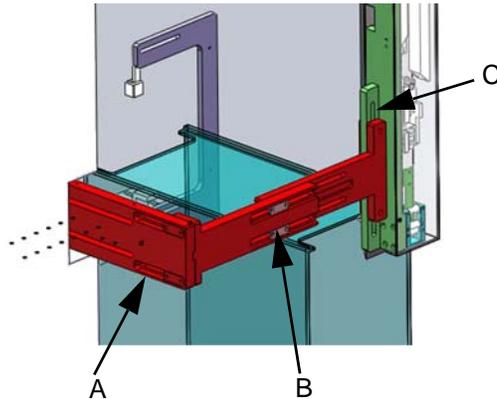


4. Repeat the above steps for the Unloader.

Adjust Loader Eject Pusher

Access the adjustment area through the Loader rear panel.

1. To adjust the left-to-right position of the Eject Pusher, use Item A.
2. To adjust the front-to-back position, use Item B.
3. To adjust up/down position, use Item C.

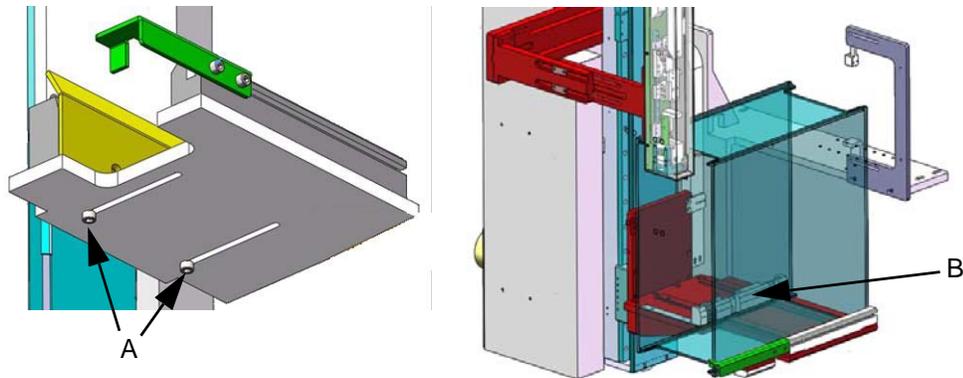


Adjust Unloader Inject Pusher

Adjust up/down to match conveyor height and left-to-right to ensure proper alignment of substrate with magazine slot.

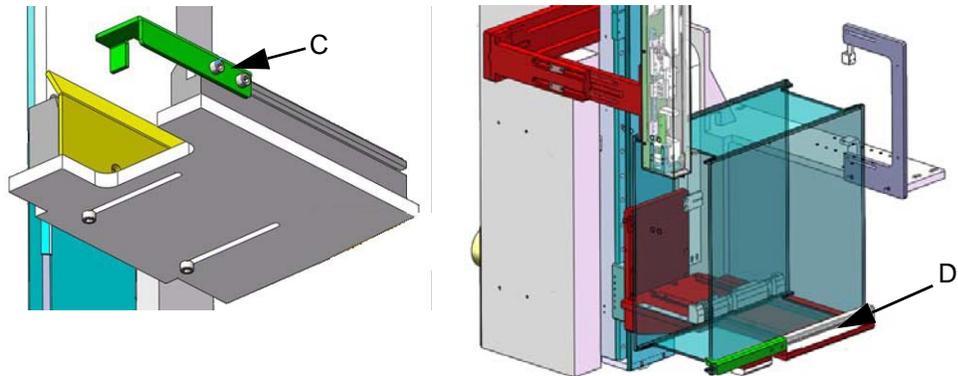
Adjust Trays for Magazine Size

1. To adjust for **magazine width**, loosen screws (Item A) from the bottom of the tray, move Item B as needed, and then tighten screws.

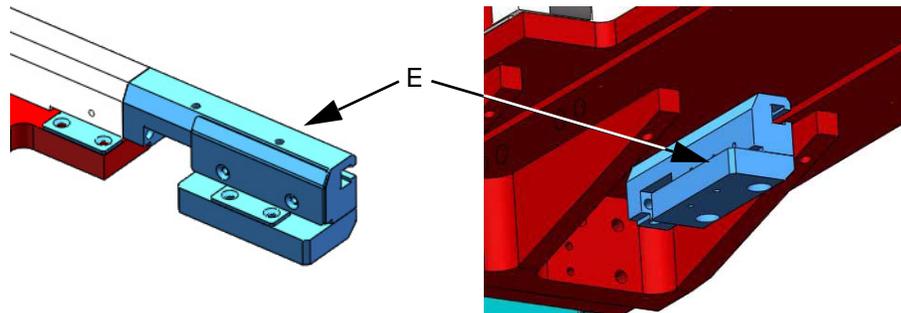


2. To adjust for **magazine length**:

Dual Tray Models: Loosen screws on the tray lengthening module (Item C) located on the front of the tray, move Item D as needed, then tighten screws.



Single Tray Models: To support a longer magazine length, install the extension block (Item E) on tray. When not in use, the extension block may be stored underneath the tray.



3. Repeat the above steps for all trays.

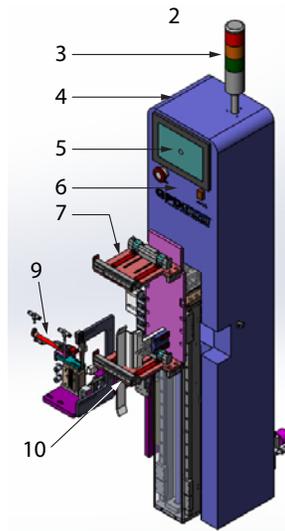
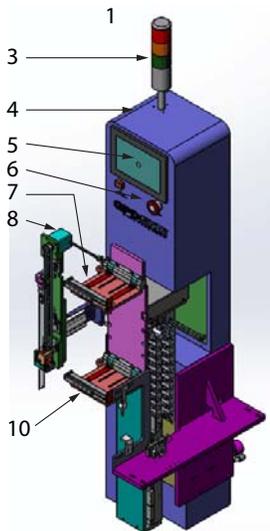
System Description

Major Systems



1	Side-Mount Loader
2	MAX Series dispense machine / product processing system
3	Side-Mount Unloader

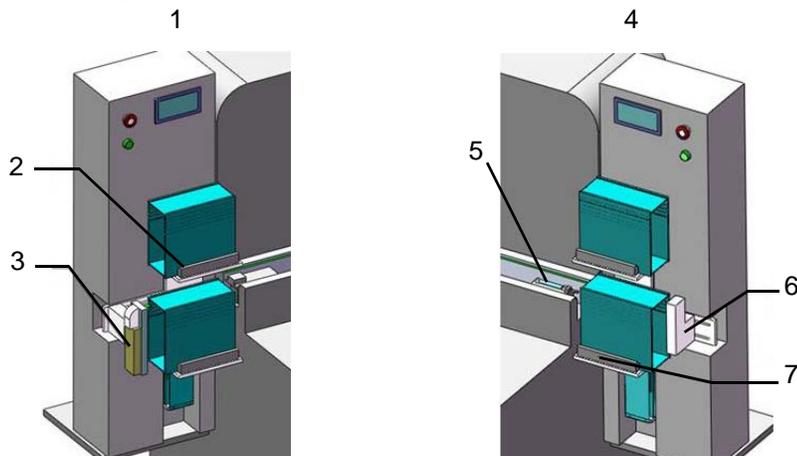
Part Identification



1	Loader
2	Unloader
3	light tower
4	electrical cabinet
5	touch screen
6	front panel
7	upper magazine tray (dual tray models only)
8	Eject Pusher
9	Inject Pusher
10	lower magazine tray

Magazine Trays

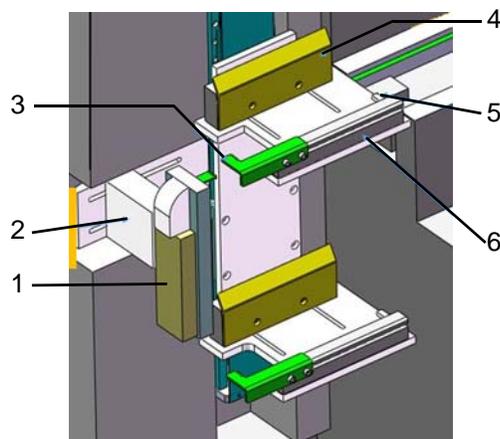
The magazine lift system is driven by a stepper motor. For dual tray models, one tray acts as the working platform while the other tray acts as a standby platform.



1	Loader
2	Loader magazine lift system
3	Eject Pusher
4	Unloader
5	Inject Pusher
6	Stopper
7	Unloader magazine lift system

Ejector

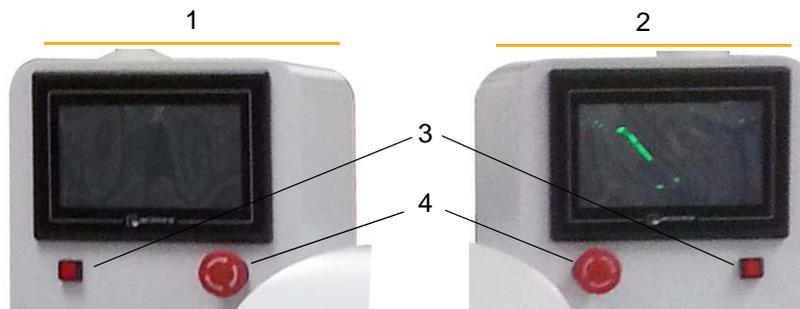
The Loader substrate Eject Pusher, equipped with a jam protect function, pushes material from magazine. The Eject Pusher must be aligned with the entrance conveyor of the MAX Series dispense machine.



1	Eject Pusher
2	adjustable Eject Pusher mount
3	adjustable keeper for magazine length
4	adjustable keeper for magazine width
5	fixed stopper
6	fixed bar

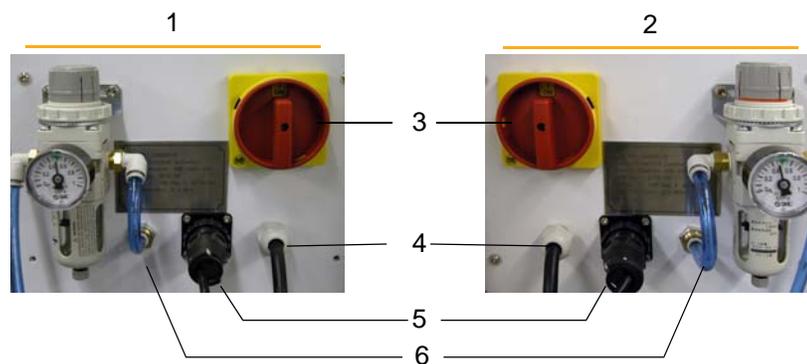
Controls

Front Control Panels



1	Loader	
2	Unloader	
3	Manual Operation	Auto/Manual mode switch for the Loader / Unloader. In manual mode, the Loader stops sending substrates while the Unloader stops receiving substrates, and the operator can manually move a magazine to the next or previous slot, or move the magazine to a different tray (if a second tray is present).
4	E-Stop	Emergency Stop. Immediately stops sequence and all motion when pressed. All motor torque is lost and the cylinder moves to home position. The machine needs to be initialized to restore it after an emergency stop condition.

Rear Control Panel



1	Unloader
2	Loader
3	Main switch - controls power to Loader and Unloader
4	Main power connection
5	SMEMA connection
6	Compressed air

Light Tower



The light tower is located on the top of the back of the machine. It has three lights (red, yellow, and green) and one buzzer.

Light Color	Active Condition
Green	Normal operation in automatic / production mode.
Yellow	Operating in manual mode OR there is a material shortage in automatic mode.
Red	Error has occurred.
Buzzer	Error has occurred OR there is a material shortage.

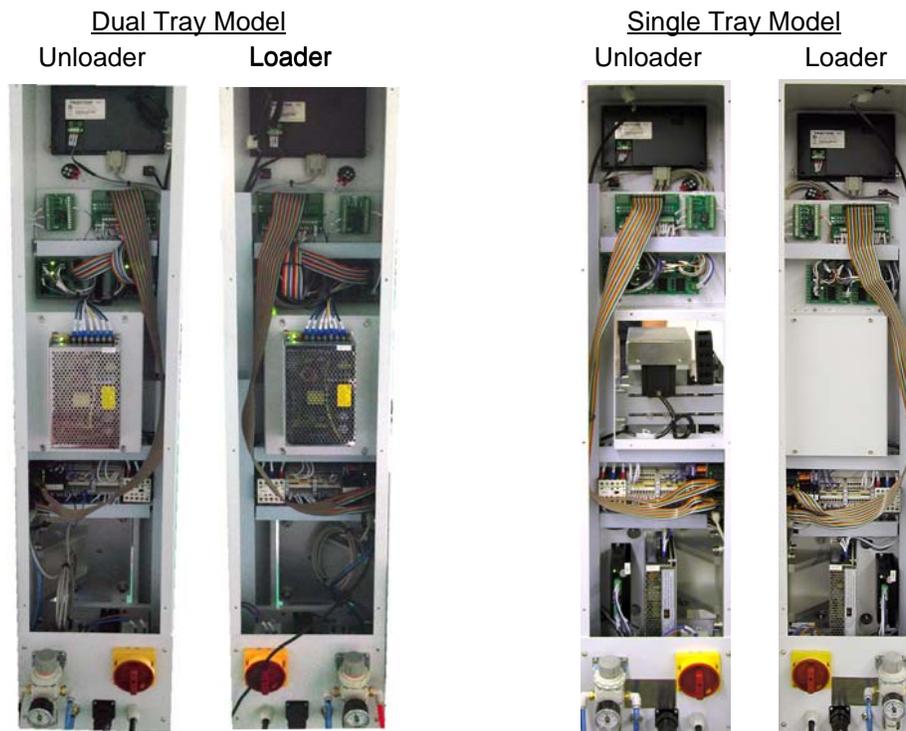
Touch Screen



There is a color touch screen at the top of the machine. The operator can access it on the front of the machine. It is used to operate the machine and display machine status and information.

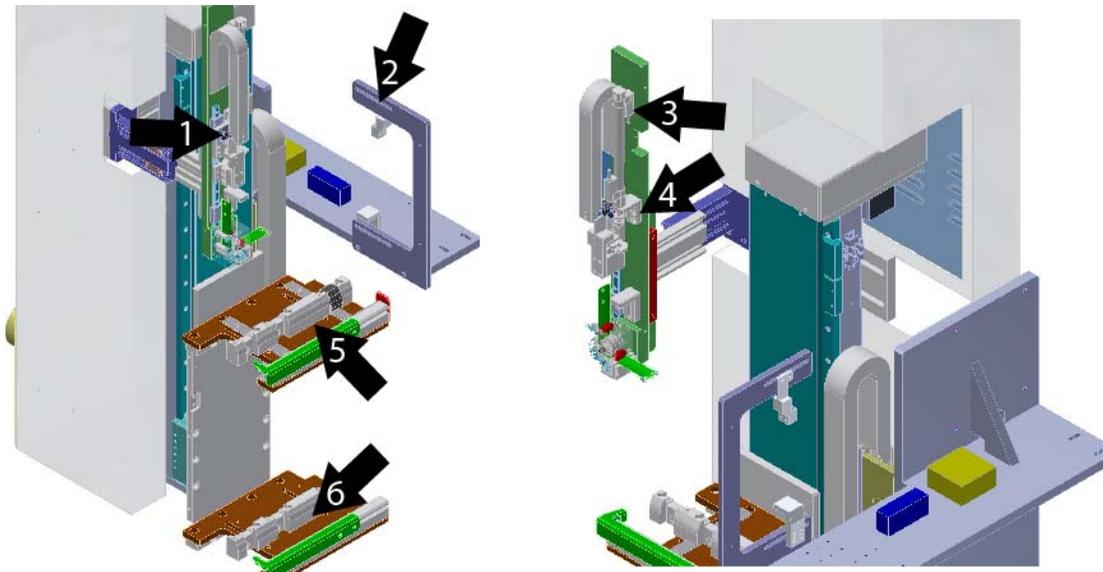
Electrical Cabinet

The cabinet contains electrical components and supports the whole machine. The cover is shown removed to expose electrical parts.



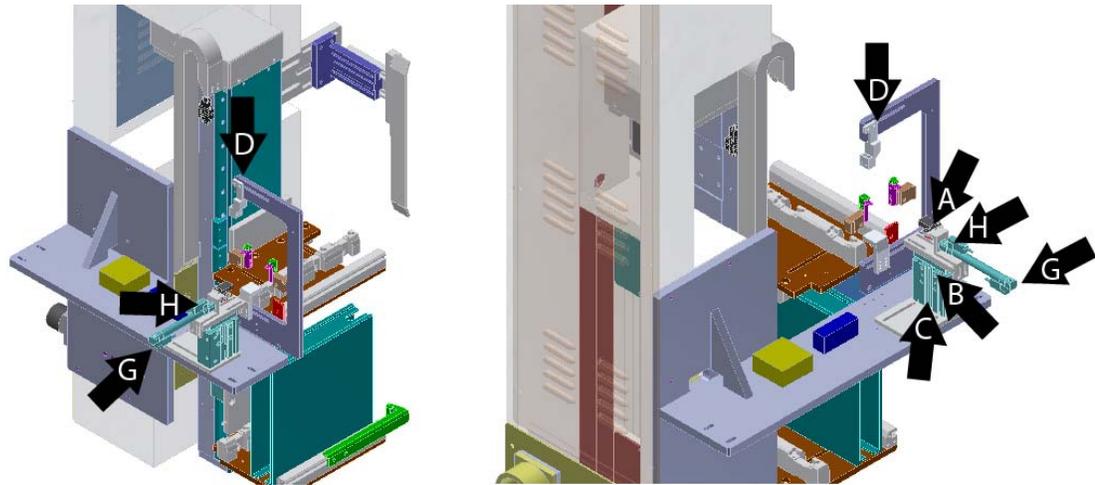
Sensor Locations & Functions

Loader Sensors



Sensor		Function
1	Pusher jam	Detects if a jam occurs when Eject Pusher pushes substrate from magazine.
2	Gap Check	Detects the presence of a substrate in the gap. Magazine will not move to the next slot when this sensor is active.
3	Pusher retract	Detects Eject Pusher cylinder in fully retracted position.
4	Pusher extend	Detects Eject Pusher cylinder in fully extended position.
5	Magazine_Up	Detects magazine presence on upper tray.
6	Magazine_Dn	Detects magazine presence on lower tray.

Unloader Sensors



Sensor		Function
A	Eject position	Detects substrate presence at Unloader. This sensor must detect a status change from 'Detect Board' to 'Board Clear' before the cylinder will move.
B	Push Up position	Detects Inject Pusher cylinder in UP position.
C	Push Down position	Detects Inject Pusher cylinder in DOWN position.
D	Gap Check	Detects the presence of a substrate in the gap. Magazine will not move to the next slot when this sensor is active.
E	Magazine_Up	<i>Not shown.</i> Detects magazine presence on upper tray.
F	Magazine_Dn	<i>Not shown.</i> Detects magazine presence on lower tray.
G	Pusher Retract	Detects Inject Pusher cylinder in fully retracted position.
H	Pusher Extent	Detects Inject Pusher cylinder in fully extended position.

Operations

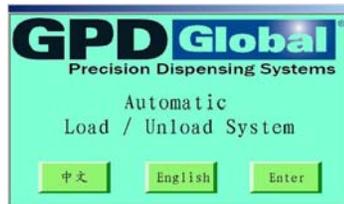
- [Set Up](#) (pg 12)
- [Start Production](#) (pg 16)
- [Material Shortage Operation](#) (pg 17)
- [Release / Change Magazine](#) (pg 17)
- [Skip Slot in Automatic Mode](#) (pg 17)
- [Operating in Error Mode](#) (pg 18)
- [Shutdown](#) (pg 17)

Set Up

1. Prior to production, verify:
 - electrical power is connected,
 - compressed air is connected,
 - magazine tray is adjusted properly for the current magazine length and width, and
 - Eject Pusher and Inject Pusher are adjusted properly and fit the current substrate.
2. Remove all existing magazines from trays and existing substrates from Eject Pusher.
3. Verify the lift systems are in safe position. If not, push lift system back to safety position

An unsafe position is created in the Loader or Unloader if the lift system is positioned beyond the point in the Y axis where upward movement is prevented. This unsafe position can result in equipment damage due to dual tray collision.

4. Place magazine(s) loaded with unprocessed substrates on Loader tray(s).
5. Place an empty magazines on each Unloader tray.
6. Turn on the power switch and compressed air.
7. Select a language button on the Main window and press ENTER.

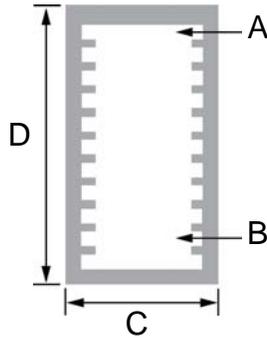


8. As needed, [Teach Slot Positions](#) (pg 13) for the size of magazine.

Teach Slot Positions

Setting a first and last slot in a magazine determines the direction of magazine movement. Any slot can be designated as first or last slot within the top-most to bottom-most range of slots. Oftentimes, the top-most slot is designated as first slot due to its closer proximity to the magazine tray.

Figure 2: First and last slot positions can be located at either the top or bottom of the magazine.



A	Top-most slot
B	Bottom-most slot
C	Magazine width
D	Magazine height

To teach slot positions:

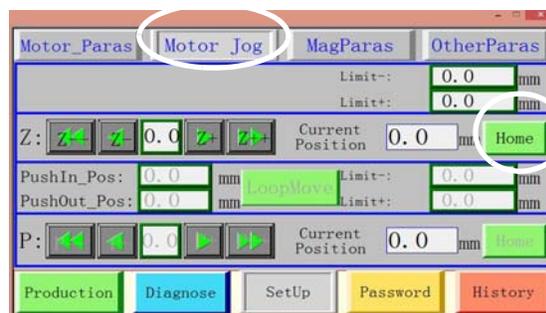
1. Place a magazine with substrates in the Loader or Unloader.
2. Enter user name required for pertinent access rights. For details, refer to [Security](#) (pg 19).
3. To select your program and home the Loader or Unloader:
 - a. Select the [Production](#) (pg 23) button on the touch screen, and then select a program number in PrgNumber.



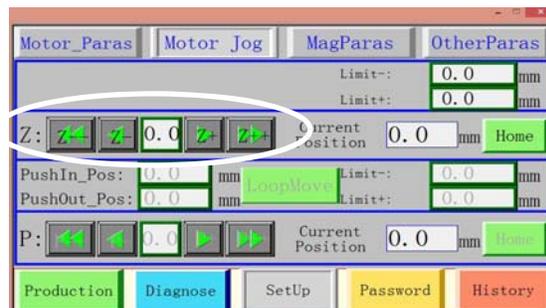
- b. Select the [Set Up](#) (pg 12) button.



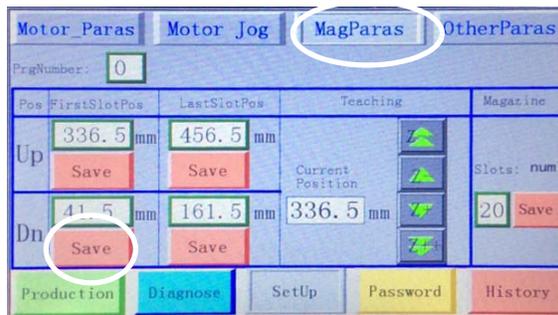
- c. Select the [Motor Jog](#) (pg 26) button, and then select the HOME button. Wait for homing to finish.



4. Use the first magazine slot substrate as a visual guide:
 - Loader - manually slide the first slot substrate partially out of the magazine so you can use it to visually align the slot with the conveyor.
 - Unloader - manually slide the substrate partially off of the conveyor toward the magazine so you can use it to visually align the slot with the conveyor.
5. To teach the first slot:
 - a. Teach the FirstSlotPos value by jogging Z up/down until substrate height matches conveyor belt height.



- b. Select the MAGPARAS button, and then save FirstSlotPos.



- c. Manually slide the “guide” substrate fully back into the magazine.

6. To teach the last slot:
- Teach the LastSlotPos value by entering a known value or jogging Z up/down.
 - Save LastSlotPos.



7. Enter the number of magazine slots in Slots, and then save.



8. Teach remaining slot positions:
- For dual tray models, repeat the above process for the upper tray.
 - For single tray models, enter the same value in the Up and Dn fields.

Start Production

1. Place full magazines on Loader tray and empty magazines on Unloader tray.
2. Select the PRODUCTION button and then select a program number in PrgNumber.



3. When the production interface opens, select the START button to start automatic production mode. The machine will home, get a magazine, move the magazine to the programmed position, and then proceed with automatic operations. The green light signal turns on

If production needs to be paused, select the MANUAL button so the system enters manual operation mode during which production can be conducted step-by-step.



4. Exchange empty Loader magazines with full magazines and full Unloader magazines with empty magazines, or else a magazine error will occur and stop operations.

Shutdown

To stop production:

1. Select CANCEL.



2. Turn off main power.

Material Shortage Operation

If no magazine is present on a Loader tray, the machine is in material shortage status, the Red signal light flashes and the Buzzer sounds.

1. In Automatic mode, add a magazine to the Loader tray. Three (3) seconds after detecting the presence of a magazine on the tray, the machine moves to the programmed position.
2. Select ALARM OFF on touch screen. The buzzer stops and the machine enters standby status as a new magazine becomes available.

SUGGESTION: Do NOT select CANCEL during a material shortage operation. Cancel stops the machine immediately and any material remaining in the machine will not be processed and will have to be removed by the operator.

Release / Change Magazine

When the machine is in automatic mode, the operator can release the work-in-process magazine and replace it with a new one.

1. Select PAUSE (START) on touch screen or press CANCEL so machine does not try to receive another magazine. Refer to [Main](#) (pg 22).
2. Press the Manual button on the front panel. [Front Control Panels](#) (pg 8).
3. Select CHANGEMAG on the touch screen. Refer to [Main](#) (pg 22).

Skip Slot in Automatic Mode

Operator can cause the Loader or Unloader to skip the current magazine slot and move to the next magazine slot.

To skip a magazine slot:

1. Select PAUSE on touch screen. Refer to [Main](#) (pg 22).
2. Press the Manual button on the front panel. [Front Control Panels](#) (pg 8).
3. Press NEXT SLOT on touch screen. Refer to [Main](#) (pg 22).
4. If necessary, the operator can press PREVSLOT on touch screen.

Operating in Error Mode

If the machine cannot operate properly, normal operations will be suspended while the machine operates in error mode. Error mode is accompanied by the buzzer, the red tower light, and an error message.



To clear an error mode and restart the machine:

1. Inspect operation status.
2. Then choose the appropriate action from the following table:

Operation Status	Action
Can be recovered	1 - Clear physical error condition. A dialog displays: "Go into manual mode?" 2 - Make a selection depending on conditions: Select NO if nothing needs to be changed. The machine will operate in automatic mode continuously. Select YES if changes or inspection is necessary. The machine will exit automatic mode. In the future, select START to enter automatic mode again.
Cannot be recovered	1 - Press the E-Stop button or switch off main power. 2 - Clear the physical error condition. 3 - Restart.

Security

Access to various system operations is controlled by unique, user-defined passwords that protect against unauthorized use of the access rights assigned to a user name. There are two user names (access levels):

Table 1: Security levels

User Name	Access Level	Password	Current Status	Accessible Operations
1	Operator	1234	1	Normal production operations, plus changing program number.
2	Technician	2013	11	Normal production operations, plus changing program number and product parameters, and teaching magazine position.

For more details, refer to [Password](#) (pg 29).

Parts List

For consumable, spare, and general part information, refer to this document:

Loader/Unloader Parts List (PN 24000601).

Specifications

NOTE: Unless otherwise noted, all specifications apply to all models of Loader and Unloader.

Typically, the Loader and Unloader have no requirements beyond that of the machine to which they are mounted.

- Operation Modes Operates as part of MAX Series dispense machine, operates separately from MAX Series dispense machine, and operates individually (separately from Loader or Unloader).
- User interface 7" touch screen in English and Chinese.
- Magazine specifications see Table 2.

Table 2: Magazine Specifications by Machine Model

Magazine Specifications	Dual Tray Models PN 24000016 & 24000017	Single Tray Models PN 24000018 & 24000019
Capacity	Two maximum size magazines (one per tray)	One magazine
Size, maximum	300 L x 100 W x 200 H mm (11.81" L x 3.94" W x 7.87" H)	350 L x 300 W x 350 H mm (13.78" L x 11.81" W x 13.78" H)
Size, minimum length	160 mm (6.30")	
Weight, maximum	12 kg (26.45 lb)	
Adjustments	Magazine position (Y and X) can be adjusted ± 20 mm (0.79"). Eject Pusher position (X and Z) can be adjusted ± 20 mm (0.79") Inject Pusher position (X and Z) can be adjusted ± 10 mm (0.39")	

Power supply

All power cables supplied by the facility for the machine must be in conformance with technical regulations and be in perfect technical condition.

Before connecting the machine to the power supply, the main switch must be in the "OFF" position.

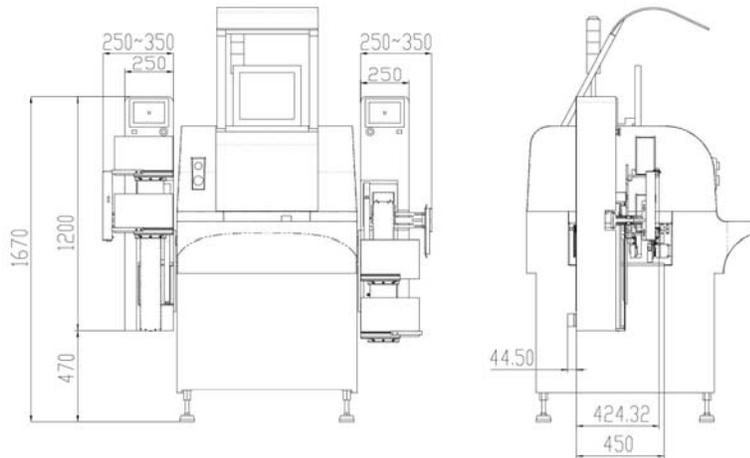
Facility Requirements

- Relative humidity Not to exceed 80%
- Temperature range Between 20°C and 30°C (68°F and 86°F)
Large temperature fluctuations should be avoided.
- Power
 - Voltage 120-220V, 50 Hz
115/230 VAC selectable by switch at AC/DC power adapter
 - Current 5A, 16A for break switch
 - Phase Single
 - Plug Customer supplies connection hardware to bare end of cable per customer's facility requirements and specifications for needed voltage.
- Compressed air 2 CFM @ 5-6 bar (72-87 psi) with 8 mm O.D. air line push fit fitting
- Clearance For ease of operation and maintenance access, allow an additional 300 mm (11.8") open space to left of Loader / right of Unloader, and 300 mm (11.8") open space in front of each machine.

~continued~

Footprint

- Length 494.5 mm (19.57"), mounting plate only 450 mm (17.72")
 - Height 1200 mm (47.24")
 - Width* Dual tray models: 250-350 mm (9.84" - 13.78")
Single tray models: 300-400 mm (11.81" - 15.75")
- *adjustable; depends on magazine size*

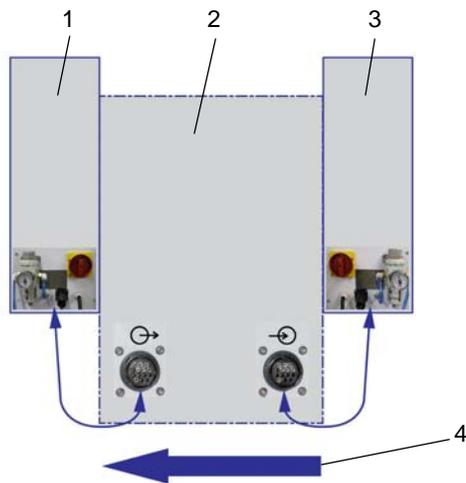


Crated dimensions (L x W x H) 135 cm x 120 cm x 70 cm (53.15" x 47.24" x 27.56")
 Crated weight 175 kg (386 lb)

SMEMA Communication

- Connects to MAX Series dispense machine.
- SMEMA cables included.
- Standard direction of flow is left-to-right. For additional details, refer to [Rear Control Panel](#) (pg 8).

Figure 3: SMEMA Connections & Ports - rear view



1	Unloader
2	MAX Series dispense machine
3	Loader
4	Direction of flow

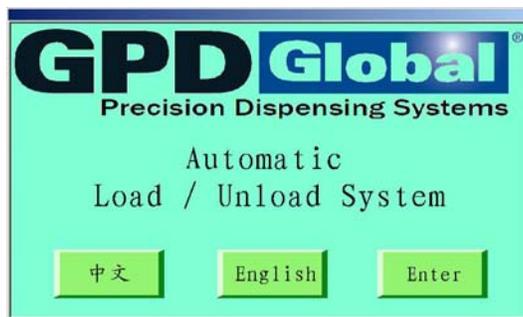
Windows

- [Boot](#) (pg 22)
- [Main](#) (pg 22)
- [Production](#) (pg 23)
- [Diagnosis](#) (pg 24)
- [Setup](#) (pg 25)
- [Password](#) (pg 29)
- [History](#) (pg 29)
- [Versions](#) (pg 29)

Boot

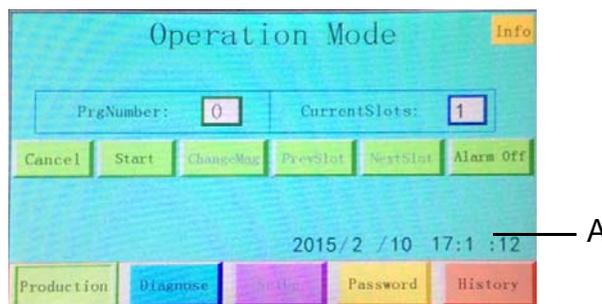
The following window displays after the machine is started.

- To enter the English system, select the ENGLISH button and then press ENTER.
- To enter the Chinese system, select the 中文 button and then press ENTER.



Main

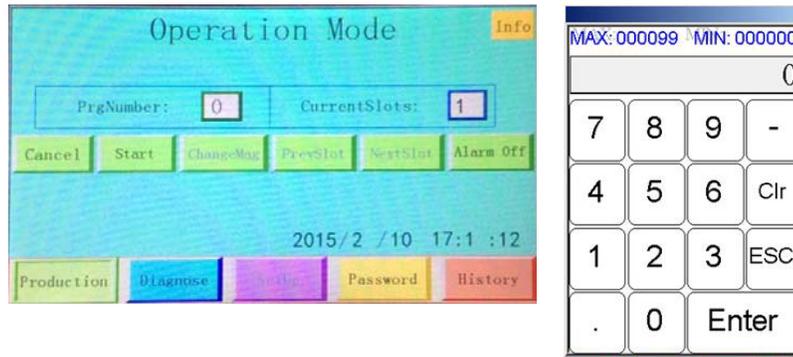
Use this window to navigate to specific function windows.



PRODUCTION	Enter the Production window to perform production operation.
DIAGNOSE	Enter the Diagnose window to inspect system status.
SETUP	Enter the Setup window to change the system parameter and program parameter.
PASSWORD	Enter the Password window to login to the system.
HISTORY	Enter the History window to inspect the history record.
INFO	Displays version information.
A = status bar	Displays machine status. Refer to Status Messages (pg 30).

Production

To enter Production mode, select PRODUCTION on the Main window (page 22).



PRODUCTION	Starts production mode.
PrgNumber	Press to select current program number for product processing.
CurrentSlots	Displays the number of the slot currently being processed.
START / MANUAL	START - Switches automatic mode on/off. Displays as Pause when in automatic mode and displays Start when in manual mode. MANUAL - Enters Manual production mode, and activates ChangeMag, NextSlot, and PrevSlot buttons. Toggles to Automatic mode.
CHANGE MAG	Ceases ejecting/injecting product and gets a new magazine. Active in Manual mode and when the physical Manual button is pressed.
NEXT SLOT	Moves magazine to next slot and ejects/injects product. Active when system is in Manual mode and when the physical Manual button is pressed.
PREV SLOT	Moves magazine to previous slot and ejects/injects product.
ALARM OFF	Silences the buzzer.
CANCEL	Stops system operations.

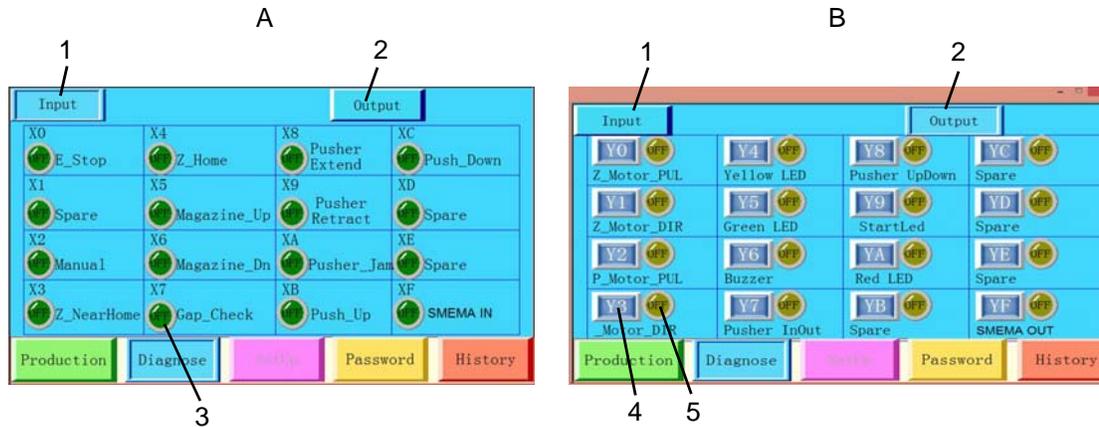
Diagnosis

To open the Diagnose window, select DIAGNOSE on the Main window (page 22).

NOTE: To activate outputs, the machine must be in Pause mode or Cancel mode.

Select an Input or Output button to select the object you want to diagnose in the Input Status window or the Output Status window.

- The Input LED lights indicate sensor status.
- Use the Output buttons to manually operate and verify an output. The Output LED indicate output status.



A	Input Status window	Select an input object to diagnose.
B	Output Status window	Select an output object to diagnose.
1	Input	Press to open the input status window.
2	Output	Press to open output status window.
3	Input status	LED buttons display the status of sensor.
4	Manual	Press a manual button to conduct manual operation and inspect whether output is normal.
5	Output status	LED buttons display the status of output.

Setup

To open the Setup window, select SETUP on the Main window (page 22). Select a parameter button to open the desired type of parameters window.

Motor Parameters

Use MOTOR PARAMETERS to set parameter values for the motor.

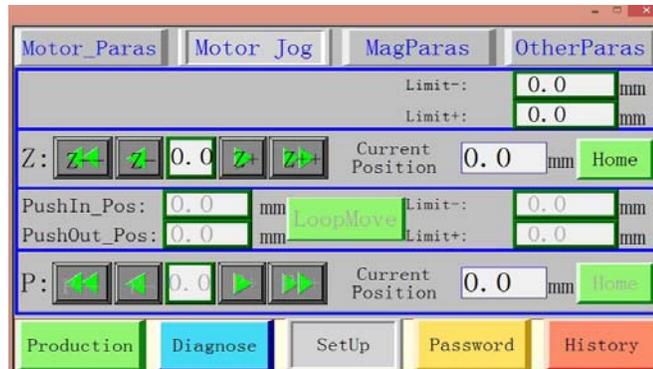
Motor_Paras	Motor Jog	MagParas	OtherParas
Z_Motor:	PB=0.0 mm	HomeSpeed= 0 %	TimeOut
	Diff=0 p/rev	MoveSpeed= 0 %	0 s
P_Motor:	PB=0.0 mm	HomeSpeed= 0 %	TimeOut
	Diff=0 p/rev	MoveSpeed= 0 %	0 s
Production	Diagnose	SetUp	Password
			History

Z_Motor	Setting for Z Axis motor. Z_Motor setting: PB: 2.5 mm, Diff: 5000 p/rev (Factory setting)
P_Motor	Setting for Pusher motor. P_Motor setting: PB: 60.0mm, Diff: 5000 p/rev (Factory setting)
PB = mm	Screw pitch. Travel distance in one motor turn.
Diff = p/rev	Sets number of pulses in one motor turn.
HomeSpeed= %	Sets speed for homing. Percent of maximum speed.
MoveSpeed= %	Sets speed for normal operations. Percent of maximum speed.
TimeOut	Maximum amount of time for homing. If homing exceeds this value, the system will report a homing error.

Motor Jog

Use MOTOR JOG to manually operate the motor for the lift system.

NOTE: This function requires security access level 3.



Limit-	Sets a negative limit.
Limit+	Sets a positive limit.
Z- Z+ P- P+	Performs step motion. Axis moves backward or forward the distance set in Limit- and Limit+
Z- Z++ P- P++	Performs continuous jog motion. Axis moves at MoveSpeed set in Motor Parameters (pg 25).
Current Position	Displays the current motor position.
0.00 mm	Select to input a value for step moving distance.
HOME	Performs homing action.
PushIn_Pos	Sets the position of Eject Pusher when push in.
PushOut_Pos	Sets the position of Inject Pusher when push out.
LoopMove	Moves pusher repeatedly per PushIn_Pos and PushOut_Pos values. This function must be used in Pause mode, not Run or Cancel modes.

Magazine Parameters

Use MAGAZINE PARAMETERS to set parameter values for magazine.

NOTE: Before teaching new slot position, set Z axis & Y axis to home using [Motor Jog](#) (pg 26).

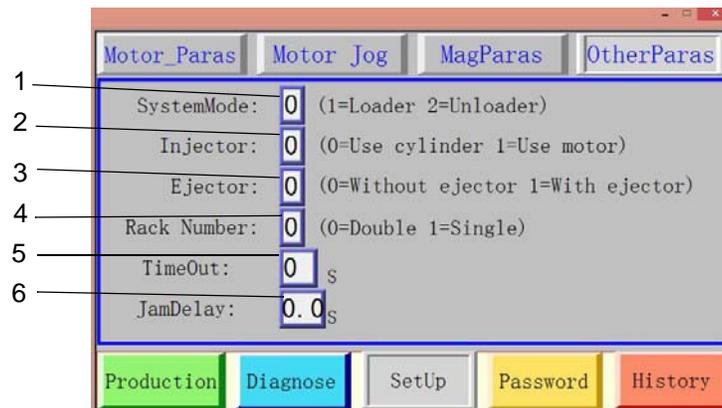
NOTE: For additional details, refer to [Teach Slot Positions](#) (pg 13).



1	Displays current program number.
2	Displays and teaches the position of the last slot in upper magazine.
3	Displays and teaches the position of the first slot in upper magazine.
4	Saves modified data in the corresponding field.
5	Displays and teaches first slot in lower magazine. See note*.
6	Displays and teaches last slot in lower magazine. See note*.
7	Displays and teaches the number of slots in magazine.
8	Displays and teaches the current position of Z axis. Used this value to teach data for items 2, 3, 5, and 6.

* NOTE: For single tray models, enter the same value in the Up and Dn fields.

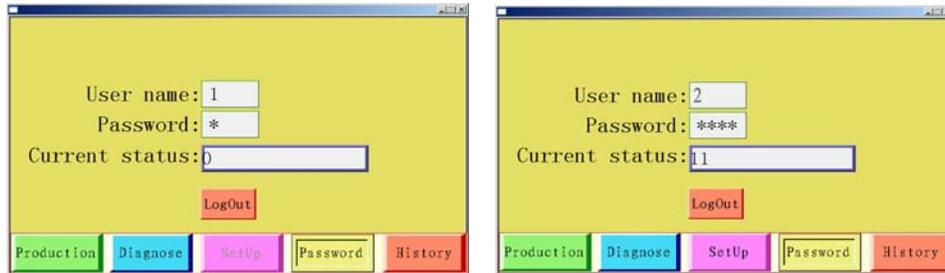
Other Parameters



1	Displays the machine currently controlled by software. 1 = Loader 2 = Unloader
2	Determines mode for Loader Inject Pusher. 0 = Loader cylinder is used. 1 = Loader motor is used.
3	Determines use of Unloader Eject Pusher. 0 = Unloader Eject Pusher is not used. 1 = Unloader Eject Pusher is used.
4	Determines single or dual tray (rack) use. 0 = double trays 1 = single tray
5	TimeOut is the maximum amount of time for: Loader before Alarm turns on for error message 'Product Block in Lane!' after the dispense machine receives a Board Request signal. Unloader before Alarm turns on for error message 'Product Block in Lane!' after the Unloader receive a Board Available signal from the dispense machine.
6	If a jam condition occurs, JamDelay is the amount of time that elapses before alarm turns on.

Password

Use this window to input user name and password. A user name needs to be set up before parameters can be changed. Passwords are a maximum of four characters. For details, refer to [Security](#) (pg 19).



An error message displays if you attempt to change parameters without adequate security access.



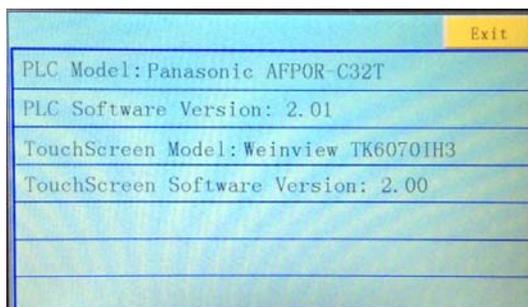
History

This window displays historical records of operation.



Versions

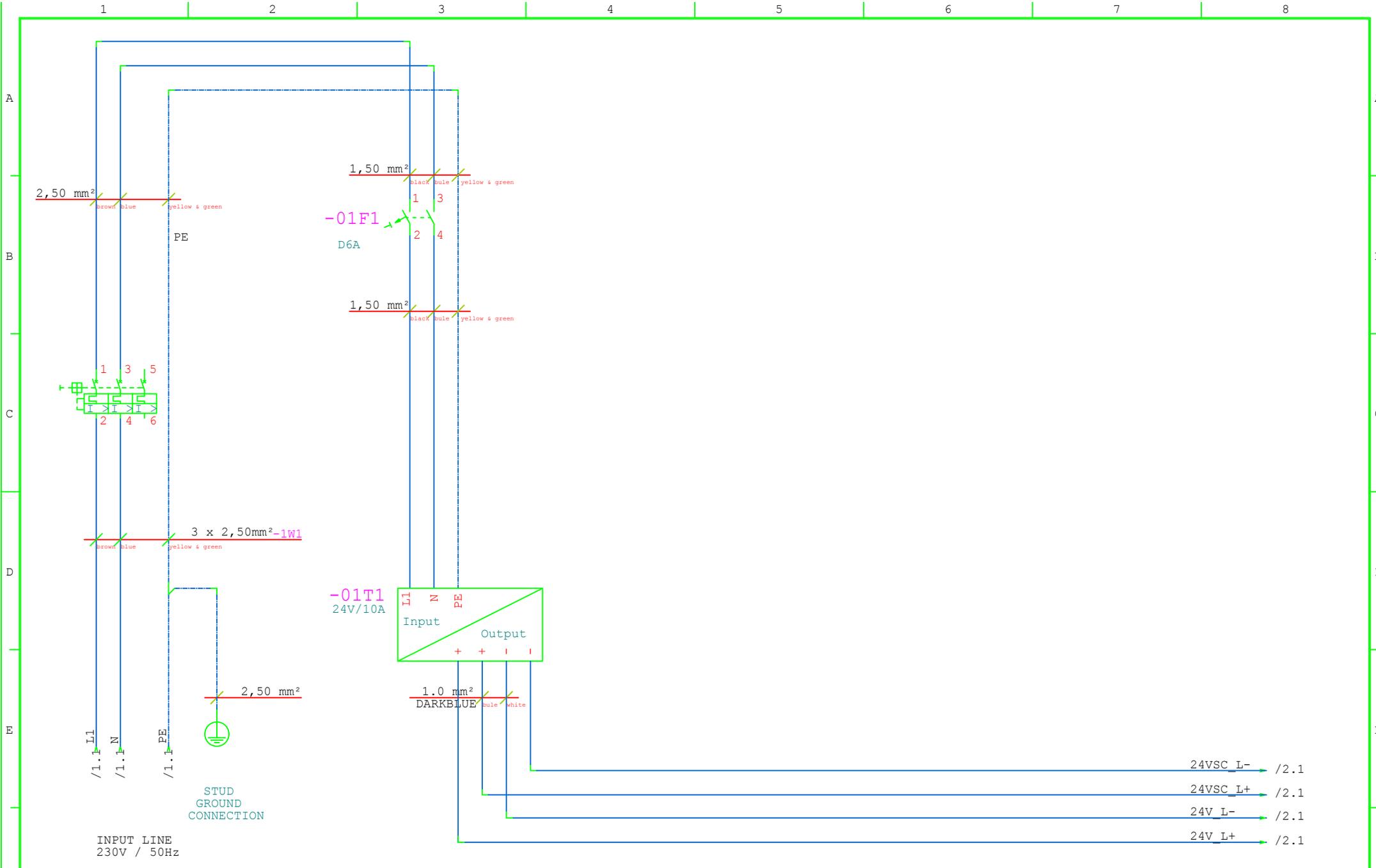
This window displays model and version data about the PLC and control software. To open this window, select the INFO button on the [Main](#) (pg 22) screen.



Status Messages

The following is a list of status messages that may display in the status bar during operation. Status messages are recorded in [History](#) (pg 29) records.

Message	Description
<i>No magazine!</i>	Inspect magazine for proper clamping. Inspect sensor.
<i>E-Stop button pressed!</i>	Release the E-stop button.
<i>Full magazine sensor active</i>	Inspect tray. If it is full, remove magazine. Inspect sensor.
<i>Empty magazine sensor active.</i>	Inspect tray. If tray is empty, place magazine in tray and continue production. Inspect sensor.
<i>Pusher in sensor is not active!</i>	Inspect sensor. Inspect motor.
<i>Loader manual button pressed!</i>	<i>Loader is in manual mode.</i>
<i>Gap check sensor active!</i>	Inspect for product between Loader and lane. Inspect for proper alignment position of Loader and lane. Inspect sensor.
<i>Pusher jam sensor active!</i>	Inspect for jammed product in Loader where it is typically ejected. Inspect sensor.
<i>Please take away the material magazine!</i>	Remove magazine.
<i>Pusher cannot move out</i>	The pusher cannot move out within the limit time set by system. Inspect for excessive spring power or broken cylinder.
<i>Pusher cannot move in</i>	Inspect pusher for possible jam. Inspect cylinder for possible damage.
<i>Pusher cannot move up!</i>	Inspect air supply. Inspect cylinder for possible damage. Inspect sensor.
<i>Pusher move out jam</i>	Inspect Loader for jammed product where it is pushed out. Inspect sensor.
<i>Parameters is not complete!</i>	Complete input for all parameters.
<i>Pusher cannot move down!</i>	Inspect air supply. Inspect cylinder for possible damage. Inspect sensor.
<i>The product blocked in the lane!</i>	Inspect for misshapen product. Inspect lane width.
<i>Z axis positive over travel!</i>	The requested target position is outside Z axis travel.
<i>Z axis negative over travel!</i>	The requested target position is outside Z axis travel.
<i>Z reset time out!</i>	Inspect for cause of Z axis time out for homing. If problem is due to insufficient time, reset the TimeOut parameter.
<i>Z axis parameters is not complete!</i>	Complete input for all parameters.



INPUT LINE
230V / 50Hz

STUD
GROUND
CONNECTION

Date / Datum	06.03.2015
Editor / Bearb.	DG.FU
Reviewed / Gepr.	DG.FU
Standard / Norm	DIN61346

PRODUCTION LINE
LOADER -> BONDER -> UNLOADER

GPD

Power INPUT and DISTRIBUTION

Project No. 204.00067	=100
Drawing No. 100-001	+S
GPD	Sheet/Blatt 01
Customer / Kunde	of/von 03

=100
+S
Sheet/Blatt 01
of/von 03