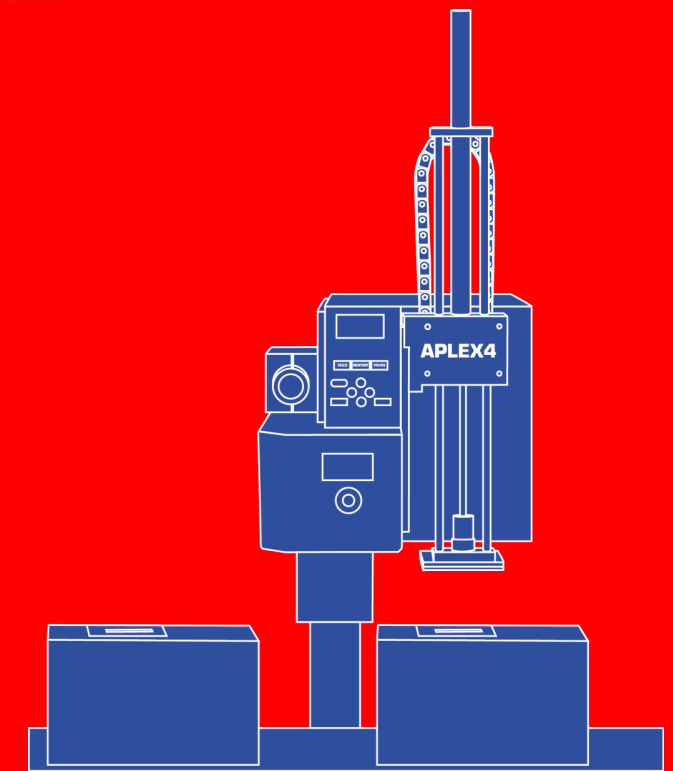


TOSHIBA

APLEX4

Print & Apply for EX4 Label Printers

Roberto Muñoz
Product Manager BCP, Toshiba Tec Spain



TOGETHER
INFORMATION

SUMMARY

Specifications and description
Printer preparation
APLEX preparation
Applying positions
Label pad customization
Label pad adjustment
Pneumatic adjustments
Option's installation
Part list
Back panel connectors
Connections label and internal LED
Configuration menus
Special configuration modes

First day

13h. Welcome & Cocktail

14h-18h. APLEX4 Training

- APLEX specifications and description (real applications, videos)
- Printer preparation
- APLEX preparation
- Label pad customization
- Label pad adjustment
- Pneumatic adjustments

20h. Dinner

Second day

9-14h. APLEX4 Training

- Applying positions
- Part list
- Connectors, connections label and internal LED
- Configuration menus
- Option's description
- Special configuration modes

14h. Lunch and End of training

APLEX4 Print&Apply

APLEX4 is the optional Print&Apply system suitable to any Toshiba industrial label printers **EX4 Series**

- Combining:
 - Any of the Toshiba **EX4 Series** Industrial Label Models
 - With the new P&P **APLEX4** module
- You get:
 - A **powerful, easy to install and easy to use** for the end user solution
 - A **good price vs. specification** solution
 - A **multisectorial** product for printing and apply applications



Ready to Use

- **Plug & Play**
- **Includes all** necessary elements:
 - Label pad, air regulator with filter, photo cell
- **High performance**, up to 30 labels per minute
- **Biggest autonomy 800m ribbon**
- Emulation technology ZPL II® with “**value added**”
 - Enhance your labels without any change on your current system
 - Consumable compatibility with T2 model
- **LCD graphic screen** with backlight for user interface and easy installation

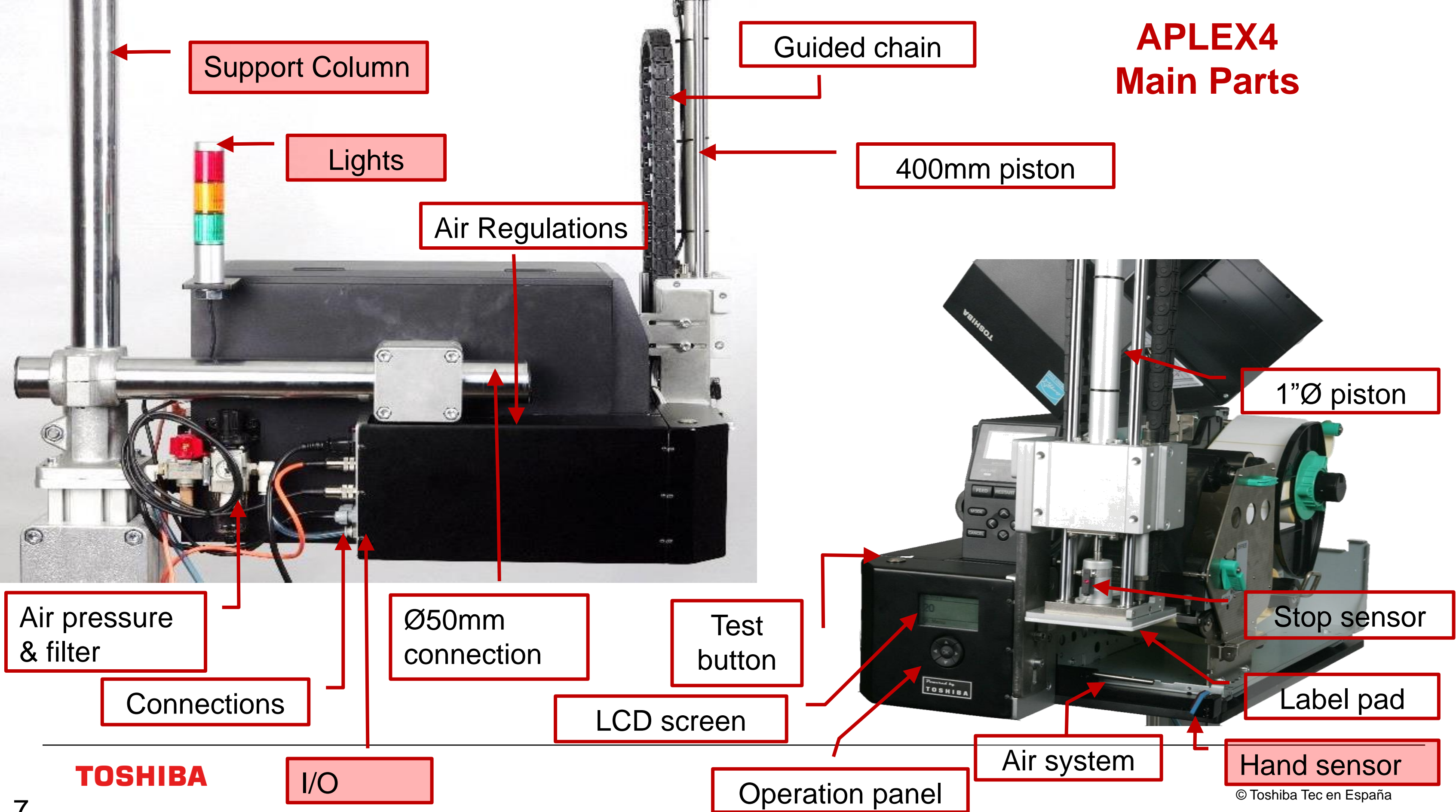


Easy Installation

- **Easy installation** and configuration:
 - As any other Toshiba option
- **Easy adjust.** Out of box ready to:
 - Install the printer EX4T1, EX4T2, EX4HS or EX4D2
 - Plug the power (only 1 220V cable)
 - Connect the air compressor (ØExt. tube: 8mm, 4-8bars)
 - Customize APLEX label pad to customer's label size
 - And work
- **Test Button**, two functions:
 - To print and apply one test label when installation or consumable replacement
 - To clean any error

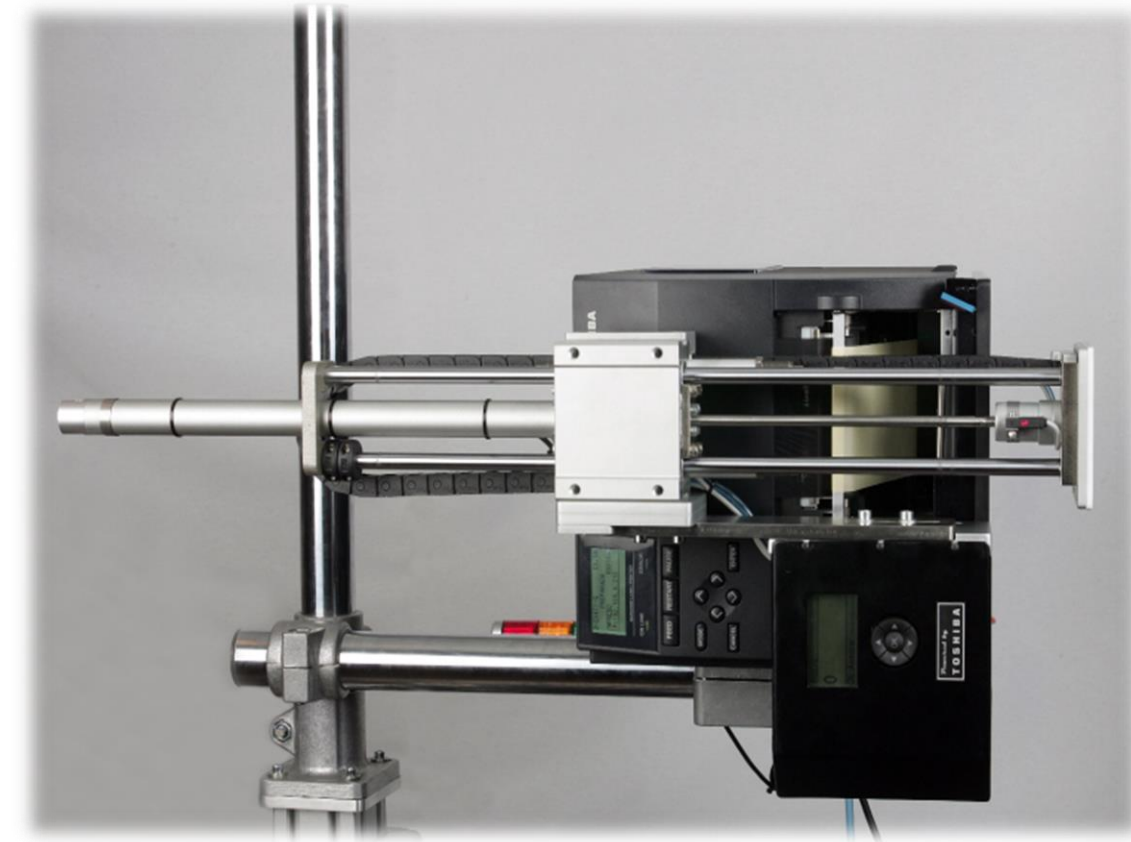


APLEX4 Main Parts



Application flexibility

- Applying to **90°, 180°, 270°**, and any position **between 0°-360° in left-right axis and 90° in the up-down axis**
 - Without any adjustment of alignment
 - **Flexibility** in label size
 - from 25x25mm to 100x200mm
 - Easy adjustment of **contact pressure** level
 - For use with delicate products: min pressure 1 Kg
-
- **Guided chain**: no need for adjustment when modifying rotation
 - Two standard label pad sizes, easy mounting:
 - **100x100 and 100x150mm**

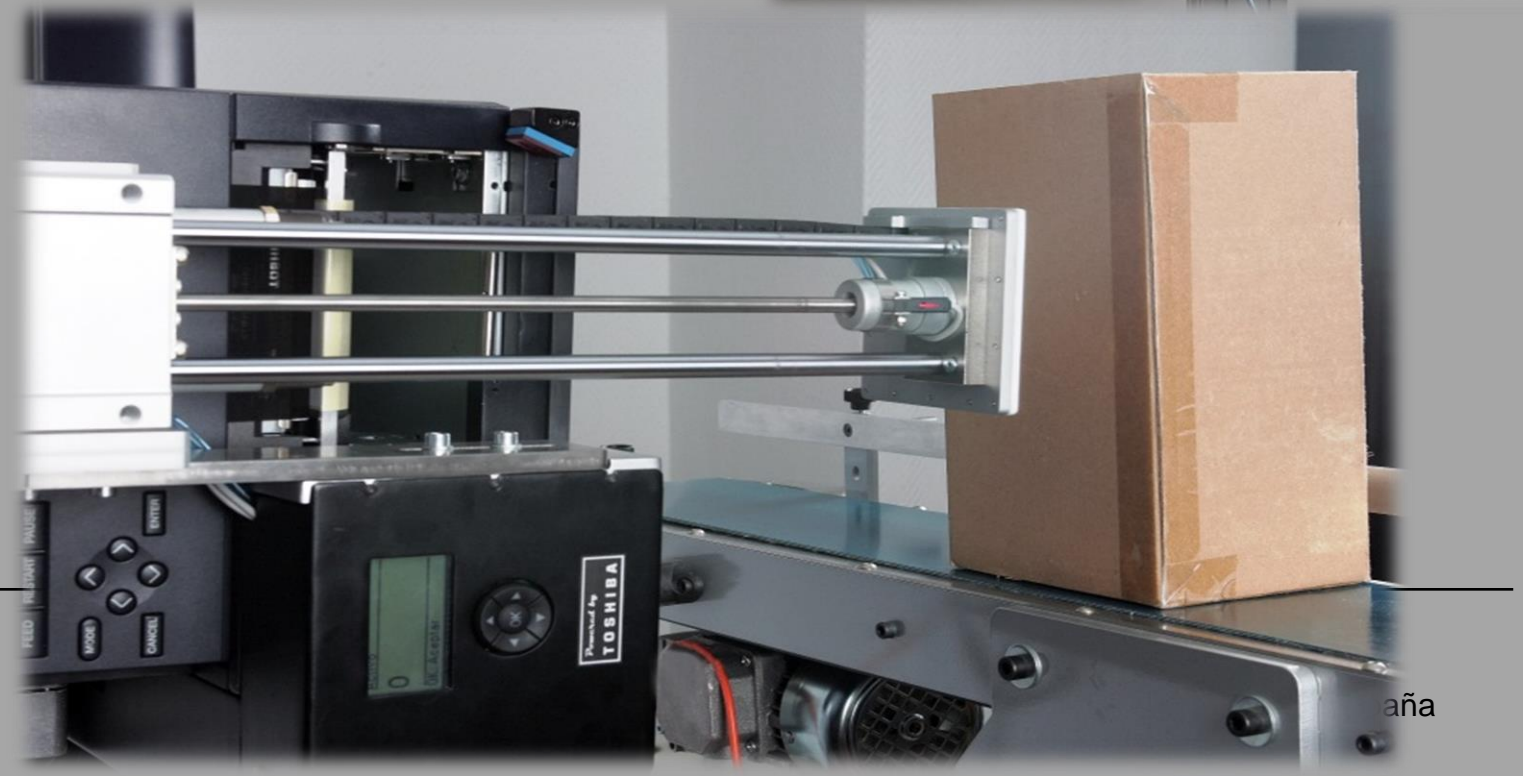
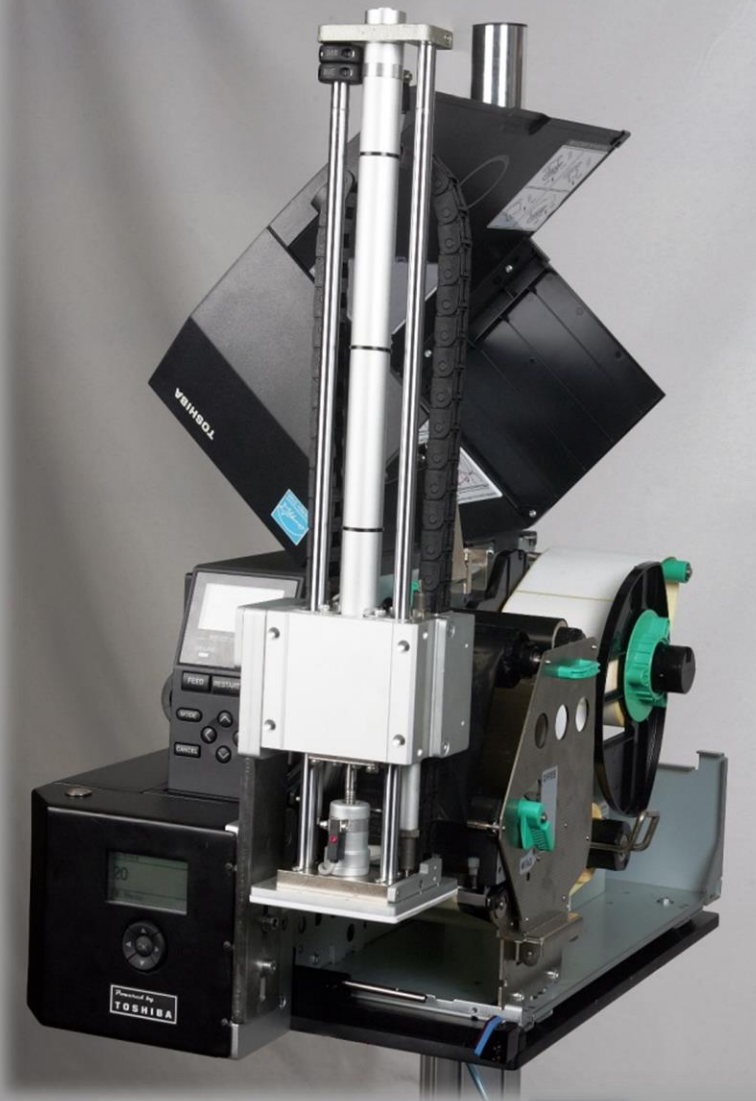
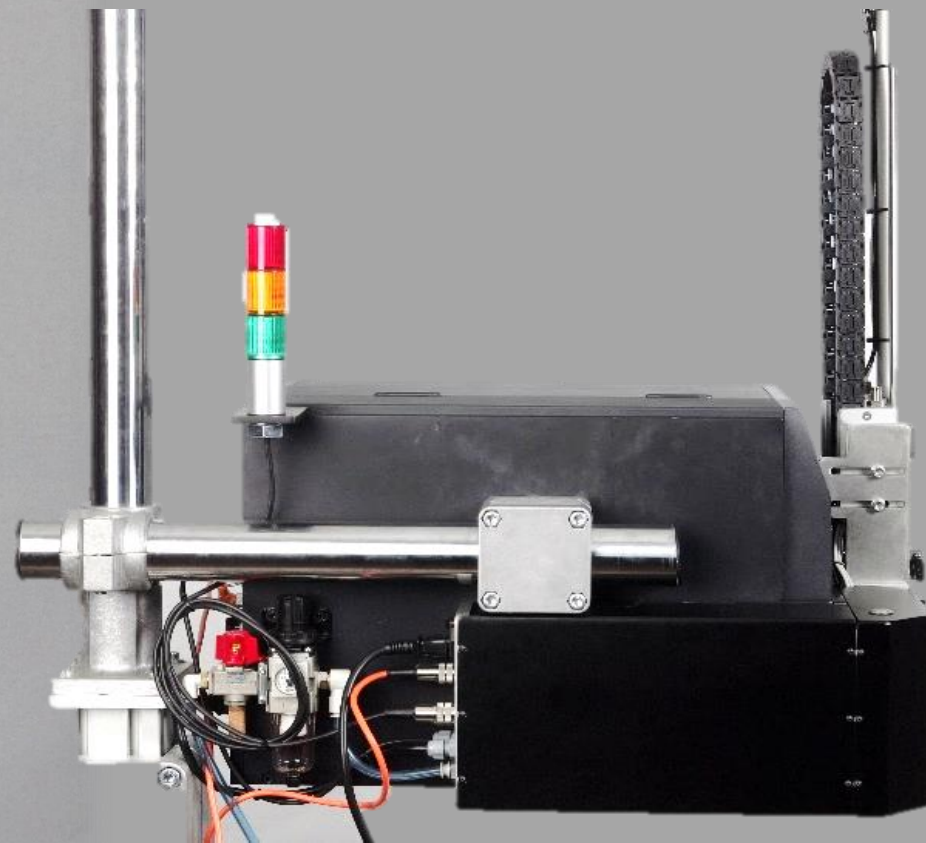
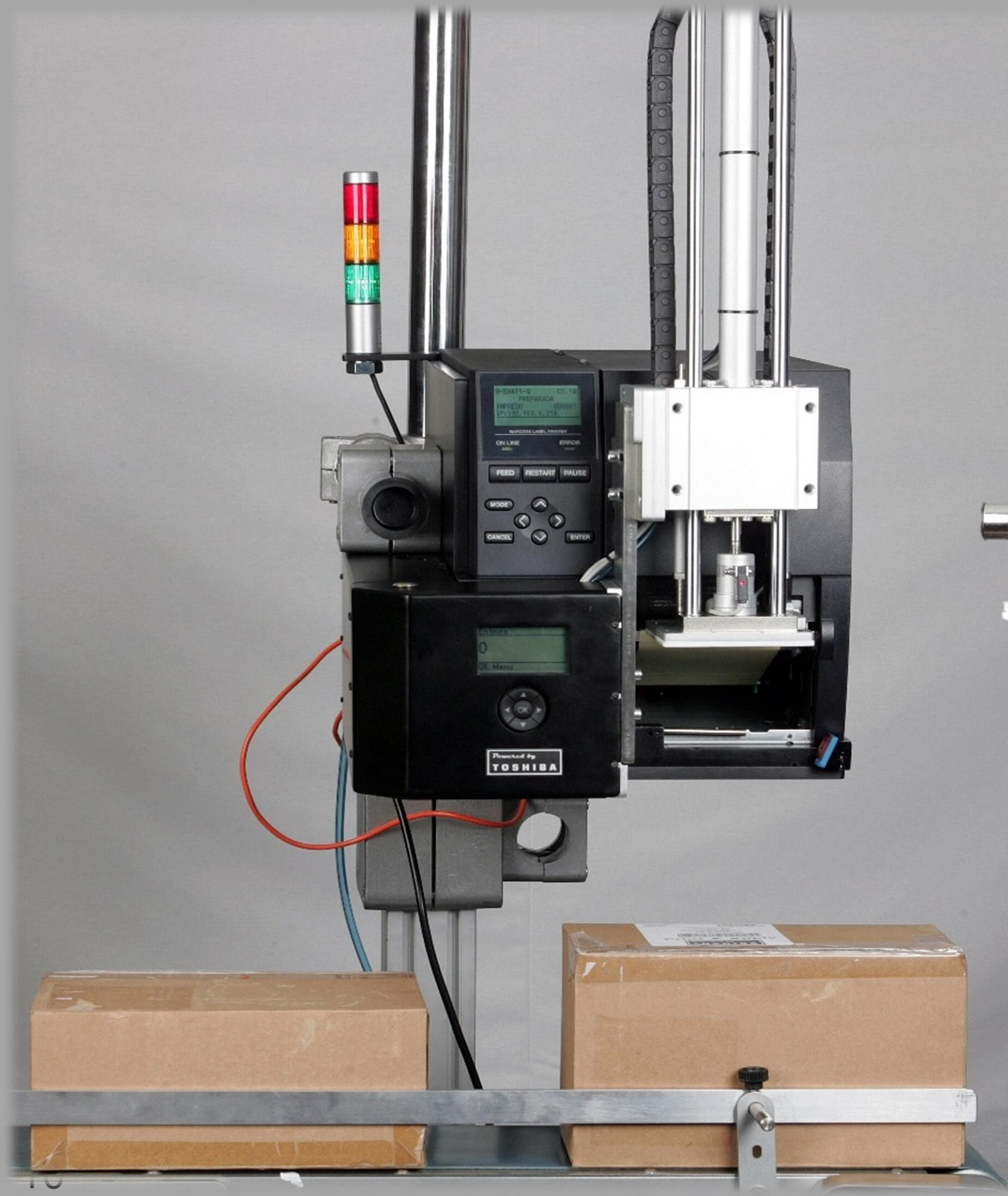


Labeling in movement

- **Monoblock piston** with variable up/down speed
- **Auto size** (different height labeling)
- Work modes: **with contact, without contact, stopped or in movement** (max. 20m/min.)



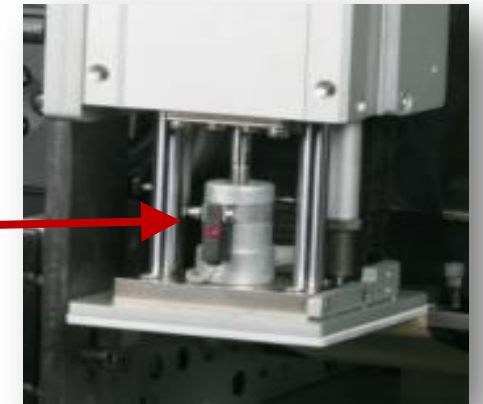
Images



Security

- **Pressure sensor** to avoid accidents
- **Pressure regulator** to limit to 6 bars
- **Perimeter signal (instantaneous stop)**
 - Prevents piston movement if you access the bounded working area
- **Piston Safety Management**
 - The piston stays up even if you close the air to avoid bumps and obstructions on the line
- **Movement speed adjustable up and down** independently to achieve the best combination of speed vs. smoothness contact
 - Being able to get to 30U/min
 - Or adjust the contact pressure for delicate product (1 Kg pressure)
- **CE Certificated**

Stop sensor



Options

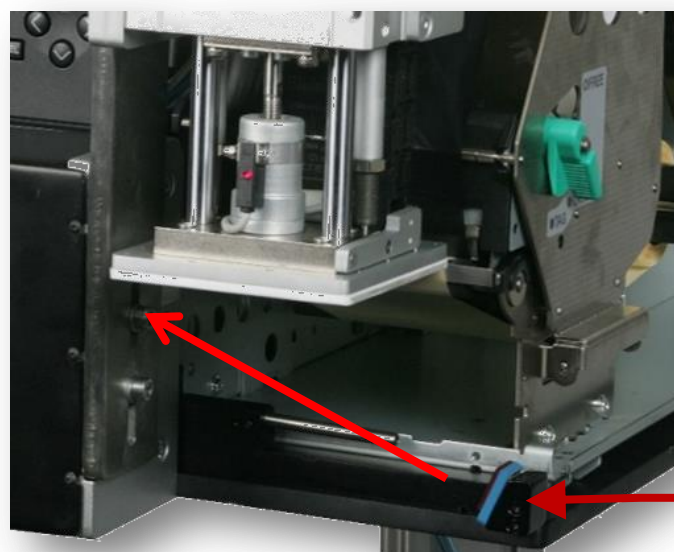
Status Light indicator:

- Green/Ready, Red/Error, Orange/Working



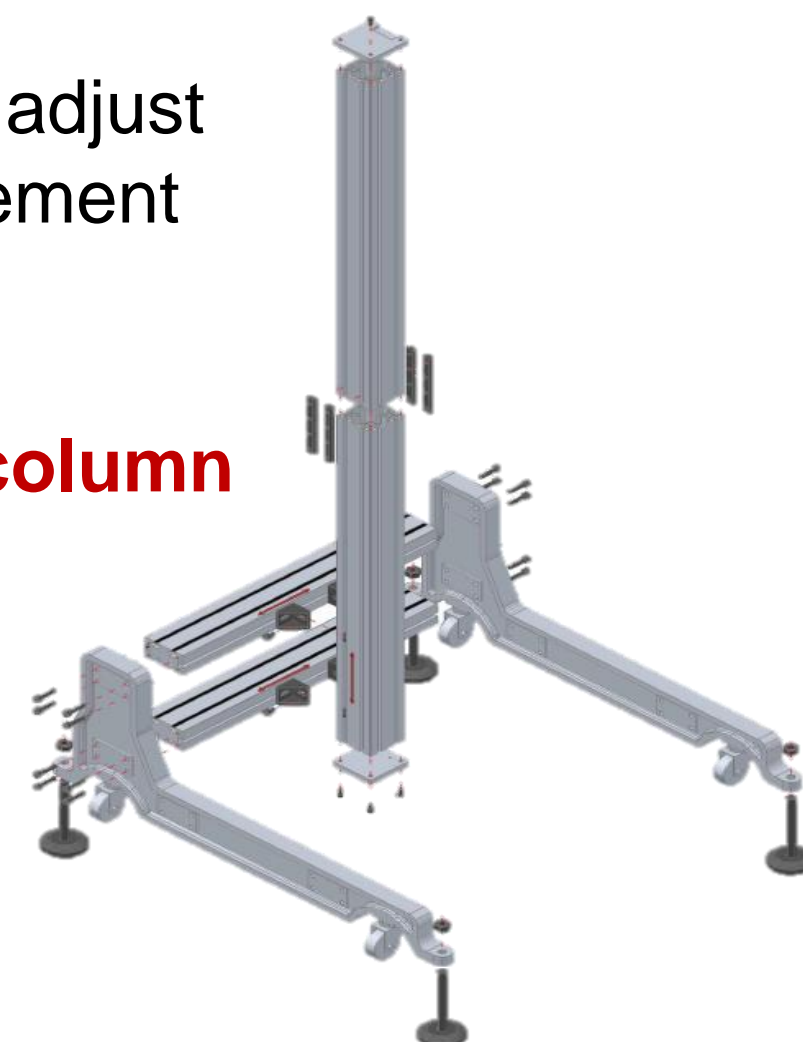
Hand sensor optional, to increase user' security:

- External sensor to avoid accidents when changing consumables or adjust
- Mounted below label output to detect a hand and avoid piston movement and accidents



Hand sensor

Support column



Additional In/Out signals (Optional)

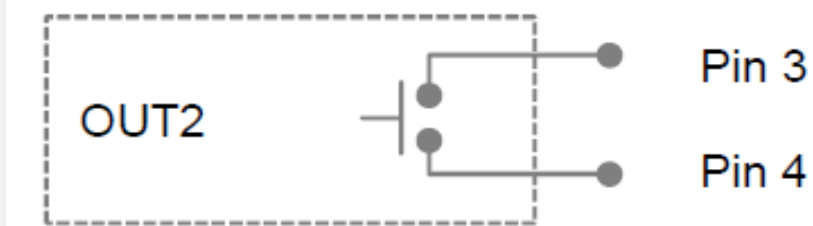
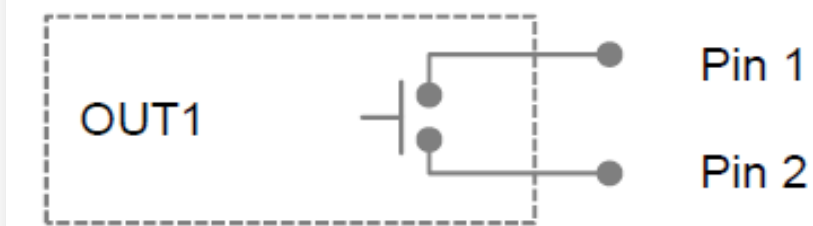
- 2 x programmable outputs
- 1 x input for 'Reset' Push-Button (to Reset the APLEX error)
- 1 x DIN6 Connector, to connect these signals

Optional I/O

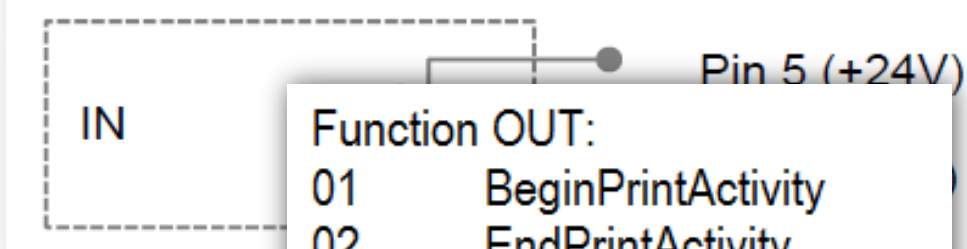
CN4 connector (bottom right). I/O signals (optional).

Pin	Name	Description
1	OUT1	Pin1 and Pin2 are a free-voltage contact when the OUT1 is ON
2	OUT1	
3	OUT2	Pin3 and Pin4 are a free-voltage contact when the OUT2 is ON
4	OUT2	
5	V24	Power 24V (external)
6	GND	0V ground (external)

Output circuit: OUT1 & OUT2, normally OPEN



Input circuit:



i/o conn.

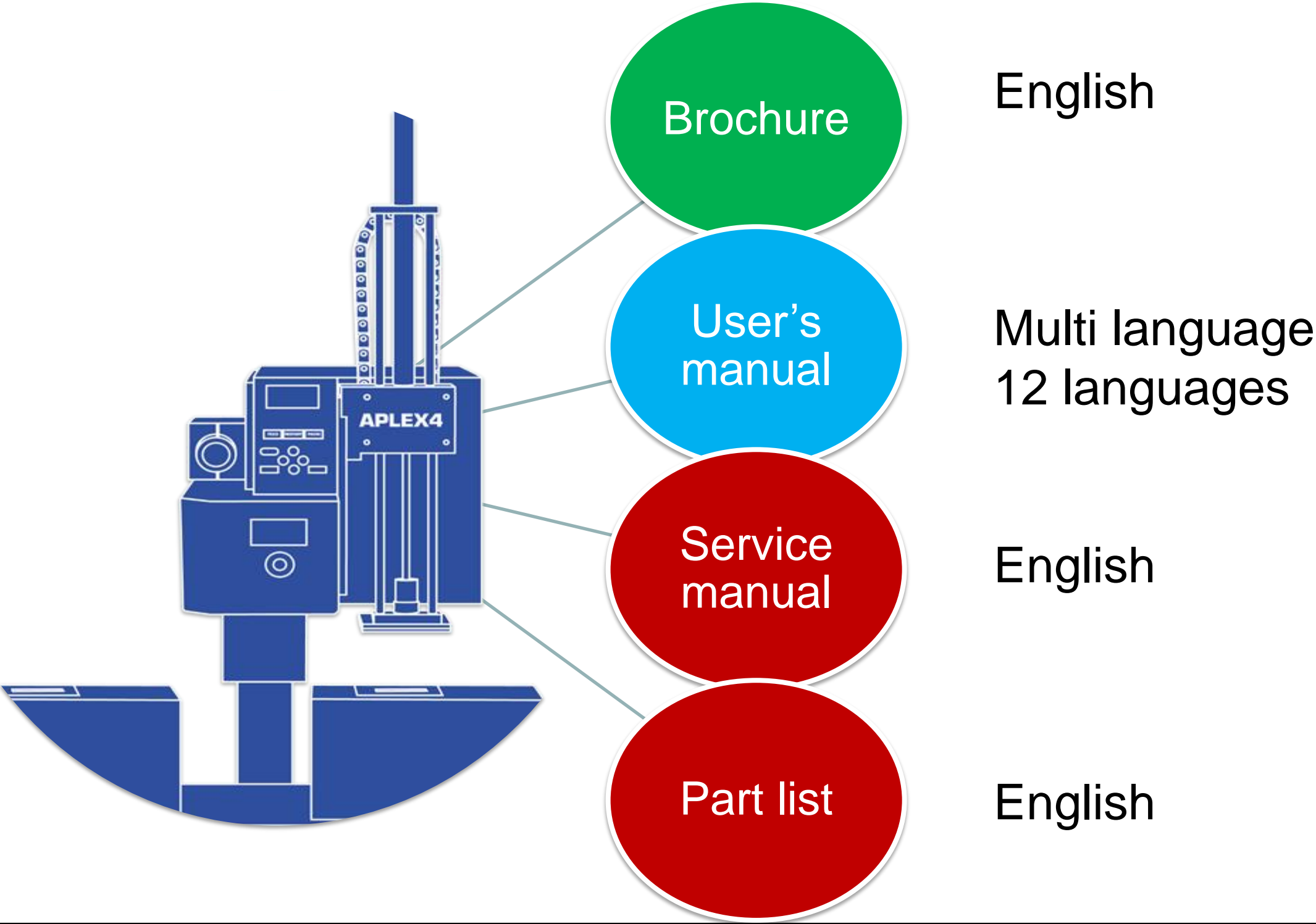


Notes:

- The connector is not supplied with the APLEX, only with the accessory.
- There is an optional kit to use these signals. This kit includes the connector, in/out board, harness and screws and instructions.
- OUT1 & OUT2 functionality can be configured on APLEX configuration menu.
- IN signal can be used to clear any APLEX error. This avoids the need to push the TEST button when any error appears.

Function OUT:	
01	BeginPrintActivity
02	EndPrintActivity
03	BeginArmUpActivity
04	EndArmUpActivity
05	BeginArmDownActivity
06	EndArmDownActivity
07	PrinterTimeOut
08	PrinterError
09	ApplicatorError
10	Reserved
11	Reserved
12	GENERAL_ERROR
13	ResetButton

Documentation



Specifications Summary

Characteristics	APLEX4 PRINT & APPLY
Application mode	with contact, without contact, stopped or in movement
Labels application	Max. 30 labels per minute Min. 25x25 mm – Max. 116x200 mm
Monoblock piston 1”	Max. 400 mm – usable ~250 mm Auto size (different height labeling)
Work modes	Print + Apply Apply (Contact) + Print + Wait_Up Apply (Blow) + Print + Wait_Down
Air compressor	Ø Ext. tube: 8mm, 4-8 bars
Print & Apply I/O signals	Print / Apply / Test-Reset Error Ready / Error / Working (status light indicator optional)
Security I/O signals	Inhibit / Perimeter / Hand sensor (optional)
Fixing system	Ø 50 mm
Dimensions	705 (high) x 364 (width) x 585 (depth) mm

Some Videos

labeling in two levels

<https://www.youtube.com/watch?v=FmsGfYlanWY>

label applicator (small label 44x17mm)

<https://www.youtube.com/watch?v=rz-rXA8jXbM>

air-blow label application (no contact)

https://www.youtube.com/watch?v=ZeSq1P_bUNU

print and apply for wine boxes

<https://www.youtube.com/watch?v=4iwU1h5DAZg>

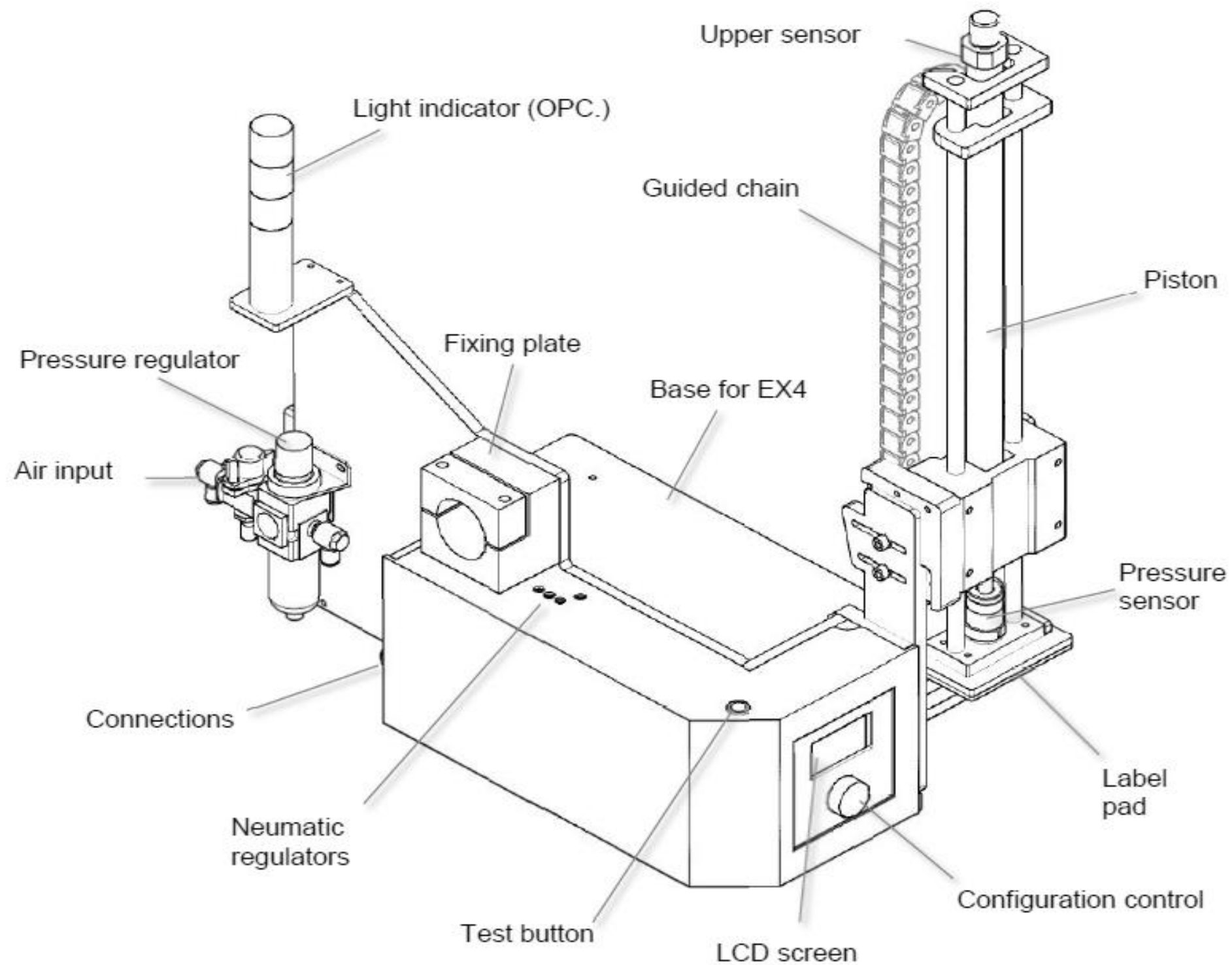
print and apply labeling (2 sides label)

<https://www.youtube.com/watch?v=frTeoo1sJg0>

apply with some part of the label flying (3 sides label)

<https://www.youtube.com/watch?v=XPkMeAvqtEw>

Specifications and description



Printer preparation

1.7 EX4 Printer preparation

EX4 printer must be setup on the following way:

- Peel off module and internal rewinder installation (without peel off sensors)
- In/Out I/F installation
- Remove the four foot

To mount the printer on the APLEX4 follow the following procedure:

- Temporary remove the back locking support “T shape”. This part should be used in case the printer is not in normal position (the printer is rotated).
- The printer must be fixed on the APLEX4 base using two screws Allen 3, washers and nuts supplied, on the right removed foot holes.
- The 2 black pieces in a 'T' shape will reinforce the printer on the base, instead of the printer foot. Should be introduced without pressure in the guide base of the printer until it stops matching the path for the fixing nuts.
- The screws will be inserted from the bottom of the printer (see image) and the nuts on the printer base.
- Put the back locking support on the printer (recommended) or keep it for future use.



APLEX preparation

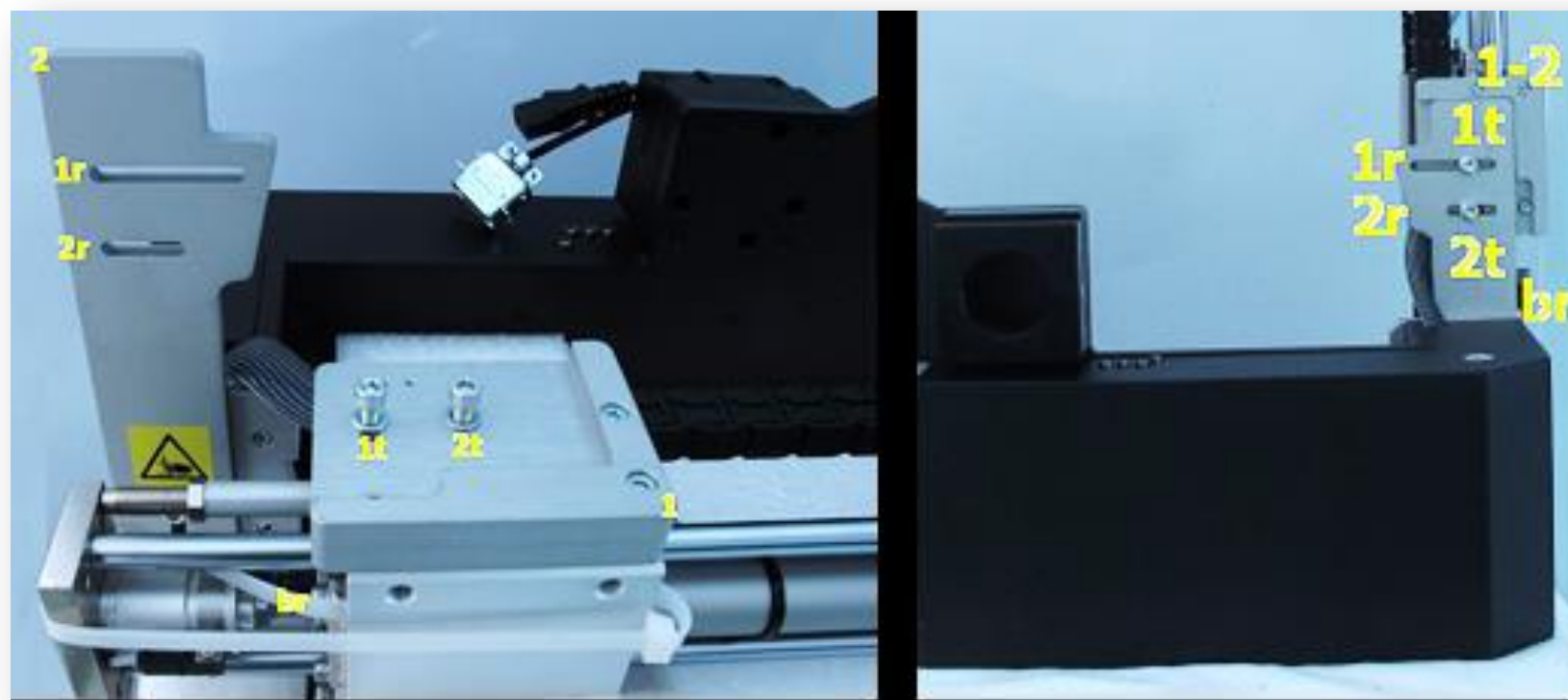
19

The unit arrives folded, after unpacking unfold it and mount following items:

- Air pressure regulator
- Label pad
- Photocell: with cable, connector and support

The piston is secured with the cable tie (br), the nuts (1t-2t Allen 5) must be removed to mount the piston on the side bracket guides (1r-2r).

Align position (1) on the piston with position (2) on the fixing plate and use the screws to fix piston to the plate (1t-1r) (2t-2r).

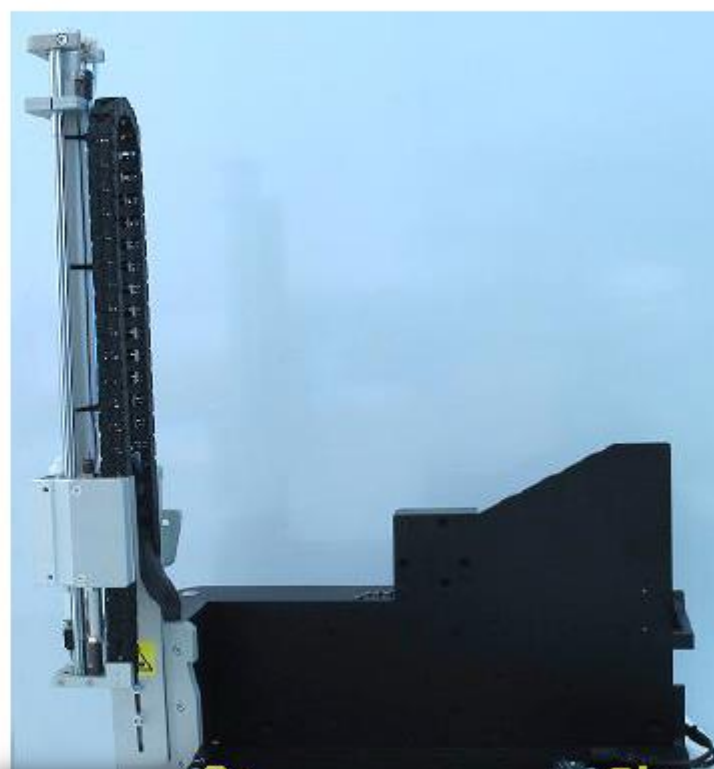


APLEX preparation 2

20

To install the printer, remove the screws (3a-3b Allen 3)

The 'T' shape parts at screws 3a-3b provide support to replace the printer feet.

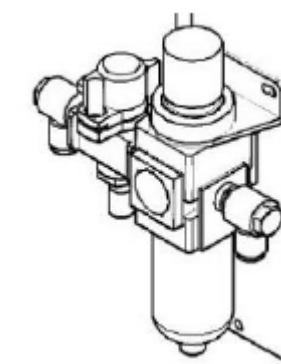


S

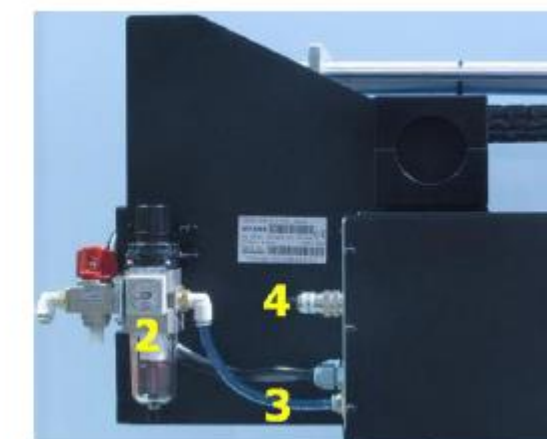
Install the pressure regulator (2)

Connect the regulator to (3) with the air tube.

Remove the cable tie (br) from the piston



9



General Air Controller

Adjust the air inlet, to the unit.

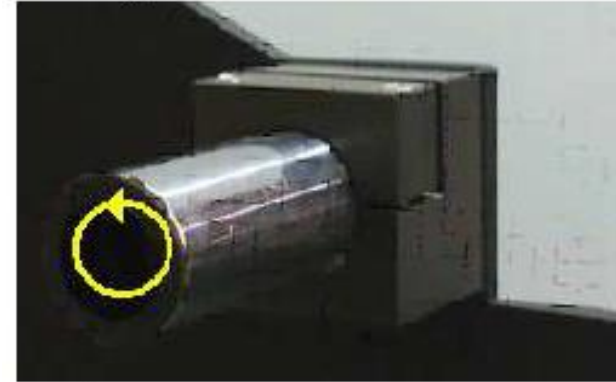
Regulator / stabilizer 4-6 Bars air inlet to the unit, filter water and impurities, pressure gauge and open/close valve.

Delivered with inlet ØExt. 8mm.

Applying positions

top side, lateral side printer vertical or rotated

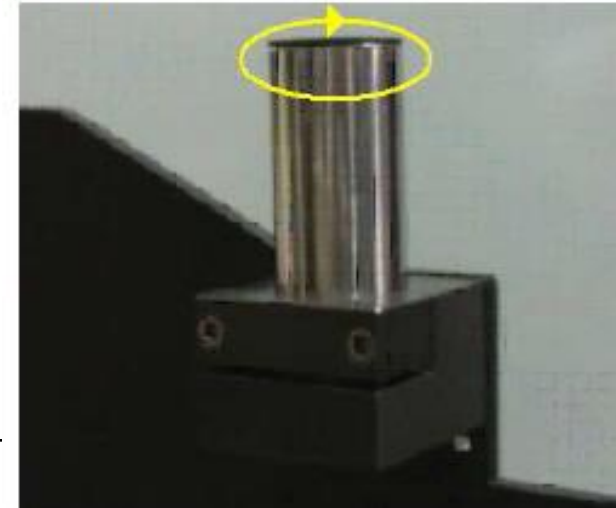
Posición (A)



Posición (B)



Posición (C)



Label pad customization

Owner's Manual

1.6 Label pad customization

Label pad 105x105mm

Label 80x70mm (Example)

Elements

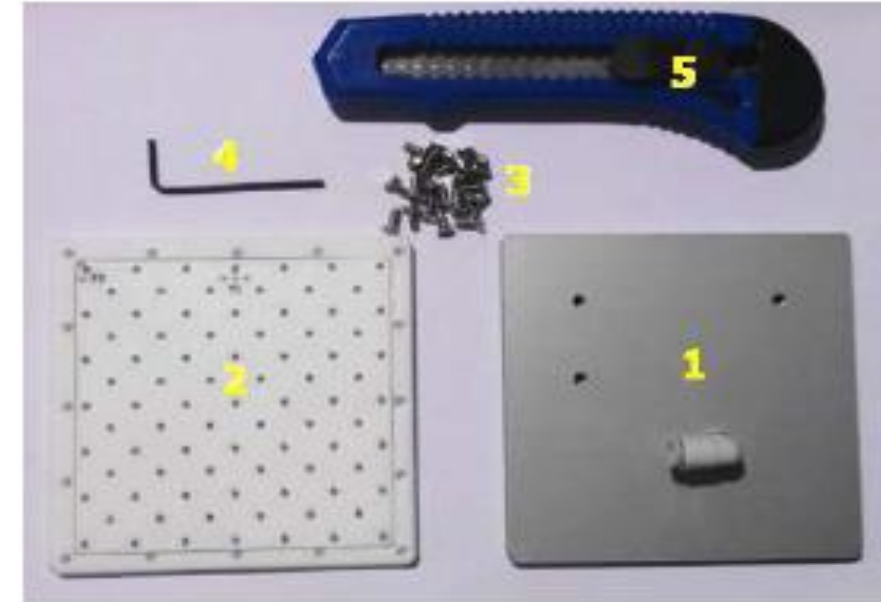
(1) Top part (aluminum)

(2) Bottom part (Teflon), with plastic label with references for T1-T2, with vacuum holes on a grid with dotted lines Horizontal / Vertical

(3) Steel Screws M3x6 x16U

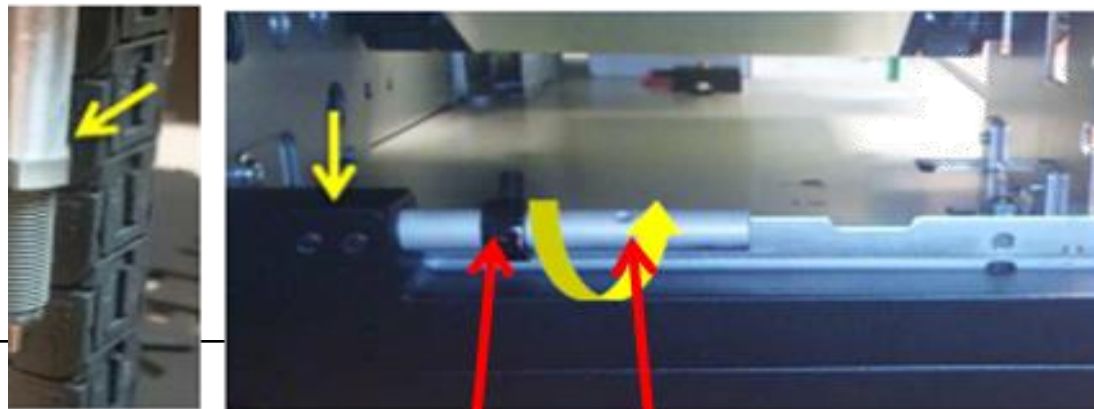
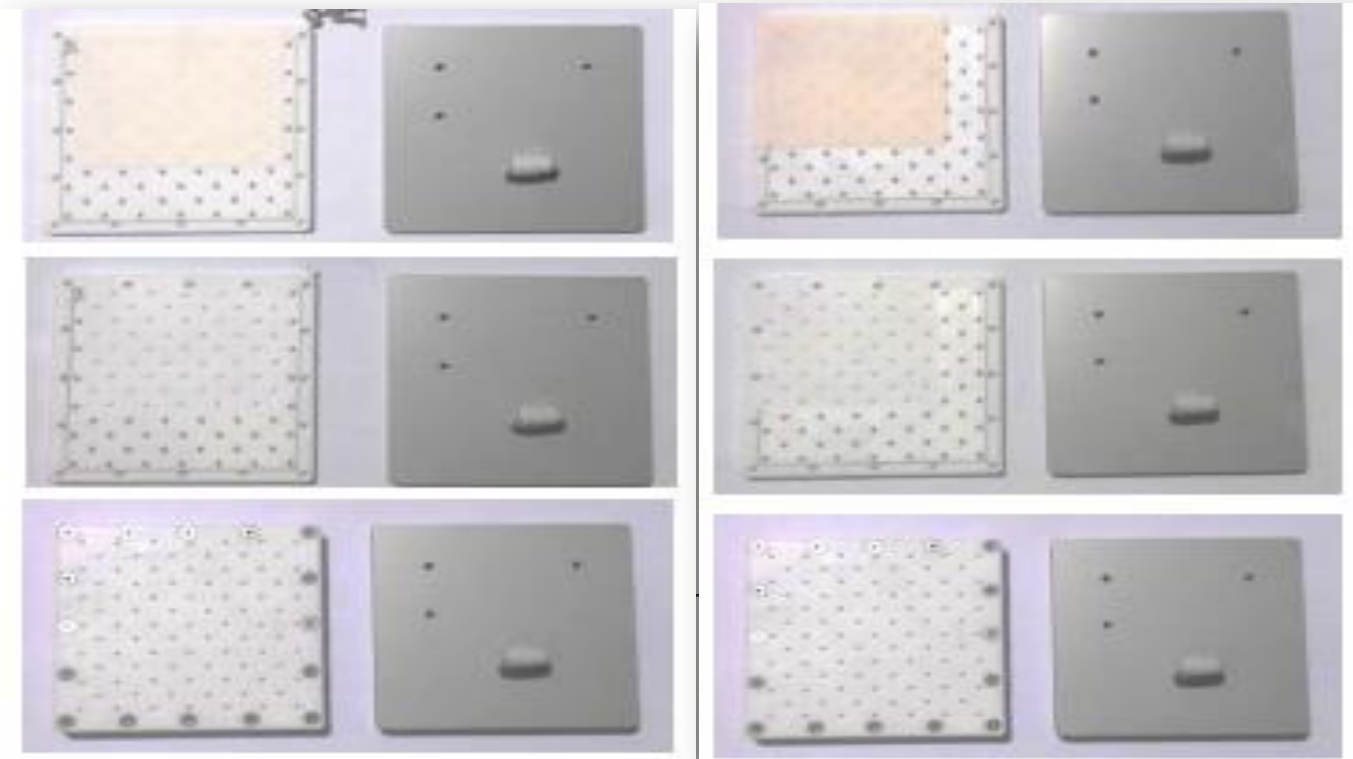
(4) 'Allen' Key 2

(5) 'Cutter' (not supplied)



T1

T2/D2



TOSHIBA

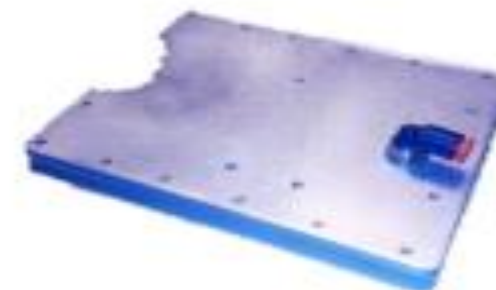
Open for: T2/D2 T1

Label pad adjustment

2.2 Mechanical adjustments

- **Applicator/Label Pad adjust**

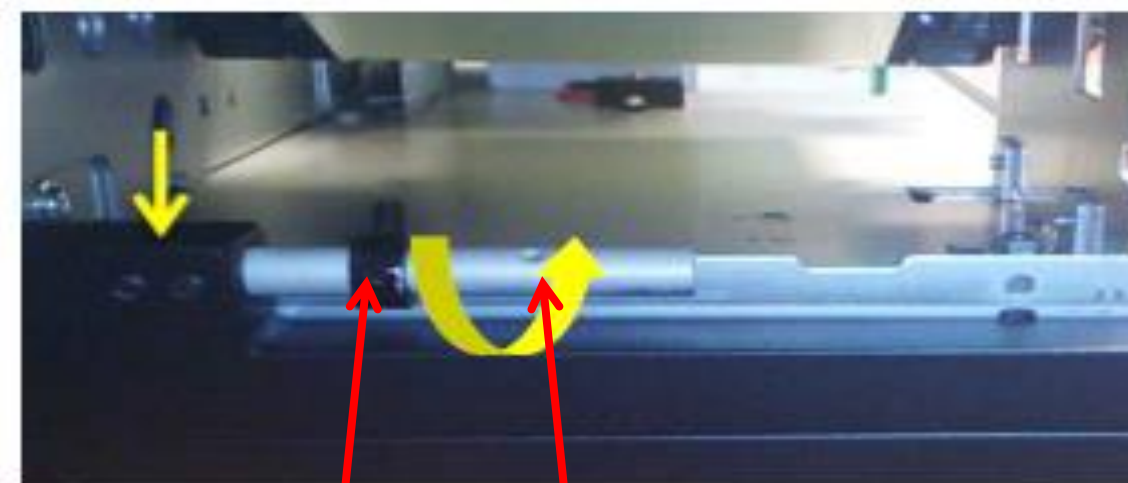
The unit is factory set for label pad supplied 100x100 (100x150). It allows you to adjust the pad (piston) up / down left / right as required by the label size / material. Use an Allen 5 key.



The label pad should be aligned with the output of the label (approx.) and below 1mm (approx.) 2mm from the dispensing edge of the printer.

The main setting for the label depending on size / material would be the 'Air Assist', the air outlet hole when the label is coming out of the printer on the label pad and that remains 'stuck' to this.

IMPORTANT! AIR ASSIST must be fit over half of the label towards the printer, loosen the screws and tightening them again once positioned.



Open for: T2/D2 T1

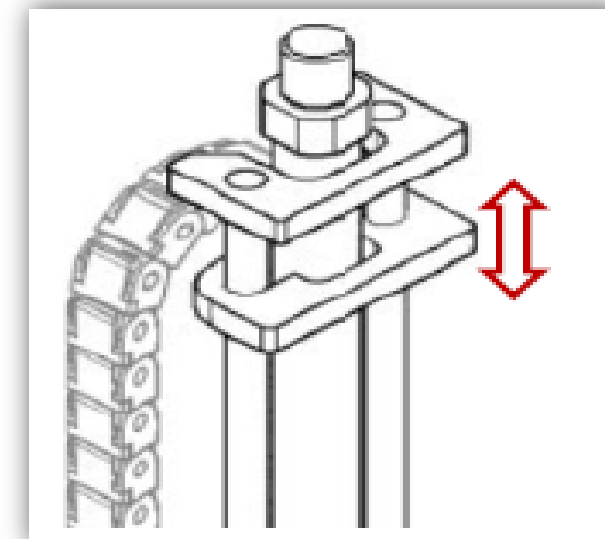
TOSHIBA

Applying without contact

Path Limitation

Limits the maximum piston movement.

Mechanical adjustment of the limit, stops the piston down with the locking piece mounted on the piston guides. When working with Blow - Apply/Print - Wait Down, or as security to not exceed a threshold to hit the product. Use an Allen 3 key.



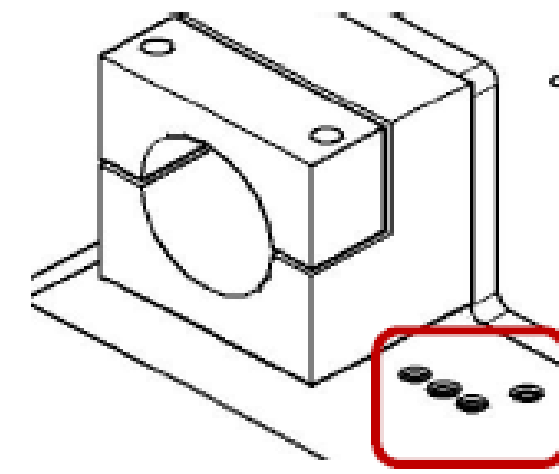
The valve (1) free the piston pressure air for free movement up/down for maintenance purposes so as to adjust the position of the piston stopper down, moving piston (4) on the rails (5) of the piston block (6) so that the label pad (3) is in the desired position when working both blowing without contact with the product or for safety and to limit the output of the piston in contact mode. Guided chain (2) of the tubes/wires allows smooth piston operation.



▪ Pneumatic Settings

There are four pneumatic regulators on the unit. Within the overall team pressure 4-6 bars generally providing external regulator can be adjusted separately all unit air parameters.

The settings are accessed through the top of the box control unit, and are from front to back:



Pneumatic adjustments

- **Piston up**

Sets the speed of the piston going UP.

The piston speed is factory set. But according to the installation, the piston may be is needed to rise faster, if there are irregularities or projections on the product to avoid contact to the label pad, or high speed of the product to avoid wrinkles on the label when is applied with contact. Or to reduce the labeling cycle.

- **Piston down**

Sets the speed of the piston going DOWN.

Slowing down to soften the contact of the label pad with the product, or up to reduce the labeling cycle.

- **'Air assist'**

Adjust the air support outlet that keeps the label close to the label pad while printing.

Is adjusted according to the size / material of the label.

- **Vacuum/Blow**

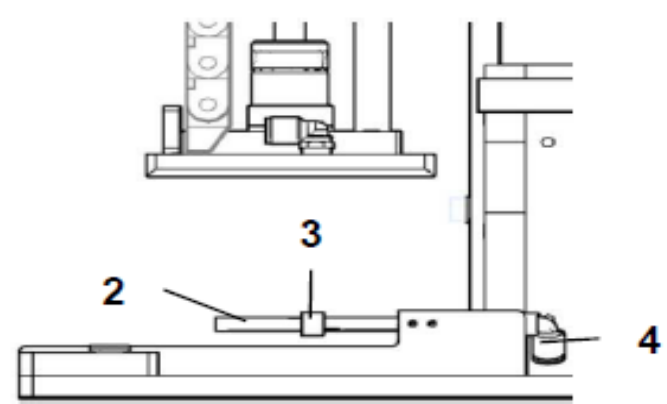
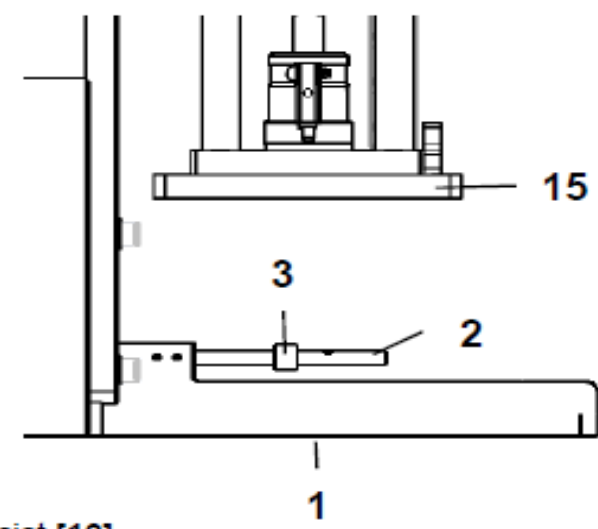
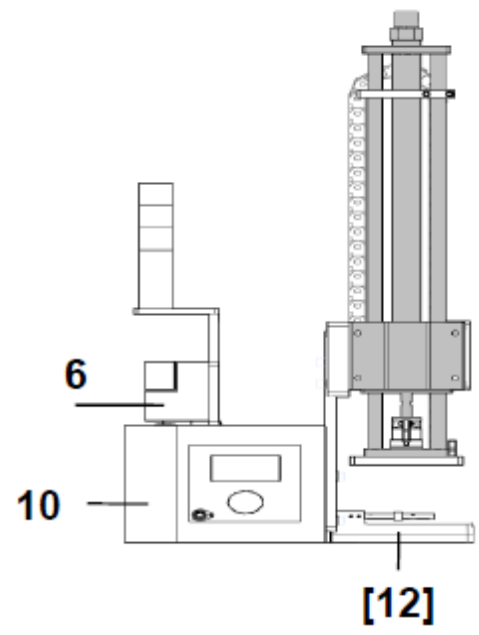
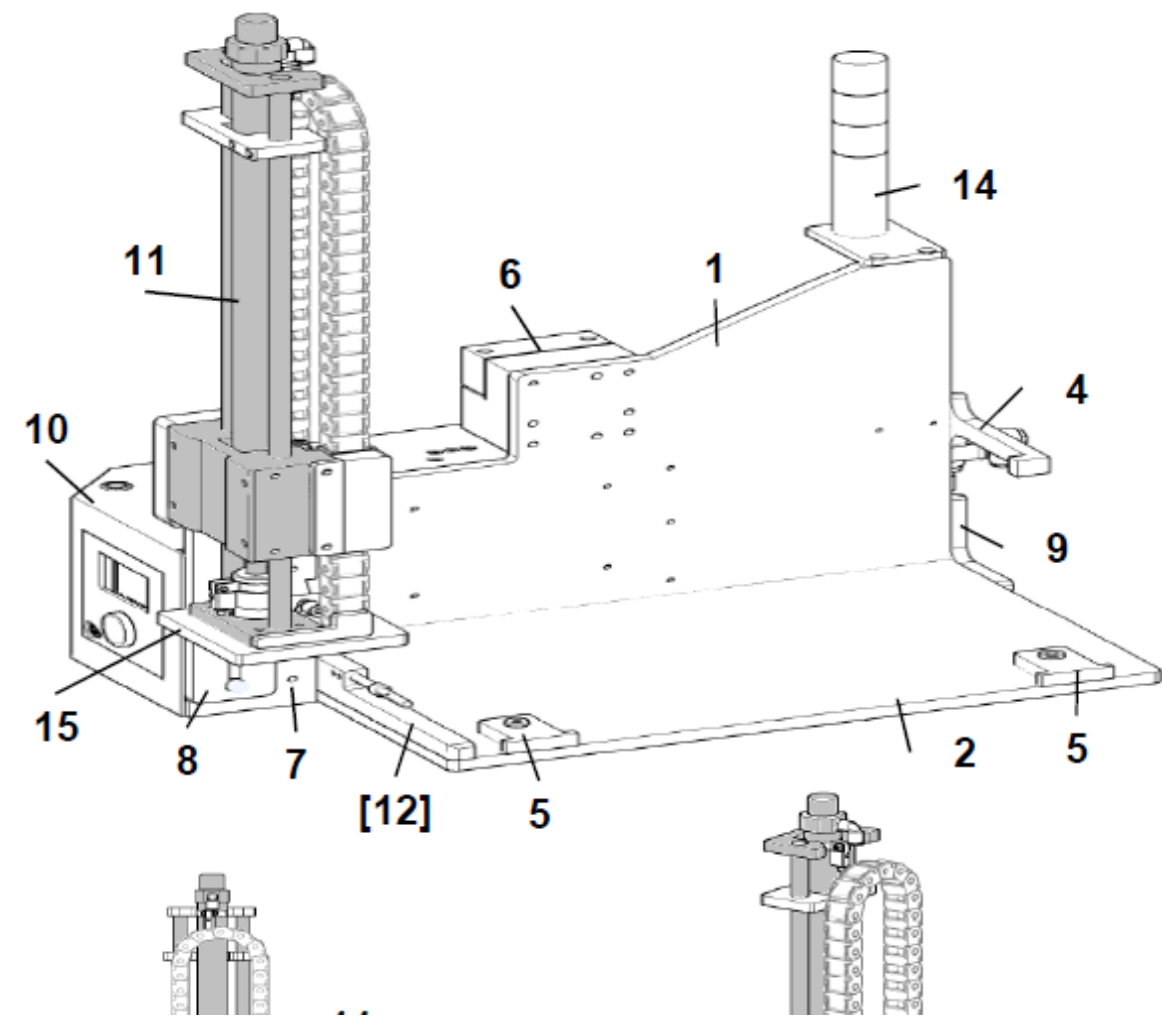
Adjust the pressure keeping the label on the label pad (double valve)

Normally acts when the label is completely printed and the time 'air assist' is finished, in some cases (small label) is needed to act at same time. Is also the applied 'force' when blowing the label.

Is adjusted according to the size / material of the label.



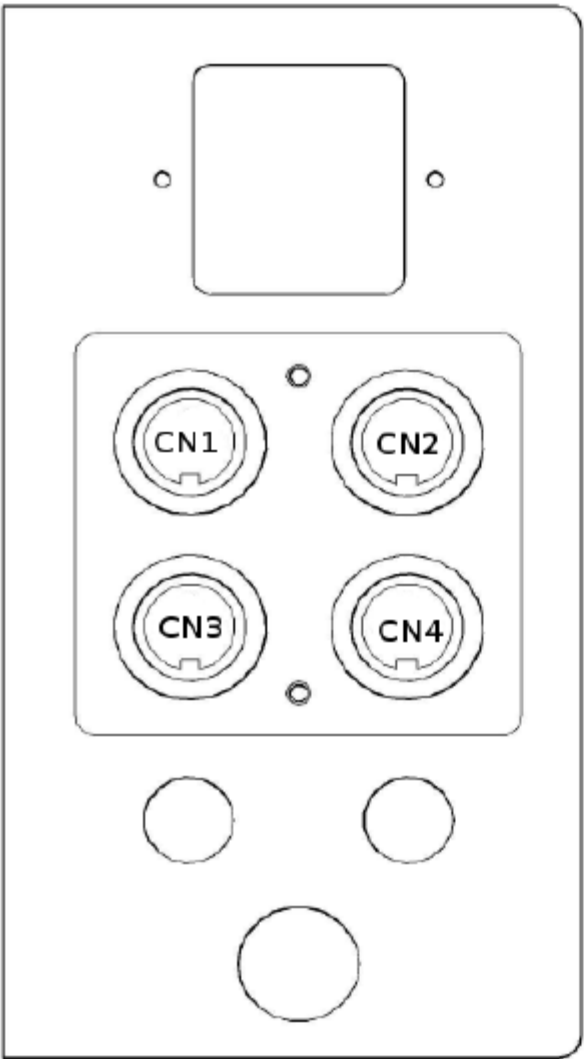
Part list



Air Assist [12]

Ref. No.	Part No.	Description	Remarks	Qty
1	9905101	Air Assist Support		1
2	9905102	Air Assist Tube		1
3	9905103	Hole Selector Shell		1
4	9905104	Elbow Fitting M5 T4		1

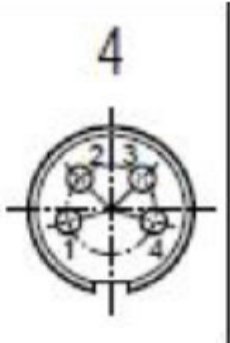
Back panel connectors



- CN1: for PRINT&APPLY signal (program 0) (or only APPLY program 1-2) and INHIBITION signal
- CN2: for PRINT signal (program 1-2) and PERIMETER security signal
- CN3: for light indicator (optional)
- CN4: I/O programmable I/F (optional)

CN1 connector (upper left). Trigger signals.

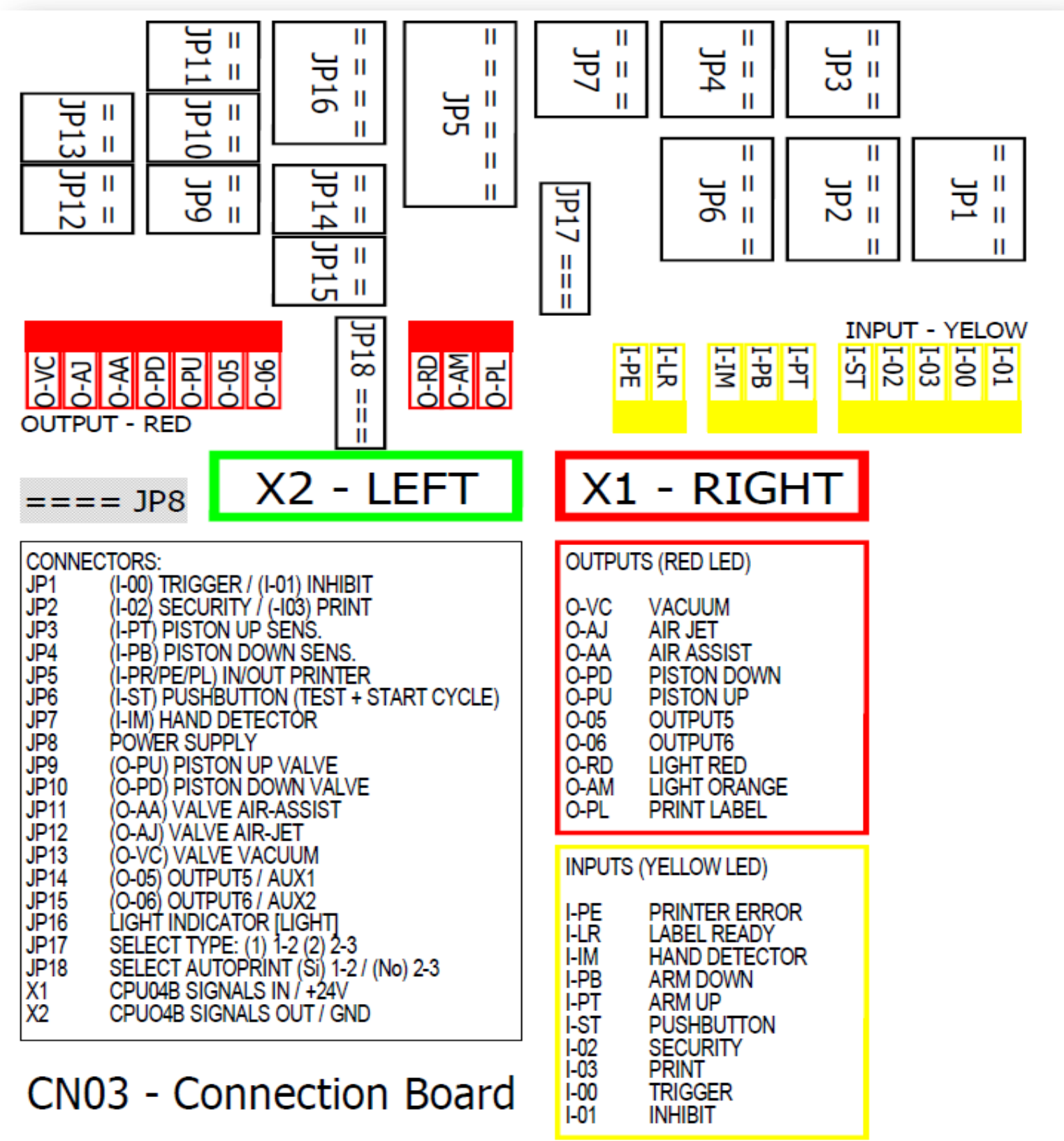
Pin	Name	Description
1	V24	Power 24V (50 mA max)
2	GND	0V ground
3	INP-0	Print&Apply signal or Apply signal (apply) when printing signal is separated of apply signal
4	INP-1	Inhibit cycle signal



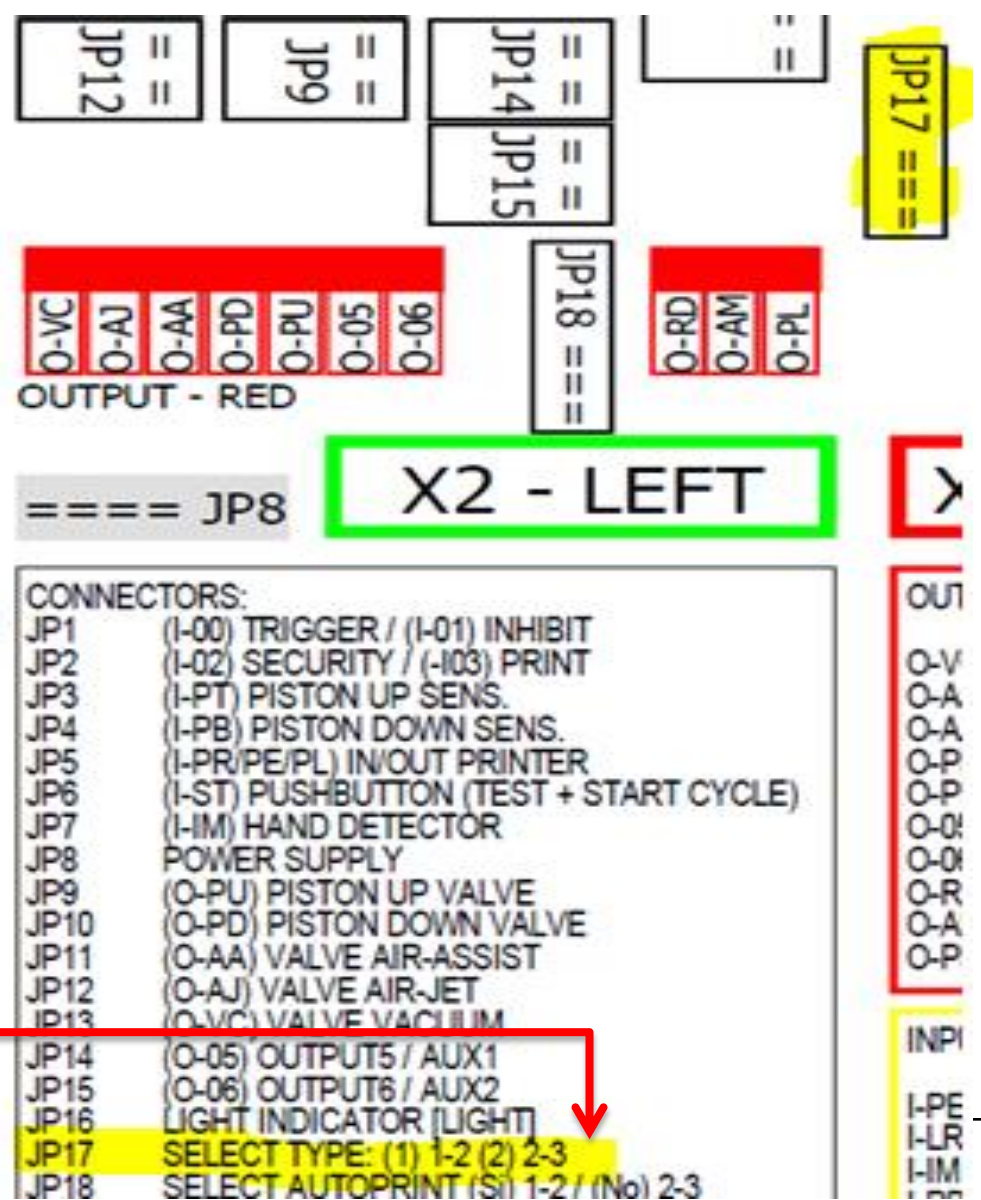
CN2 connector (upper right). Perimeter security and inhibition signals.

Pin	Name	Description
1	V24	Power 24V (50 mA max)
2	GND	0V ground
3	INP-2	Perimeter security signal
4	INP-3	Init cycle signal (printing) when printing signal is separated of apply signal

Connection's label and internal LED for status



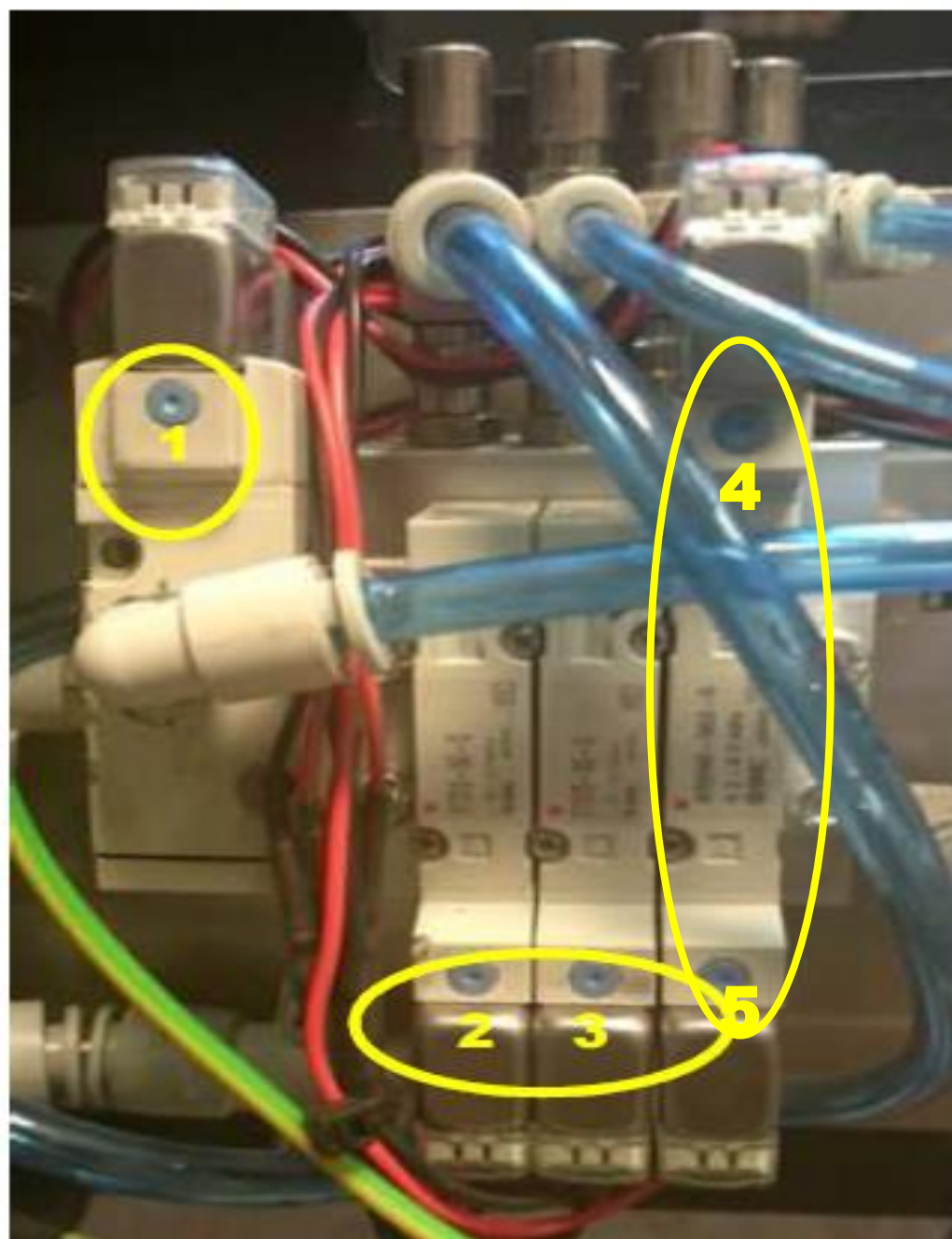
JP17: I/O TYPE 1 or TYPE 2
Must be same than printer configuration!!!
Printer default type1
Aplex4 default type2



Checking valves

Checking valves

Pressing blue button you can check is some of the corresponding valves are working:



- 1 BLOW function
- 2 VACUUM function
- 3 AIR ASSIST function

To check PISTON UP and PISTON DOWN valves disconnect CPU harnesses and press blue button on the corresponding valves 4 & 5

Configuration menus

Owner's Manual

2. INSTALLATION

2.1 Parameters setup

- User configuration

To enter configuration mode from the application counter, press the control button.

Notes:

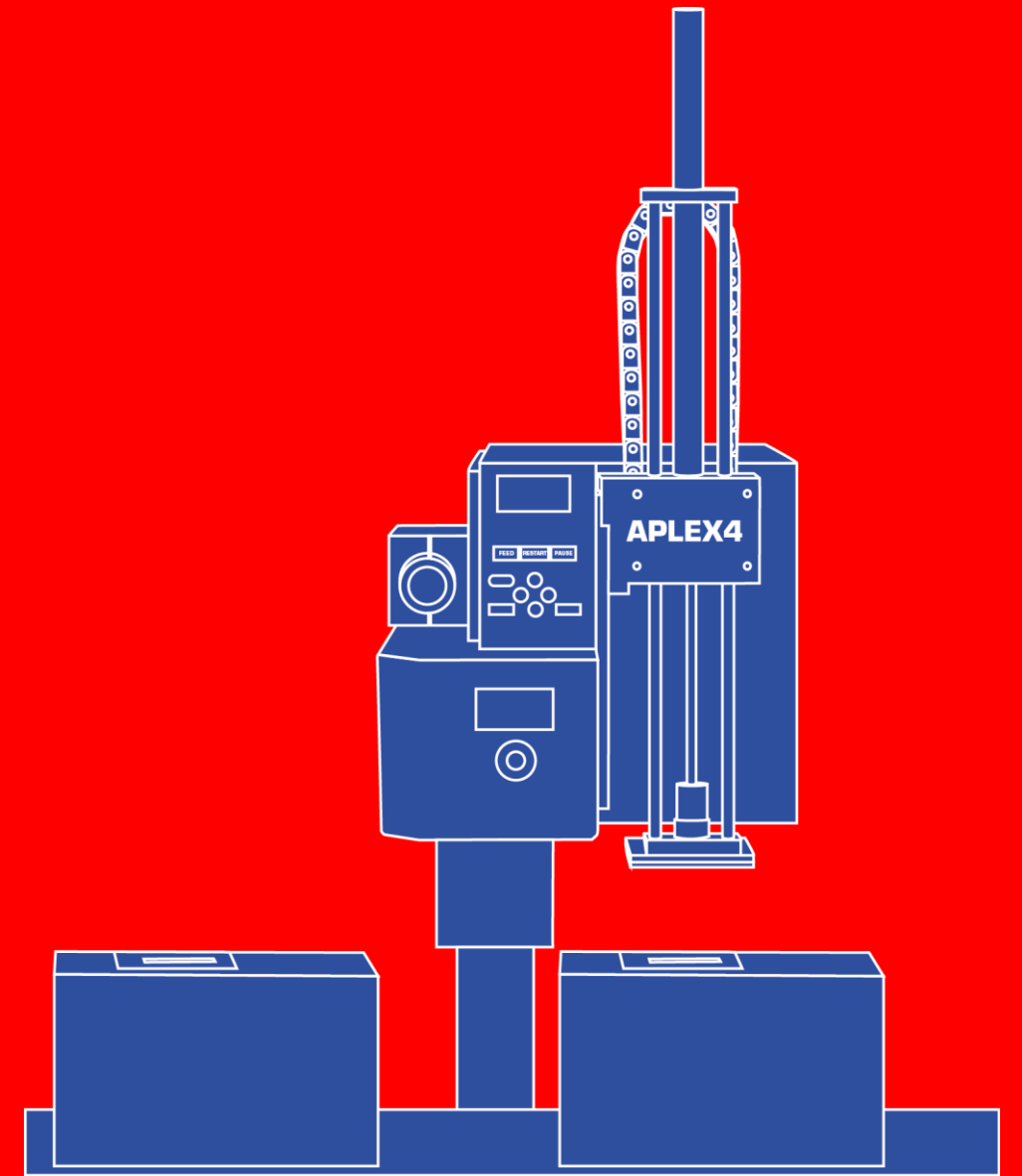
Some menus have the EXIT option hidden, to go back you must push the control button when no selection bar is shown.

Parameters are active when selected but they are not stored until you get back to Main Menu.

Parameter	Description
Main Menu	Applied labels counter
CONFIGURATION...	Configuration
DIAGNOSTICS...	Diagnostics
SERVICE...	Parameter clear
EXIT	Back to Main Menu
CONFIGURATION...	
INPUTS...	INPUT signals
TRIGGER...	Trigger signal
EDGE	Trigger edge: 0 ↑ Incoming product – 1 ↓ Out coming product
DELAY	Trigger signal delay Detection of product will be done in selected edge

OPTION DESCRIPTION

Hand sensor
Support Column
Light indicator
I/O

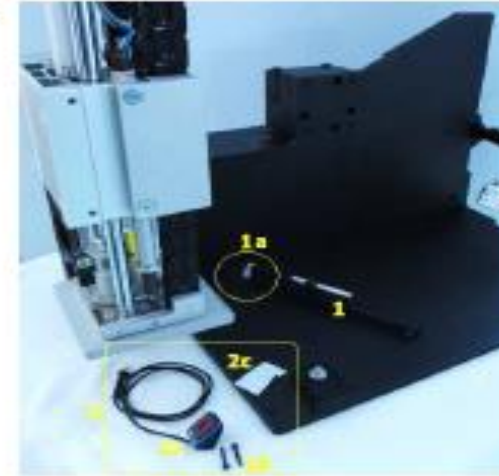
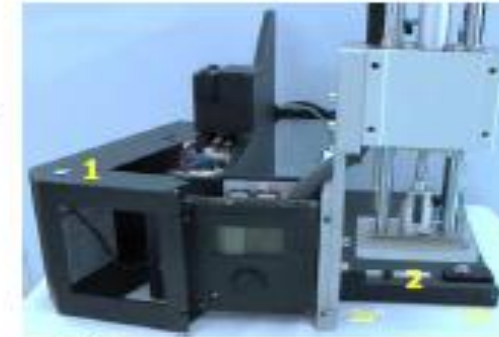
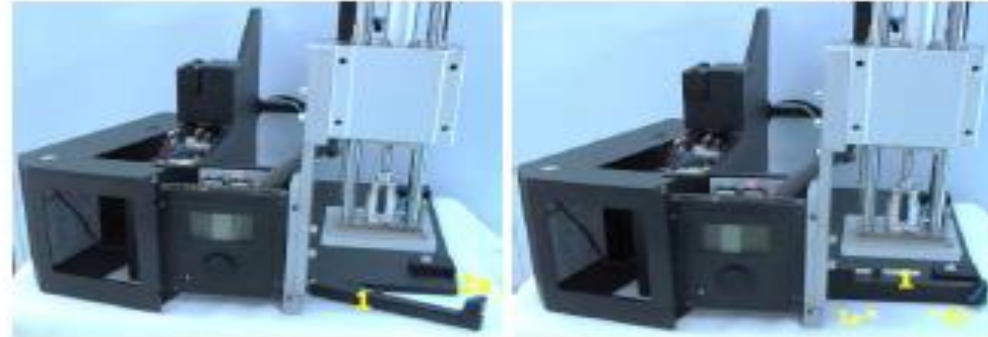


Hand sensor

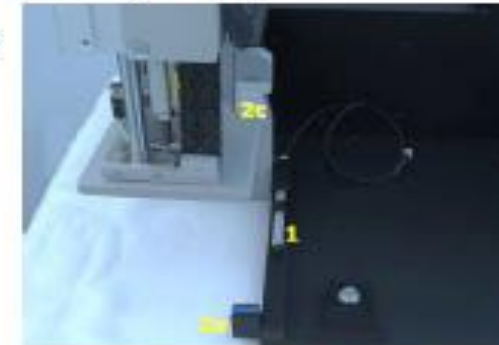
To mount hand detector option to avoid the piston to operate and harm operator's hand, please follow the following steps.

1. Remove the cover (1)
2. Disassembly the 'AirAssist' support (2) removing two screws (2a-b)
3. Disconnect air tube (1a) from the 'AirAssist' (1)

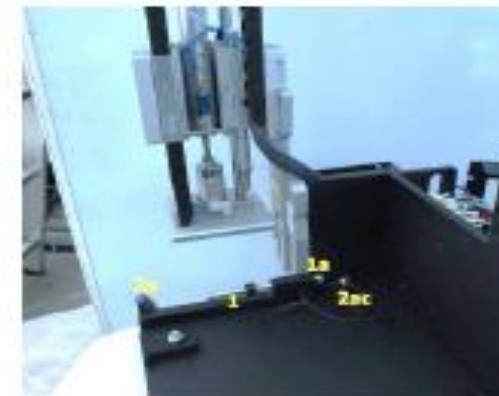
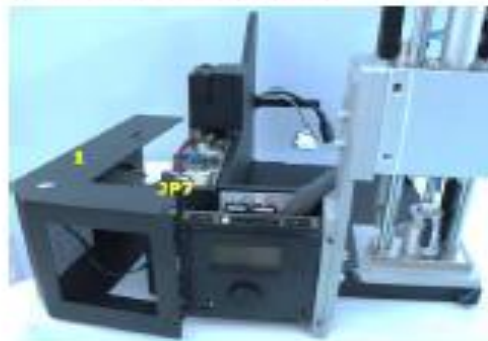
4. Check all the elements from the kit (2). Sensor+cable (2a), screws (2b) and adhesive mirror (2c)



5. Screw the Hand detector (2a) with the screws (2b) to the 'AirAssist' (1) on the right corner. Mount the 'AirAssist' (1) again on the APLEX4 base with bottom screws (1a-1b)
6. Stick the adhesive mirror (2c) over the piston support plate adjusting it to the plate shape



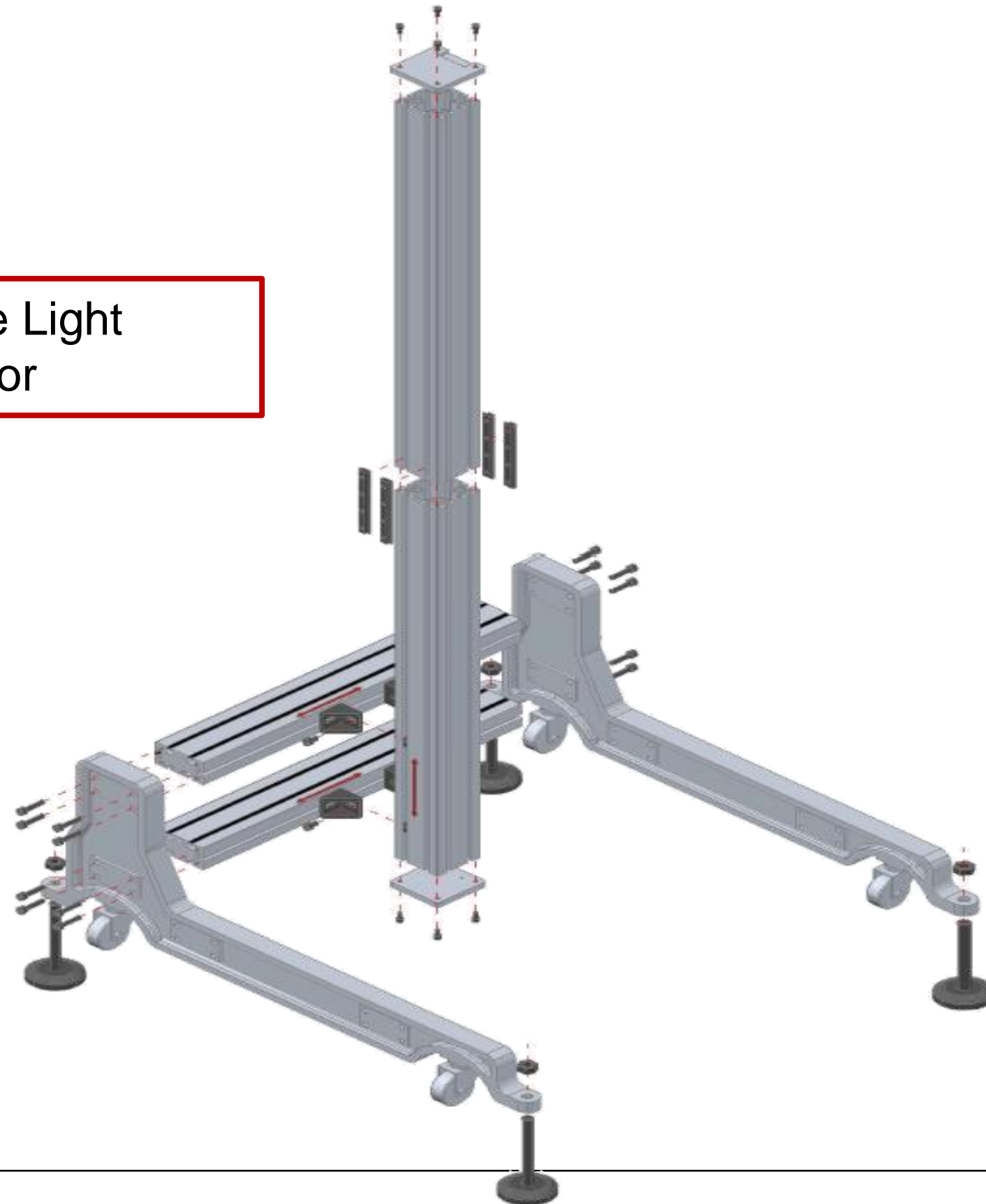
7. Connect back the 'AirAssist' (1) air tube (1a) and pass the connector/harness (2ac) of the hand detector (2a) through the hole
8. Connect the harness on the connection board (JP7)
9. Put the cover back



Support column



For the Light
indicator



For the
pressure
regulator



Light indicator

Light Indicator can be mounted in two different positions:

1. On the top of the APLEX4 side frame
2. On the top of optional Support Column

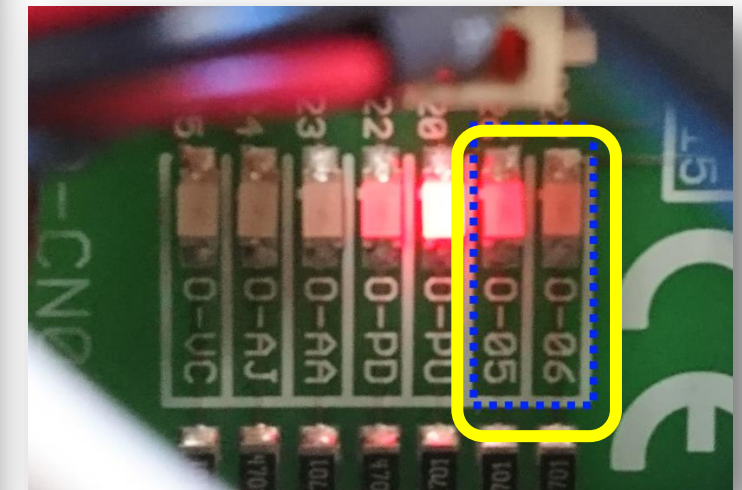
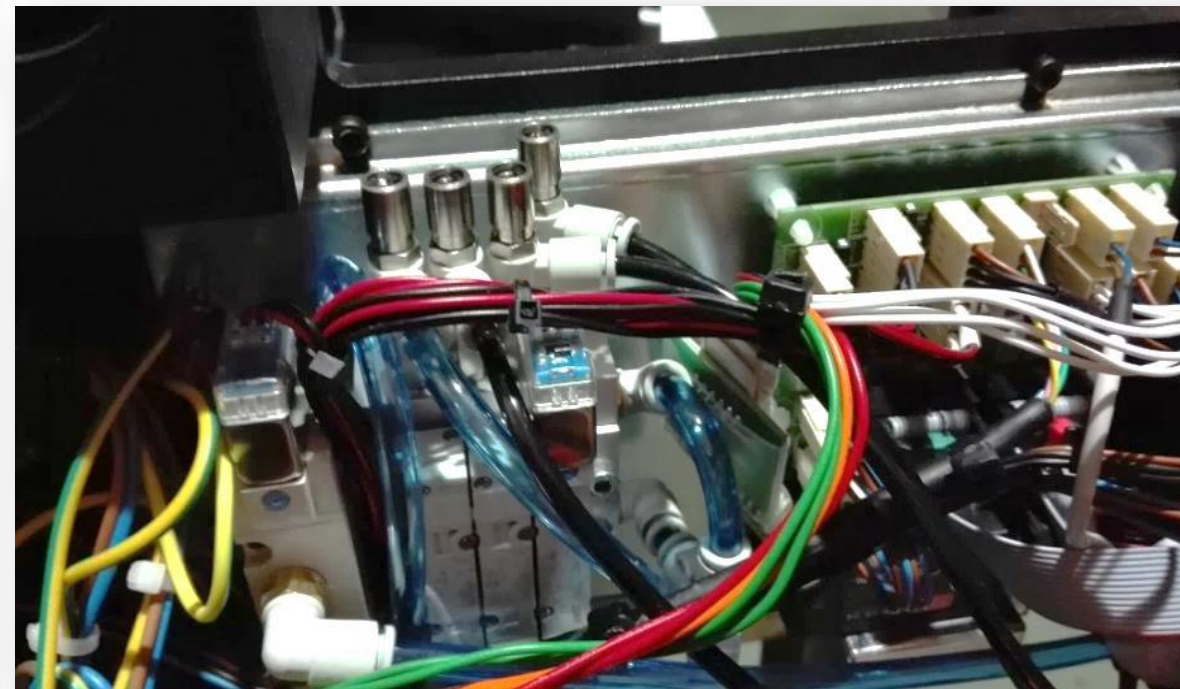
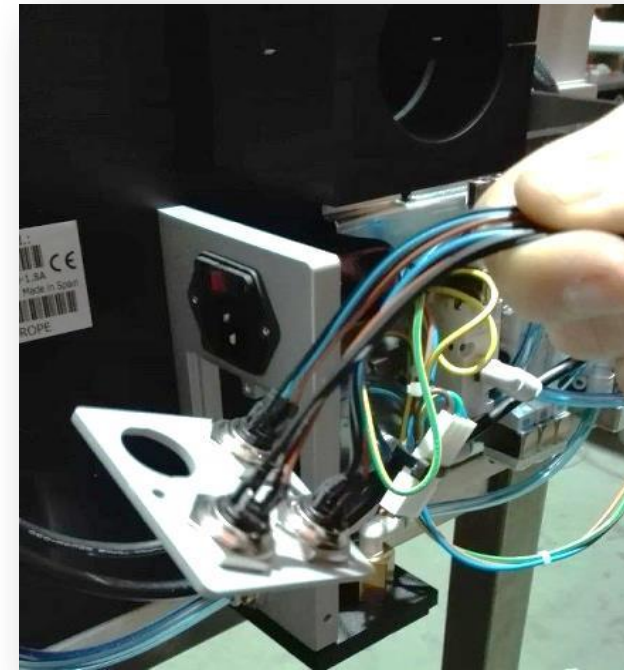
- Unscrew the two Allen screws on the top of the APLEX4 side frame.



- Screw the two Allen screws on the desired location
- Connect the Light Indicator harness on the bottom left connector on the back of the APLEX4



I/O



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SPECIAL CONFIG MODES

Direct print&apply without photocell

Auto print combined with INHIBIT signal to APPLY only selected TRIGGERS

RFID errors with optional error signal

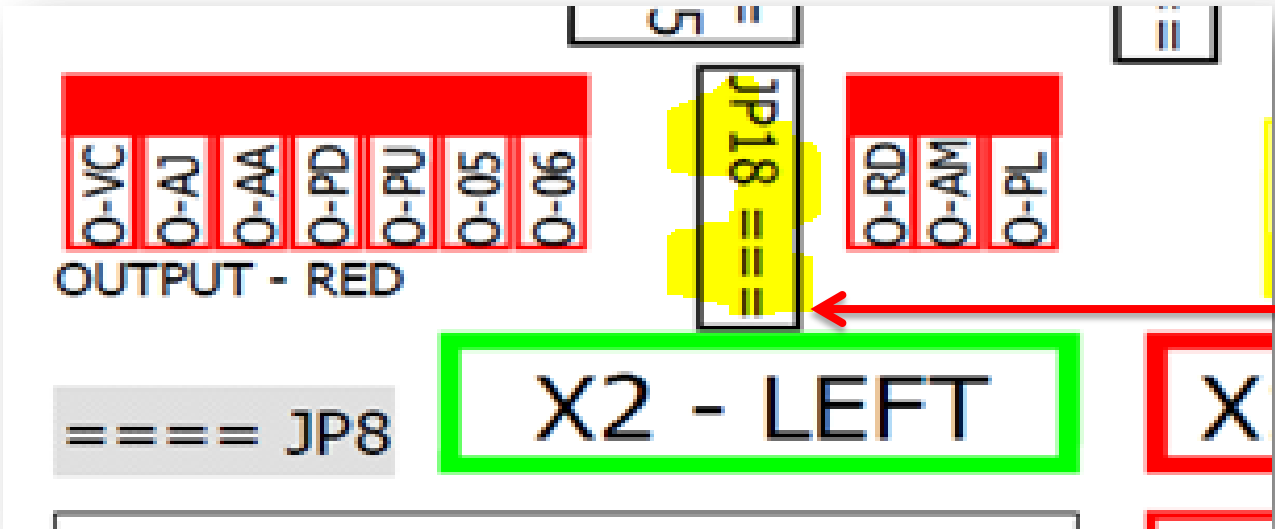
Special configuration modes

Direct print&apply without photocell

No photocell is used with jumper in pins 1-2

AUTOPRINT
There is a possibility that print and apply cycle starts automatically when the printer receives the print command from the PC without using a photocell. To activate use jumper JP18 of the I/O PCB on pins 1-2.

JP10	LIGHT INDICATOR (LIGHT)
JP17	SELECT TYPE: (1) 1-2 (2) 2-3
JP18	AUTOPRINT (Si) 1-2 / (No) 2-3
X1	CPU04B SIGNALS IN / +24V



Default is (No) 2-3

Special configuration modes

Auto print combined with INHIBIT signal to APPLY only selected TRIGGERS (when the printer has data to print)

- Autoprint ON (setup on APLEX board)
- Inhibit ON (activated by customer PLC or photocell)
- Printer receives print order
- Possibility 1
 1. PLC puts “Inhibit OFF” only when current box on the line must be applied
 - If a box must not be applied the Inhibit signal must continue ON
- Possibility 2
 2. Or the photocell puts “Inhibit OFF” every time a box passes, it will only print when there is data to be printed but not error will appear if there are not data

Uses INHIBIT signal as trigger instead of standard PRINT&APPLY signal

CN1 connector (upper left). Trigger signals.

Pin	Name	Description
1	V24	Power 24V (50 mA max)
2	GND	0V ground
3	INP-0	Print&Apply signal or Apply signal (apply) when printing signal is separated of apply signal
4	INP-1	Inhibit cycle signal

Special configuration modes

RFID errors with optional hardware for error signal

- When using RFiD the printer will get error if can't encode the label
- In normal situation APLEX won't apply but the printer will print the wrong label
- Selecting ERROR MODE the APLEX will continue applying the label without operator's intervention to eliminate the wrong label
- Using optional I/O the PLC can know if there is a printer error to know this rfid label is wrong and reject next labeled item

PRINTER...	
ERROR LEVEL	1
ERROR MODE	0 allows the APLEX to continue the labeling cycle although the printer gives error (for example when printing void tag RFiD label)
ACTIVE LEVEL	

AUX. OUTPUTS	Functions:
* Requires optional In/Out and v1.6.3, includes:	01 BeginPrintActivity
- 2 x outputs	02 EndPrintActivity
- 1 x input 'Reset' Push-Button	03 BeginArmUpActivity
- 1 x Connector DIN6, to solder	04 EndArmUpActivity
	05 BeginArmDownActivity
	06 EndArmDownActivity
	07 PrinterTimeOut
	08 Printer Error
	09 ApplicatorError
	10 ResetPushButton

THANK YOU



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