

Welcome to Rational Labelling & Marking systems  
OP12neo Thermal Ink Jet Printing systems

By selecting the OP12neo you have made a significant investment in your business which will enhance your production for many years to come.

The following documentation is designed to compliment and aid the efficient use and maintenance of your Machines.

# CAUTION

## READ BEFORE OPERATING EQUIPMENT

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

Safety Symbols.

You will encounter various symbols on the machine and inks. These are designed with your safety in mind. Pay attention to all symbols and safety advice.



Basic warning symbols. When this is displayed wait for further instruction and use caution.

GHS02 Flammable



Flammable. You may encounter this symbol on fast drying inks.

Read the associated documentation and take the appropriate precautions for use.

GHS05 Corrosive



Corrosive. You may encounter this symbol on fast drying inks.

Read the associated documentation and take the appropriate precautions for use.



You will encounter this warning sign on all covers that will expose mains electricity once opened. Always isolate mains prior to opening.

#### General Safety Tips.

1. Prior to starting machinery ensure all personnel are aware and clear of the equipment.
2. Make sure all foreign objects are removed and all safety guards are in place.
3. Make sure the pack arrestor tray is in the up position and that packs can flow through the machine.
4. Make sure the machine is secure in its mounting to the equipment stand
5. Make sure the equipment stand is secured to the grader or primary equipment base.
6. Maintain good housekeeping at all times.

#### Operating, Service and Maintenance safety.

1. Do not attempt to service the machine until qualified. Only trained personnel should be operating and servicing the machine.
2. Do not conduct maintenance procedures while the machine is in operation. Ideally remove the machine to a maintenance workshop for any servicing procedure.
3. Never open covers with power on.
4. Give capacitors time to discharge before opening covers.
5. Always replace covers before powering up.
6. Always use the proper tools for each task
7. Always use the proper replacement parts.
8. All electrical maintenance should be performed by qualified personnel.
9. PAT all appliances after performing electrical maintenance.

#### Cleaning of the machine



Before attempting to clean the machine, ensure the power is off and the mains power supply is isolated. The machine is designed to be cleaned with most mild detergents or stainless steel cleaning agents. Avoid ingress to print heads and control sockets. Wipe the touch screen with a dry non abrasive cloth or touch screen cleaner



If compressed air is used to remove loose material, operators must wear appropriate safety clothing and goggles. Ink cartridges should be removed and capped. Replace with old cartridges while cleaning is performed.



Ink cartridges may need cleaning occasionally to open blocked nozzles. Always wear appropriate safety gloves to prevent skin contact with ink. Use a lint free cloth and only wipe the nozzles forward. Never wipe side to side.



## Introduction

The OP12neo is the 4<sup>th</sup> generation of thermal ink jet printer for marking of egg packs on packing lanes of most common egg graders. The Name is derived from OP (Olympus Printer) 12 (12mm print height) neo ( from the Greek word Neos, meaning new or recent). It takes its place as the latest development of the genre, incorporating many of the features in previous models enhanced with new technologies and refinements. The branding image of the machine is familiar while all the components and firmware are new and specific to this machine.

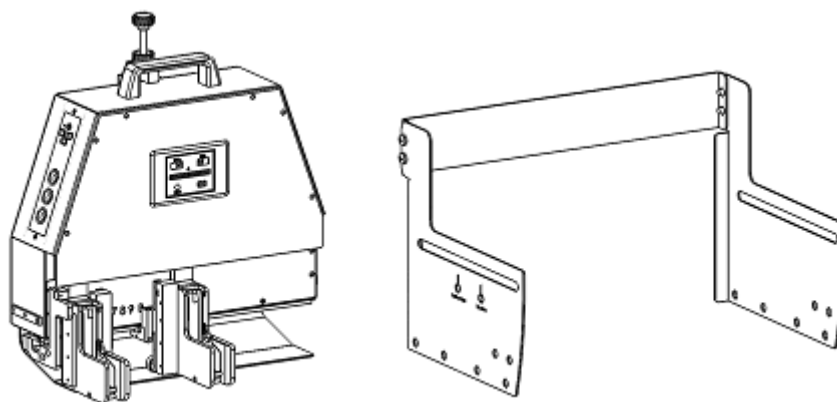
As with all Rational machines The OP12neo can be integrated with Rational software and other Rational Machines to form a total operating system. The OP12neo can also be used as a standalone machine, operating with embedded print designs pre-programmed to your requirements.

The machine will operate with Rational supplied inks (water based or solvent) and will auto recognise either as inserted. Water based inks should be used on porous packs where the pack design has a total ink coverage of 30% max in the area you want to print.

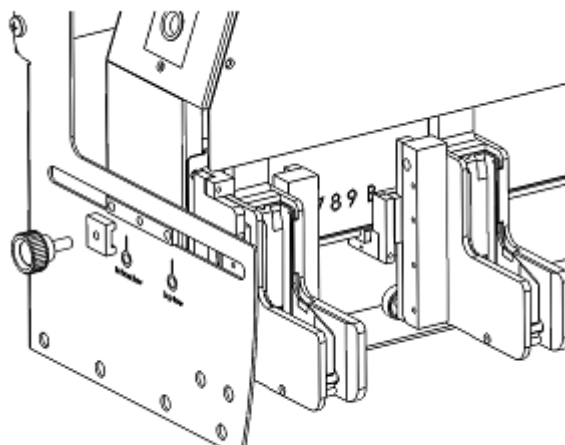
All other surfaces including plastic should be printed with solvent based inks which will dry on contact in open air. Refer to page 2 for safety procedures.

When the machine forms part of a larger system, each individual machine has a unique identity provided by a USB stick with the IP address for the lane hard coded. When inserted into the USB socket on the machine the IP address will be uploaded. If a machine is moved to a different lane, the USB is removed and the free one on the new lane inserted.

Model OP12neo Thermal Ink Jet Operator and Maintenance manual. 220817  
Basic assembly of the OP12neo



The stand is mounted to the lane, clipped in place and secured

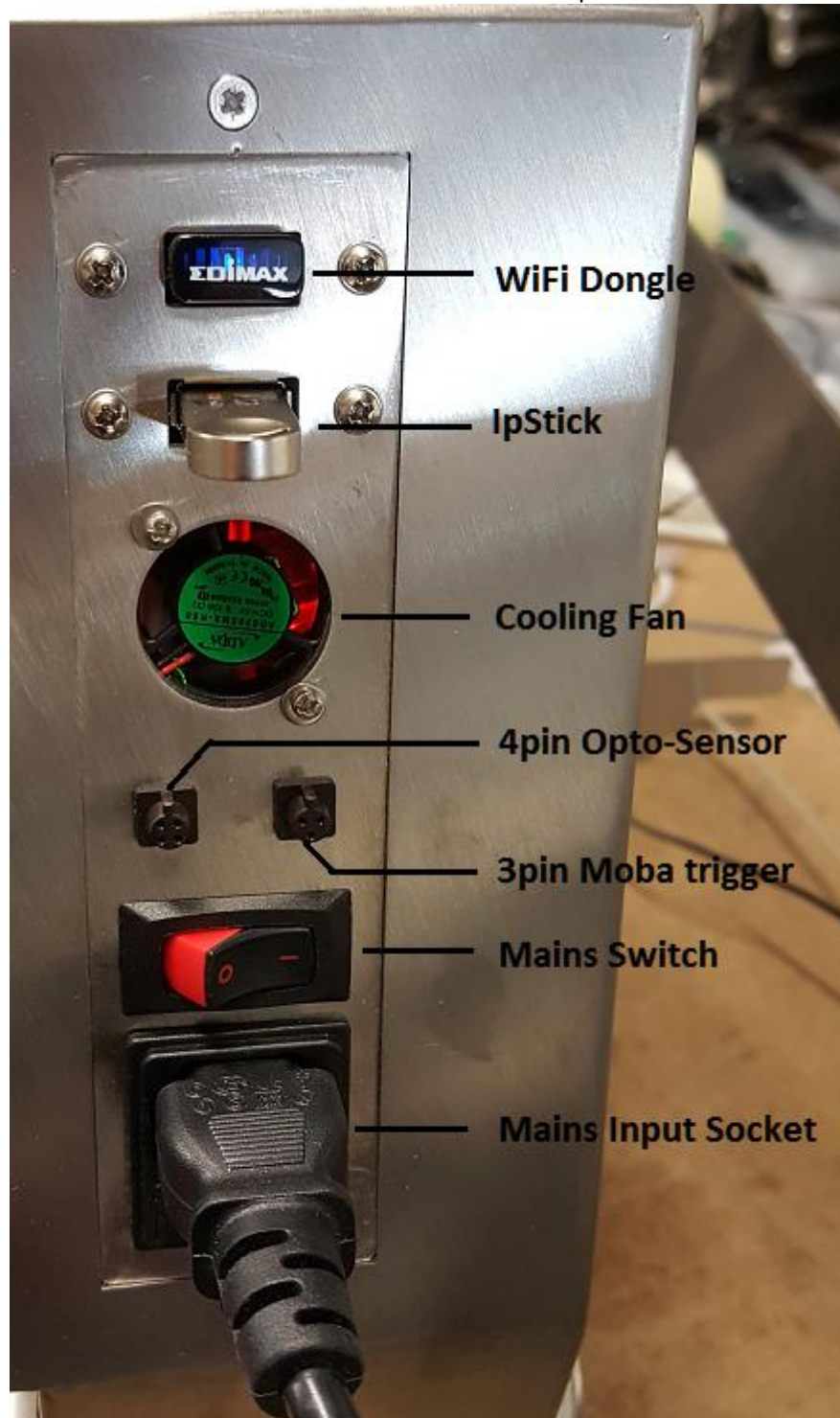


The machine fits into the slide rails and is secured with the two slide adjuster knobs



Cartridges are carefully inserted with the clip retracted and lowered into the vertical position, after which it can be secured with the clip. To remove the cartridge, lift the clip and slide the cartridge out. Remember to store cartridges in the appropriate storage clips.





Rear Panel connections and inputs

- Connect the grader trigger cable, (page9) to the 3 pin external trigger socket.





Model OP12neo Thermal Ink Jet Operator and Maintenance manual. 220817

- Connect the external sensor cable, (page 9) to the 4 pin external sensor socket.
- Connect the mains input lead IEC 90-240v to the mains input socket.
- Insert the lane specific USB stick, (page 9) into the free USB socket. (only if used as a network machine).
- When ready to begin, use the mains switch to power on/off.



External Trigger cable



External sensor and cable



Mains lead



USB IP

## Pack print position adjustment

There are five separate settings for print position.

- Height
- Row
- Print start
- Delay head two
- Open pack detection

Height is adjusted from the knob on top of the machine. It has a continuous adjustment with an override position for no print.

Row is adjusted on the side plates of the stand. Release the adjuster knobs and move the machine back or forward.

Print start is adjusted by moving the home sensor right or left

Delay is set on the touch screen or through grader settings. (See touch screen section)



Height adjuster



Row adjuster



Home sensor



External Sensor.

The External sensor can be used for a trigger (Standalone or no external trigger) or in conjunction with an external trigger it becomes an open pack detector. The sensor is set to detect the open lid of a pack and will inhibit any external trigger to prevent eggs being printed. See touch screen settings.

Model OP12neo Thermal Ink Jet Operator and Maintenance manual. 220817  
External panel 2



This panel is not being used at the moment.

# Touch Screen

The screen is programmable; therefore, additions and variations may occur after publication.

The touch screen interface will work with fingers, gloves or stylus. When switched on the machine will cycle through its start up procedure during which you will see the basic warning sign followed by the home screen.



Home screen depicting current dates to be printed.

If connected to a network system, this will automatically update as required by the external source. As a standalone unit, you can use the screen to load print formats and alter details such as dates.

By pressing the head buttons, you enter the main menu



Main Menu screen

Head switches can be operated here as can the print delay for head 2. There is a print button for QA records prints. This button overrides the external open lid detector, therefore can be used even if the sensor is obscured.

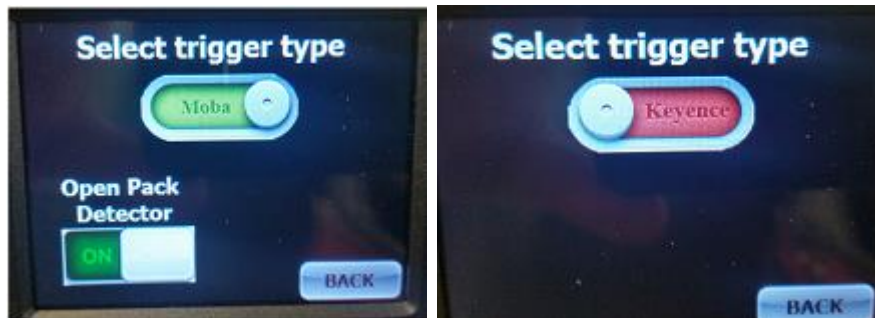


The **Home** button takes you back to the main screen. Pressing the **Menu** button takes you to the next page



Menu page 2

### Trigger Settings



In this page we can select the trigger type and if we want to use the pack detector.



### Current IP

Current IP shows the IP address of the machine. This will revert to home in a few seconds if left.



## Change Layout



We can scroll up or down through the stored design list and either click on  to send the design to the printer or  to cancel and go back.

## Change Language





We can change the LCD's language to either English, German, Dutch or Russian. (Not yet implemented)



## Change Best Before or Display Until Date



If it is allowed from the program settings we can change the Best Before and/or the Display Until date by

pressing the + and – buttons. We can then click on  to accept the change or  to cancel and go back. Every time we change the Best Before date by an X amount the Display Until will change by the same amount to keep the gap between them the same. We can alter that gap by changing only the Display Until date. On the top left corner, if we click on the LOT text we move to the change Lot screen (Day Of Year).



Here we can move the DOY up or down. We then press either Accept or Cancel.

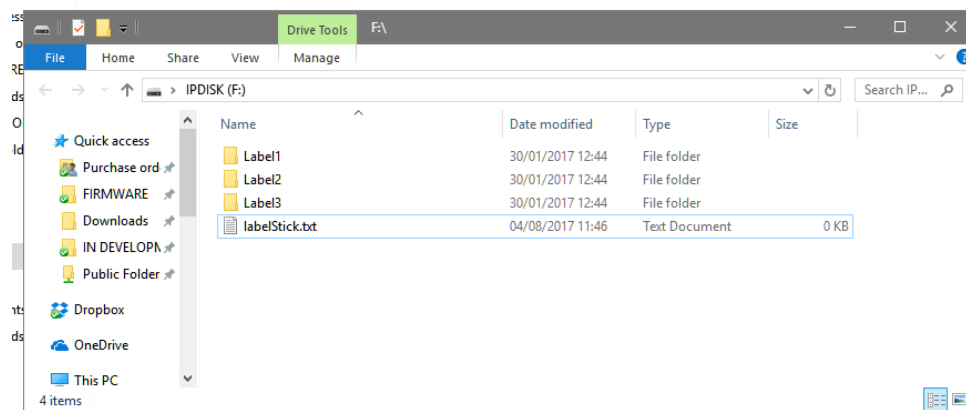




## Update/Purge the list of designs stored in the printer.





The above screen comes up a few seconds after we insert a “Label USB STICK”. In order for a usb stick to be recognised as a “Label” one we need to have a file named labelStick.txt (case sensitive) present at the root folder. We select if we want to either copy from the stick or copy to the stick our labels. If we don’t want to do anything we simply unplug the Label USB Stick to return to the main screen.



Here is an example of what is inside a “Label USB Stick”. If the Label stick has a file named labelStickPurge.txt (case sensitive) then upon inserting the stick all the local labels will be deleted. The file itself gets deleted afterwards.



Each label folder needs to have the following two files in order to be “accepted” as a label folder.

Name	Date modified	Type	Size
 Label1.bmp	16/08/2017 13:40	BMP File	12 KB
 Label1.ld2	16/08/2017 13:40	LD2 File	1 KB

The file names need to be the same as the folder’s name they are in to.

### Print Position set up.

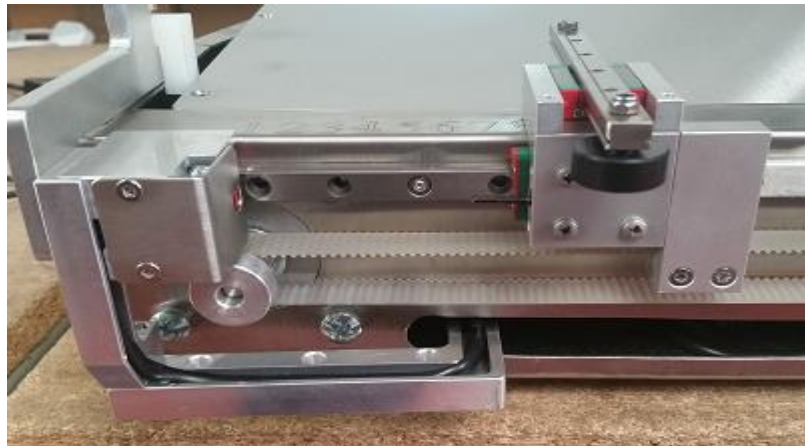


Use the Home sensor to set the start of print head one and the delay on the touch screen for print head 2 (page 13). Make small adjustments if required.



Use the height adjuster on top of the machine to set the tray and heads just touching the pack. Less or more pressure can be used to fine tune the performance.  
Set the row for print using the adjusters on the side of the stand.

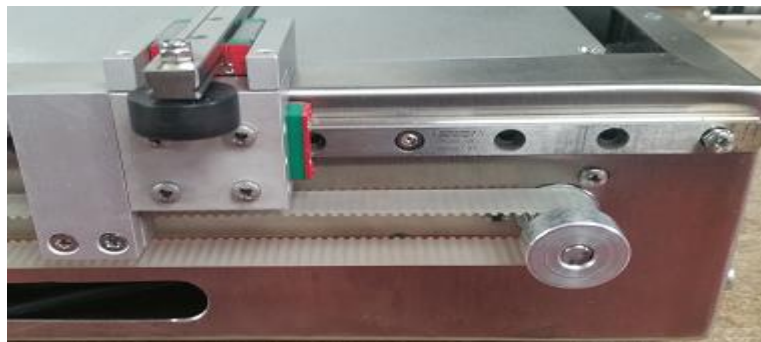
## Home sensor and rail assembly, (how it works).



a

The Home sensor is mounted directly to the slide rail via ball bearing carriage and the wiring is concealed beneath the machine where it enters through the slot at the rear. The assembly is fitted with a nylon brake to hold the print start position when selected.

The pulley on with the belt in (a) is fixed to the drive motor and the belt is in turn fixed to each of the head assemblies.



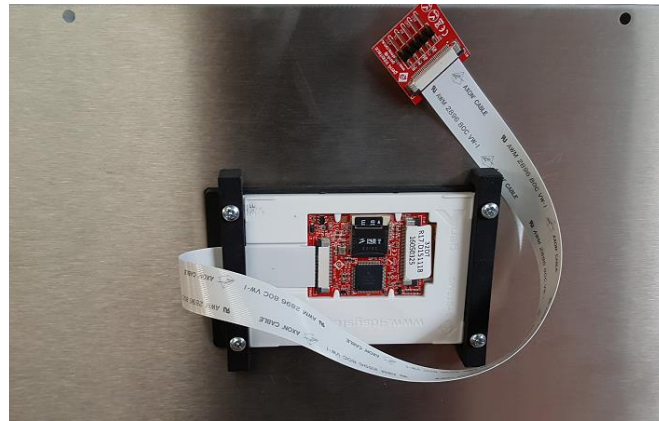
b

The pulley in (b) is an idler pulley held by a housing with two bearings inside the machine. Each head carriage assembly is on a ball bearing carriage fitted to the main rail while a separate carriage holds the head on. This gives the vertical movement of the head. A wheel at the bottom rolls on the main arrestor tray during printing to maintain the correct height.

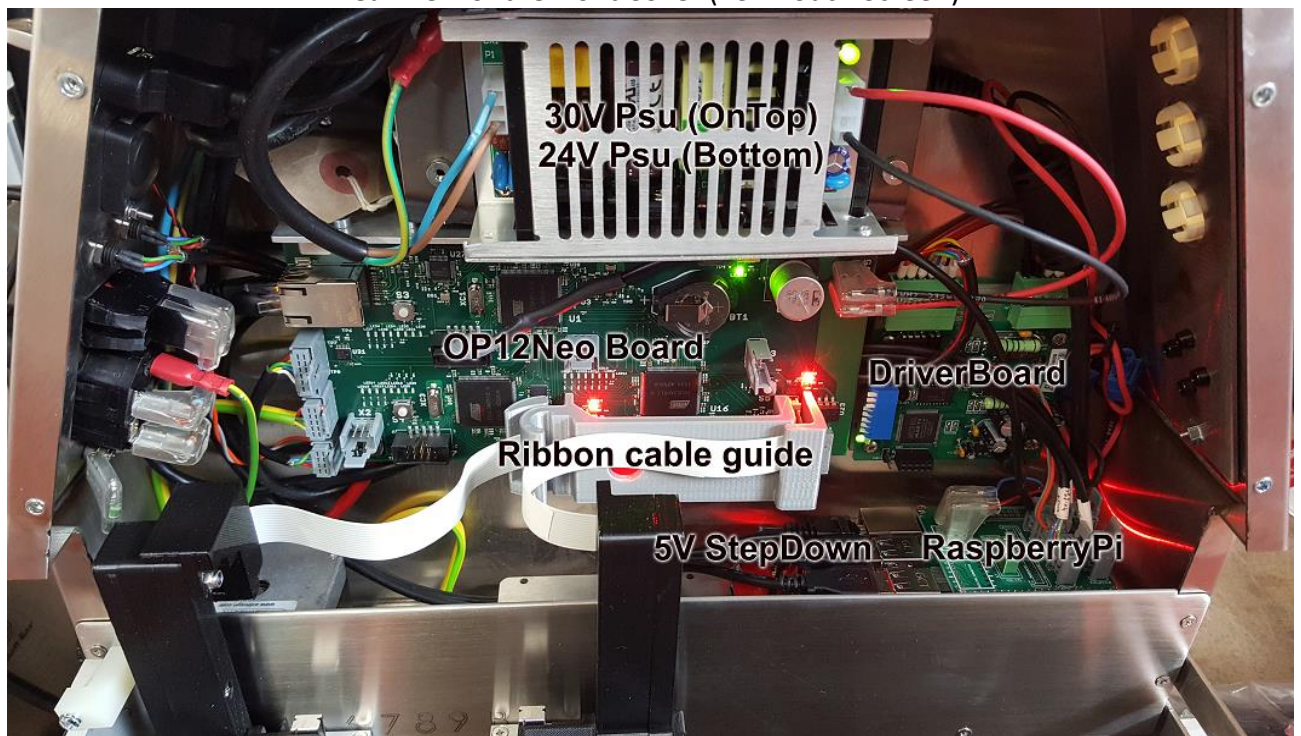
The idler pulley has three adjuster screws for tension of control of the belt.



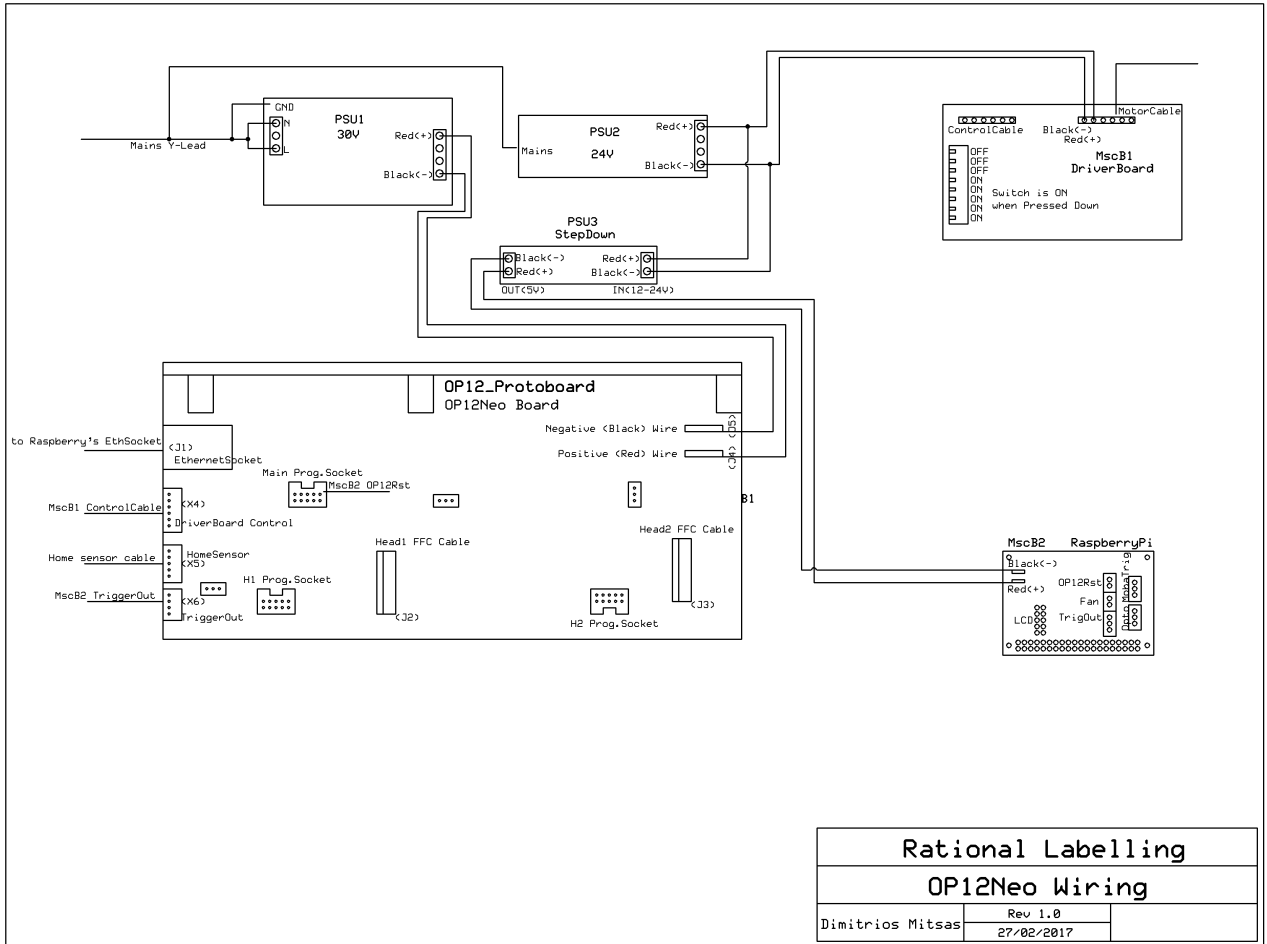
## Behind the scenes



Rear view of the front Cover (LCD Touch Screen)



Machine with the front cover removed.

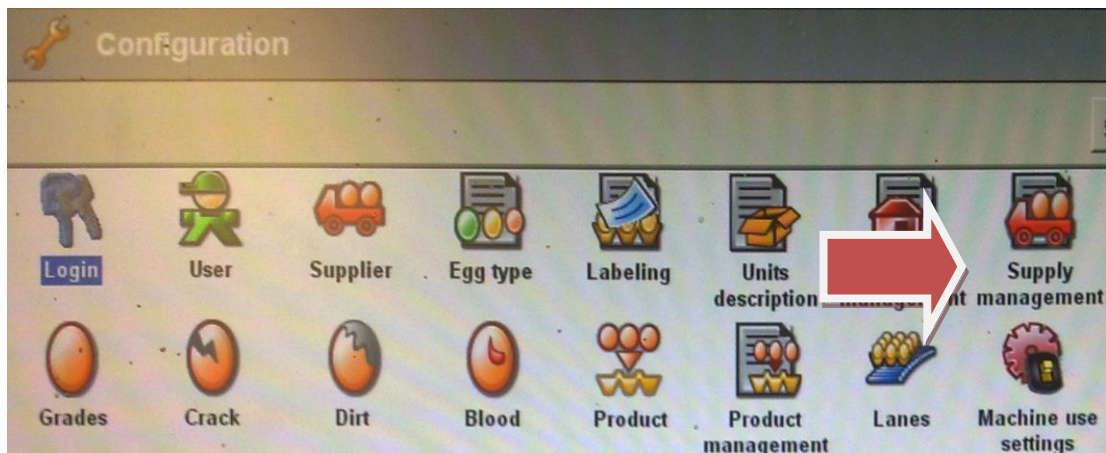




## MOBA trigger setup procedure

To enable triggering signal:

1. Log into the MOBA software as maintenance using the Moba password.
2. Select Configuration on main page of MOBA software.



4. Select Configure machine select Pack printers option.



## Model OP12neo Thermal Ink Jet Operator and Maintenance manual. 220817

**Configure machine** | Layout | Settings | Diagnostics

**Frame**  
 Frame:  | Number of tracks:   
☐ None ☐ EggOilUnit ☒ TrackOutlet

**Infeed**  
 Infeed type:  | Number infeed rows:   
 Weighing:   
☐ Washer  
☐ Candling

**General**  
☒ Loader ☐ Standalone | FL330 loader | Left  
☐ Container unloader  
☒ Accumulator  
 |  |

Ok | Cancel | Help | Print configuration

Status OK... | Buffer stopped | MMI Software: 69.1.2 | Service | 09/02/2014 15:04:39

- On the Pack printer protocol setup page tick and select Rational on each lane Rational machines are required on.

**Pack printers protocol setup** | Diagnostics

	Pack Printer 1	Pack Printer 2
Lane 2	<input checked="" type="checkbox"/> Rational	<input type="checkbox"/>
Lane 5	<input checked="" type="checkbox"/> Rational	<input type="checkbox"/>
Lane 6	<input checked="" type="checkbox"/> Rational	<input type="checkbox"/>
Lane 9	<input checked="" type="checkbox"/> Rational	<input type="checkbox"/>
Lane 10	<input checked="" type="checkbox"/> Rational	<input type="checkbox"/>
Lane 11	<input checked="" type="checkbox"/> Rational	<input type="checkbox"/>
Lane 12	<input checked="" type="checkbox"/> Rational	<input type="checkbox"/>
Lane 13	<input checked="" type="checkbox"/> Rational	<input type="checkbox"/>

Ok | Cancel | Help | Print configuration

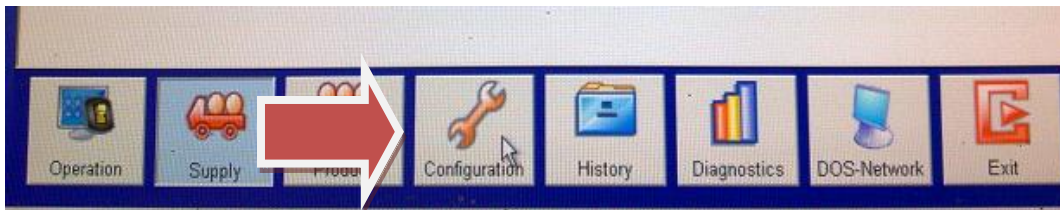
Status OK... | Buffer stopped | MMI Software: 69.1.2 | Service | 09/02/2014 15:04:48

- Select OK and accept any changes.



To configure position:

1. Select Configuration on main page of MOBA software.



2. Select Labelling.



2. Create 2 new profiles – 1 for when a trigger is required when MOBA fills row 1 of the pack (RATIONAL)(used for 2 row packs) and 1 for when a trigger is required when MOBA fills row 2 of the pack (RATIONAL2)(used on SOME 3 row packs – dependant on desired print position on the pack).



Select Add and insert the values below, and click OK.

## 2 Row packs

Name RATIONAL

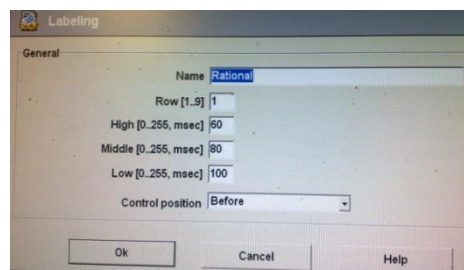
Row 1

High 60

Middle 80

Low 100

Control Position Before



Select Add and insert the values below, and click OK.

## 3 Row packs

Name RATIONAL2

Row 2

High 60

Middle 80

Low 100

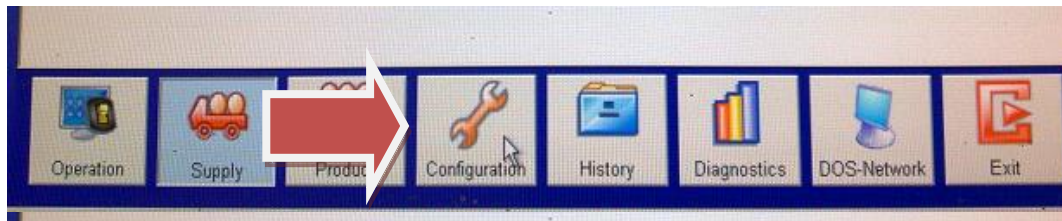
Control Position Before

3. Select OK and accept any changes.

If you find the delays to long or too short (you will be getting a wavy print) then adjust them accordingly.

To enable triggering on a pack profile:

1. Select Configuration on main page of MOBA software.

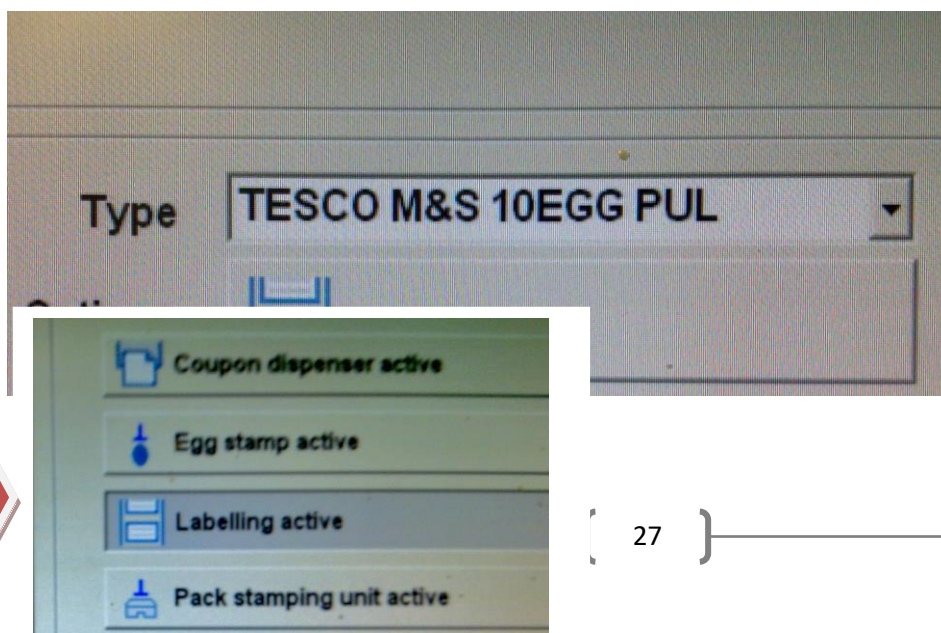


2. Select Product management.



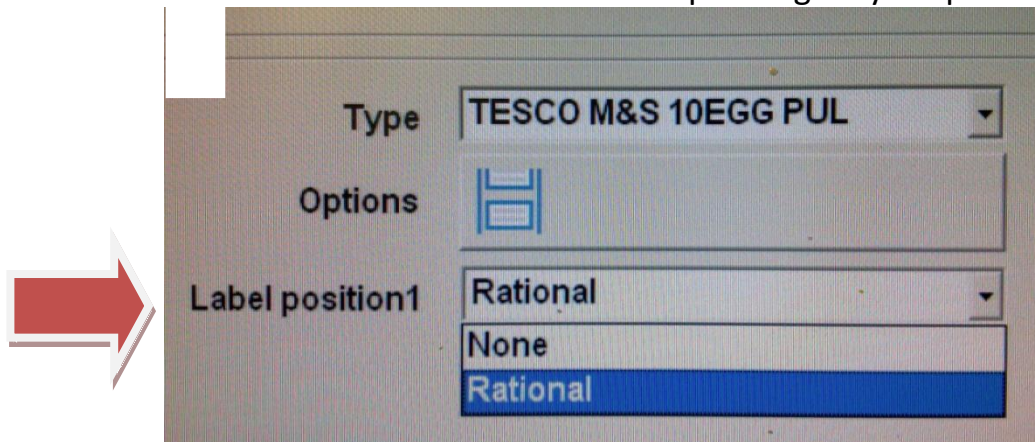
3. Open the pack profile which you would like the trigger to be active on.

4. Click on Options.





6. Click to drop down the menu for Label position1, and select the desired profile I.E. RATIONAL or RATIONAL2 depending on your pack and desired print positions.



Select OK and accept any changes. **\*\*NOTE\*\*** The change will only become active when the profile is sent to the grading lane. Also, only have one option selected, otherwise the delays for pack print will be overridden and although the trigger will work, the delays will be zero on all speeds (You will be getting wavy prints).