



Software Version 2.0

U60 Printer Guide

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Preface

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Acknowledgements

The DOSIS operating system is designed by Manchac Technologies, LLC. The DOSIS L60/C60/U60 cabinets are designed and manufactured by Manchac Technologies, LLC.

Disclaimer

The information contained herein is considered accurate at the time of publication. Manchac Technologies, LLC reserves the right to make changes to the equipment or manual at anytime without notice.

Patent

Patent Pending

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Operation Instructions and Diagnosis

DOSIS U60 machines is overall similar to the L60 system in regards to the high-level functionality of producing a filled, sealed, and patient labeled blister card. The U60 adds the additional functionality of printing on the lidding materials, the back of the card. Printing comes from the addition of a Direct Thermal Printer that is part of the Lids-on-the-Roll (lidding mechanism) that allows the system to print on each cavity (blister-cup) of the blister card. Printing this information make the output of the U60 compliant with Unit-Dose labeling, when utilized with a perforated blister card.

This guide is to provide the user with the details of how to interact with the DOSIS printer used for print on the lidding materials and diagnosis information when problems occur.

Printer Description

Status LEDs

The printer is located atop of the Lids-on-the-Roll mechanism. The printer is located behind the main packaging floor door. The front of the printer has two rows of LEDs the first row is noted as 1-4, and the second row is noted as A-D.

LED Label	Name	Description
1	24 V	24 Volts power is ON
2	5 V	5 Volts power is ON
3	3V	3 Volt power is ON
4	Latch Indicator	The printer head latch is UP

Table 1: Top Row of LEDs

LED Label	Name	Description
A	Long Press Indicator	One or more buttons have been long pressed
B	Updating Indicator	Printer firmware is currently updating over Ethernet
C	Ethernet Up Indicator	Ethernet is up and ready to connect
D	Booted Indicator	The printer is booted and running

Table 2: Bottom Row of LEDs

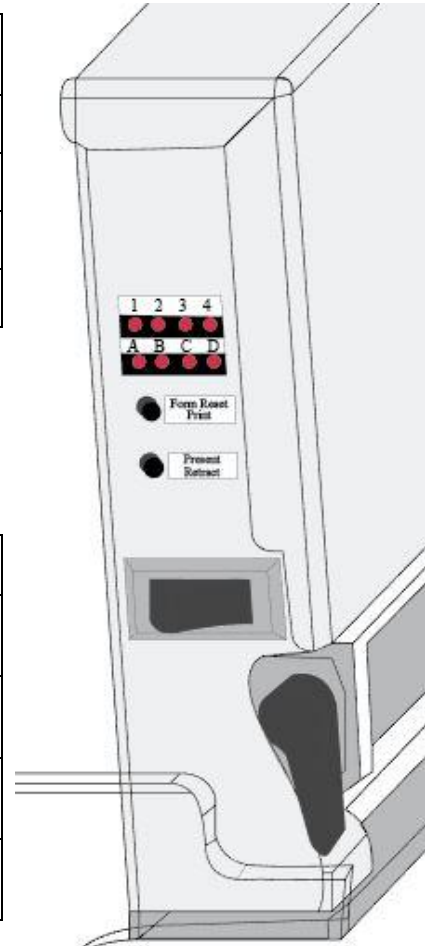


Figure 1: Printer Front

Buttons

Below the LEDs there are two small round buttons one beneath the other, See Figure 1. These buttons are provided to be able to manipulate the paper materials through the printer.

Each button has two functions. By depressing the button momentarily (SHORT) versus pressing for a longer period (LONG) greater than $\frac{1}{2}$ of a second will determine the functionality of the button. Note LED A will light up when the system detect a LONG button press.

The top button, button 1, Form Reset / Print Button

The bottom button, button 2, Present / Retract

The table below describes the functionality of the different buttons' functionality.

Button 1 <i>Form Reset</i>	Button 2 <i>Present</i>	Description / Action
SHORT		Form feed to the next gap
LONG		Print an Alignment Test Label
	SHORT	Advance material to the present pickup position
	LONG	Retract material
SHORT	SHORT	<RESERVED>
LONG	LONG	Show the printers state

Table 3: Button Behavior Description

NOTE: For service purposes there is a third button located in the rear of the printer housing that will boot the printer's processor without powering down the printer.

Switches

The printer also has a power switch located on the front. This only turns the DC power off to the printer.

Also on the printer is the Printer Latch. This latches the roller against the paper materials. LED '4' indicates the latch is in the up position. Once the paper materials are fed through the printer, the operational position of the latch should be down.

Printer Operations

Moving Printer to an IDLE State

1. Press and release the Present /Retract Button to perform a present operation.
2. Peel the presented lid off by hand.
3. Push and hold the Present /Retract Button until the Long Press Indicator LED turns on, then release the Present /Retract Button to form-retract the page.
4. The printer should now be in an IDLE state (follow step 5 to check if the printer successfully made it to an IDLE state).
5. Press and hold the Form Reset / Print Button and Present/Retract Button. After about ½ second, the printer status will be shown via the bottom row of LEDs. If all LEDs are off, the printer is in an IDLE state, otherwise, refer to Table 4 to figure out which state the printer is in.

Printing an Alignment Label

1. Press and hold the Form Reset / Print Button until the Long Press Indicator LED turns on, then release the Form Reset / Print Button to perform an alignment label print.
2. If an alignment label does not print, the printer is not in an IDLE state, follow instructions for Moving Printer to an IDLE State, then perform step 1 again.

Loading a Label Roll

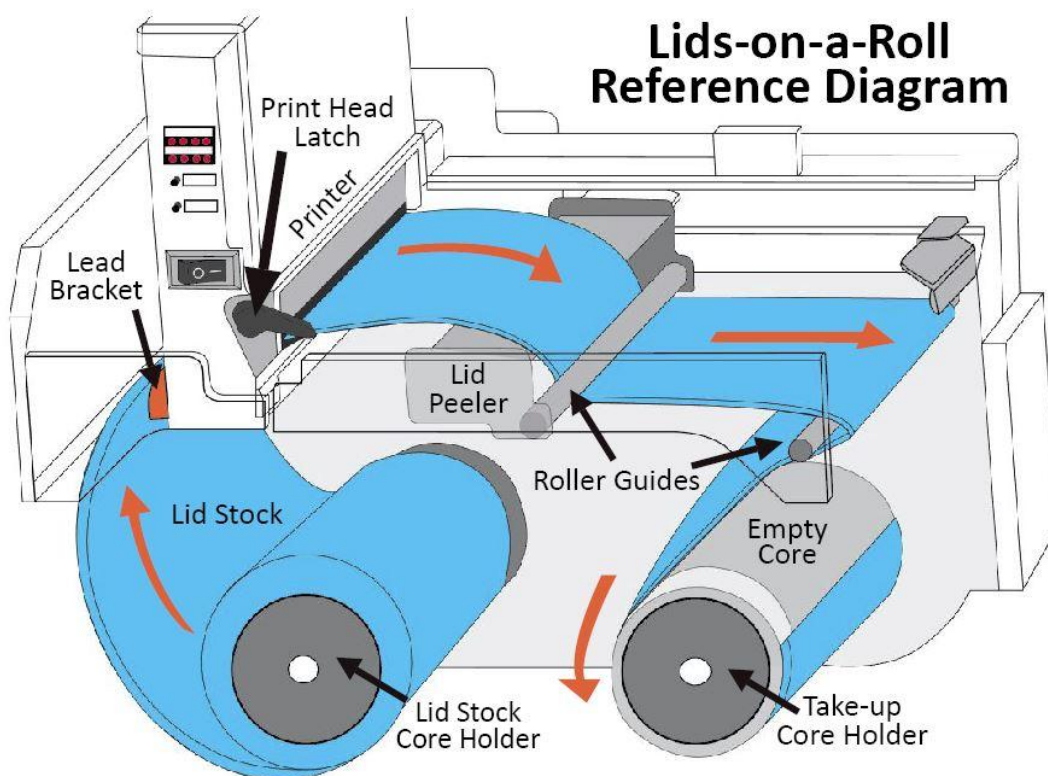


Figure 2: Lids-on-a-Roll Lidding Threading Diagram

1. Place the new roll of lids on the Lid Stock Core Holder
2. Open the print head latch
3. Feed the lidding materials up around the printer in-take guide and pull some Lid Stock through the printer (Figure 3)
4. Remove two (2) Lids from the roll (keep at least one of them for a future step).
5. Pass the lids with liner on top of the Lid Peeler's then in from of its roller guide, and then feed it over the take-up roller guide at the right side of the Lids-on-a-Roll.
6. Use one of the labels you removed earlier to adhere the liner to the empty cardboard core on that is on the Take-up Core Holder, Note you should adhere the liner to the left side of the cardboard roll.
7. Close the Print-head Latch.
8. Follow the instructions for Moving Printer to an IDLE State to move the printer to an IDLE state.
9. The printer should now be in an IDLE state and can be tested by following the instructions for printing an Alignment Test Label.



Figure 3. Intake Guide

Clearing a Paper Jam

1. Open the Printer-head Latch and remove the obstructing lid.
NOTE: Be careful and remove the label slowly; removing the label slowly can help to not get label bits stuck on the print-head.
2. If any label bits get stuck on the print-head, they will need to be removed (DO NOT USE A RAZOR BLADE; IT MAY DAMAGE THE PRINTHEAD).
3. After clearing the jam, there may be adhesives from the label on the print-head. If there are adhesives, the print-head will be sticky and must be cleaned. If the print-head is not cleaned, print jobs may be misaligned, skewed, rotated, or the labels may get jammed again. Please refer to Cleaning the Print-head if the print-head needs to be cleaned.
4. Once the jam is cleared and the print-head is clean, follow the instructions for Moving Printer to an IDLE State.
5. The printer should now be in an IDLE state and can be tested by following the instructions for Printing an Alignment Label.

Printer State Indicators

To show the printer state from the front of the printer, press and hold the Form Reset Print Button and Present Retract Button for about a half a second (this key combination is also shown in Table 3). While holding the two buttons, the bottom row of LEDs labeled A-D will show a status using all four (4) LEDs. Since there are only four (4) LEDs, only sixteen (16) statuses are available through these LEDs.

Once the Form Reset Print Button and Present Retract Button are released, the bottom row will show the normal statuses listed in Table 2.

LED1 A	LED2 B	LED3 C	LED4 D	Status
				IDLE
X				BAD_BMP_DATA
	X			TAKEUP_MOVE_ERROR
X	X			TAKEUP_ROTOR_ERROR
		X		TAKEUP_NO_SENSE
X		X		PEELER_MOVE_ERROR
	X	X		PEELER_HOME_ERROR
X	X	X		PEEL_REQUIRED
			X	PAPER_ERROR
X			X	OUT_OF_PAPER
	X		X	UART_COMM_ERROR
X	X		X	PAGE_STEPPER_OVERHEAT
		X	X	PAGE_STEPPER_OVERCURRENT
X		X	X	HEADUP
	X	X	X	EXTERNAL_MOTOR_COMMAND
X	X	X	X	OTHER_STATUS

Table 4: Printer State LED chart

Trouble Shooting Printer

Based on the State depicted by the LEDs then match them to the following descriptions.

1. **BAD_BMP_DATA**

A print job was sent to the printer, but the bitmap data was invalid. Try a different BMP image, the printer is rejecting this image as it should.

2. **TAKEUP_MOVE_ERROR**

- a) Motor code for the D axis (Take-up core Axis) is probably out of date or not installed. Re-flash the microcode onto the D axis.
- b) A setting for the D axis such as **NORMAL_RUN_CURRENT** may be set too low, or to the wrong value. This may cause the take-up core to not move.

3. **TAKEUP_ROTOR_ERROR**

A setting for the D axis such as **NORMAL_RUN_CURRENT** may be set too low, or to the wrong value. This may cause the take-up core to encounter a rotor error.

4. **TAKEUP_NO_SENSE**

- a) The sensor near the far right of the LOR did not sense any lids during a present when it was supposed to. There may not be any lids left.
- b) The sensor may be bad. Test the sensor by putting your finger directly in front of the sensor; an orange light on the sensor should turn on and when you move your finger away, it should turn off (this means the sensor is good).

5. **PEELER_MOVE_ERROR**

- a) Motor code for the E axis (Peeler/Slider Axis) is probably out of date or not installed. Re-flash the microcode onto the E axis.
- b) A setting for the E axis such as **NORMAL_RUN_CURRENT** may be set too low, or to the wrong value. This may cause the peeler/slider to not move.

6. **PEELER_HOME_ERROR**

- a) The peeler/slider did not home yet and is waiting to home. The peeler and takeup core run on 48V. If the door on the DOSIS is opened, 48V is disabled and the peeler will not home until 48V is turned back on.
- b) The motor code for the E axis may not be installed.

7. **PEEL_REQUIRED**

The printer aligned itself, or tried to align itself, to a label, but noticed that there was a label in front of the sensor. This would cause unpredictable issues during a

print job, so the label must be peeled before continued operations. Present the label, peel it, then retract the paper and the error should go away.

8. PAPER_ERROR

The printer was left in a bad state during a power off sequence, or during user interaction, and does not have enough information to figure out where it is. User interaction is required to line up the printer.

9. OUT_OF_PAPER

No paper was detected after a few pages while feeding the paper forward so the printer is probably out of paper.

10. UART_COMM_ERROR

Commands are being sent to the MDrive motors, but they are not answering back, so the motors may be in a bad echo-mode state or something may be wrong with the UART chips on-board. Make sure the motors are in EM=1 state (Open `stpc\_cli` and run “motor_execute e pr em” and “motor_execute d pr em”, both should return `1`; after running these commands, make sure to execute a “status_clear” and check the printer to ensure it is in an IDLE state).

11. PAGE_STEPPER_OVERHEAT

The page stepper has overheated for some reason and has thrown a fault.

12. PAGE_STEPPER_OVERCURRENT

The page stepper has drawn too much current for some reason and has thrown a fault.

13. HEADUP

The Head Latch was in an `Up` state and the status has not been cleared since it was in the up state. Make sure that the Head Latch is in a `Down` state, present a lid, peel it, then retract the paper.

14. EXTERNAL_MOTOR_COMMAND

A motor command was ran from the command line tool and the status must be cleared. Present a lid, peel it, then retract the paper to get it into an IDLE state.

15. OTHER_STATUS

This is not necessarily a bad status, but may be. This status includes all other status' that would not fit in the sixteen (16) status' available. To view the actual status, you must use the command line tool and run “status_get”.