



MiniCure3D-LED & MiniCure3D-ELS9/LED User's Guide

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MiniCure3D-LED and MiniCure3D-ELS9/LED User's Guide

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Revision

For MC3D-LED & MC3D-ELS9/LED all revisions

Guide Revision 1.3

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1. INTRODUCTION

The MiniCure3D (MC3D) systems are true three-dimensional curing systems for assembling or coating small devices with UV-cured adhesives or coatings. The heart of the MC3D is the VelaCure curing chamber. This chamber produces extremely uniform irradiation on the parts being cured, resulting in uniform cure of all surfaces on the part. Simply place your part in the MC3D chamber, close the lid and expose it. No rotation of the part or light source is required. The MC3D cures all the surfaces, all at once.

The uniformity allows precise knowledge of the irradiance on the part during cure. Prior to the VelaCure technology, only the exitance from the light guide could be measured; the irradiance on the part could only be inferred. This is a revolution in 3D curing, providing you with confidence that your parts are being cured consistently and completely.

The added advantage of the MiniCure 3D-LED systems is that no external light source is required. Depending on what model you choose, there are either six or eight internal LEDs coupled to the curing chamber to produce the wavelength(s) compatible with your adhesive or coating. Commonly available wavelengths are 365nm, 385nm, 395nm, 405nm and 420 nm. Any combination of LED wavelengths can be provided.

The MC3D-LED models include automatic control of the exposure by measuring the UV being within the chamber. The user interface is a simple, user-friendly touch screen control panel; no programming is required. Once the user input time or dose target is reached, the LEDs turn off automatically. During exposure, the chamber is locked closed to prevent unintentional opening and spoiling of product.

There are two exposure modes: TIME and DOSE. In DOSE control mode, the MC3D-LED monitors the chamber irradiance and keeps the LEDs on until the user-input dose (in J/cm²) has been reached. If for any reason, the chamber irradiance declines, the MC3D-LED will extend the exposure time to compensate for the loss of irradiance. This ensures a consistent curing cycle time after time. In TIME mode, the exposure runs for the user input time.

The MC3D-LED may be calibrated using a NIST traceable radiometer compatible with the LED wavelengths in your unit.

Both models are supplied with mounting accommodation for user designed fixturing to hold parts during treatment. Additionally, the MC3D may be mounted in a vertical orientation if desired. The touch screen interface may be rotated in 90° increments to accommodate vertical orientation.

2. CONTACT

For technical support or service, contact your Vela sales representative listed on the front of this guide or on the unit Service screen; or, contact Vela Technologies directly at TechSupport@VelaUV.com

Please visit our website www.VelaUV.com for updates and to see our other 3D UV curing solutions.

3. SAFETY

Warnings, Cautions and Notes used here guide have the following meanings:



WARNING: Indicates procedure or situation that may result in injury or death if instructions are not followed.



CAUTION: Indicates procedure or situation that may result in damage to equipment or property if instructions are not followed.



NOTE: *Emphasizes important information.*

Interlock. When the LEDs are powered on, UV radiation is present within the MiniCure3D chamber. All MiniCure3D-LED units are provided with a magnetic lid locking system as well as an interlock switch designed to inhibit the LEDs in case the lid is opened during the curing cycle.



WARNING: The lid locking and interlock mechanisms should be tested periodically to ensure proper operation

UV radiation. When in use, the MC3D-LED systems will produce UV radiation. Eye and skin damage may result from viewing direct or reflected UV radiation. Always wear proper UV protective equipment when operating a MC3D-LED. In particular, always wear UV protective eyewear and gloves.



WARNING: UV radiation is present inside the MC3D when the LEDs are energized. Wear proper protective equipment to shield eyes and skin from UV exposure. Never look directly into the MC3D chamber when UV is present.

UV Curable Materials. Please consult your UV materials supplier for recommended precautions regarding the proper handling, use and disposal of these products.

Do not cure large quantities of UV curable materials that may have spilled inside the chamber; the exothermic reaction may cause thermal damage to the MC3D chamber floor. See Section 11 below for proper cleaning procedures.



CAUTION: This system is intended for use on assemblies with small quantities of UV curable material. Do not cure large volumes of UV curable material inside the MC3D-LED. Do not cure large spills inside the chamber.

4. MINICURE SETUP

The MC3D-LED and the MC3D-ELS9/LED incorporate different bushing options for handling your part. Both have mounting accommodation for custom fixturing, whereas the MC3D-LED is provided with configurable Delrin bushings, and any options specified at purchase. Please review the following figures to familiarize yourself with the MiniCure systems.

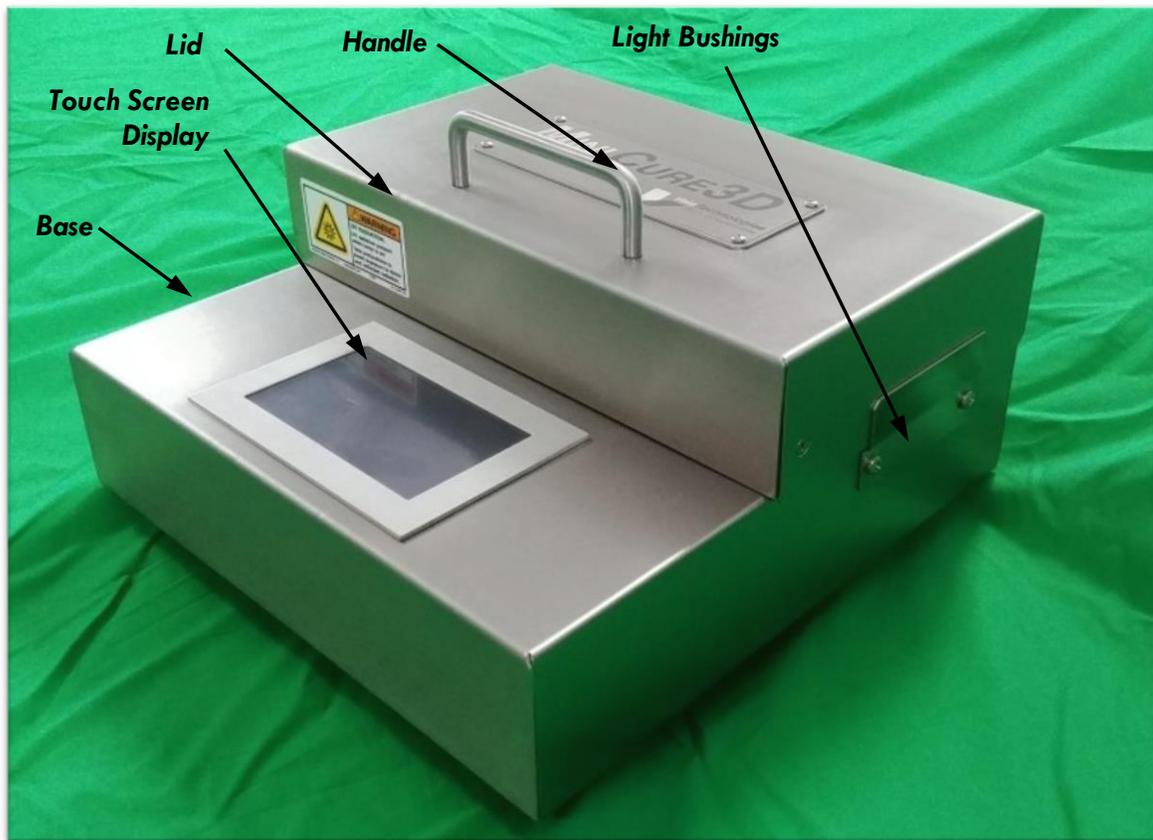


Figure 1. Front view of MC3D-ELS9/LED.

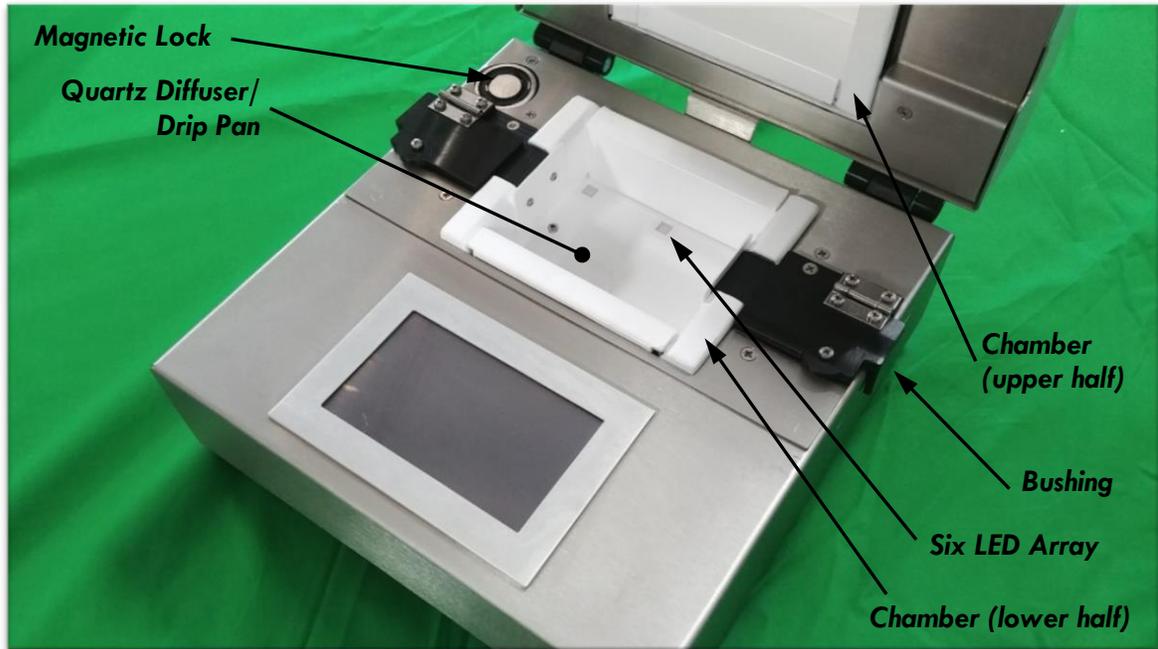


Figure 2. MC3D-LED, lid open, showing chamber and bushing details.



Figure 3. MC3D-ELS9/LED, lid open, showing chamber and bushing details.

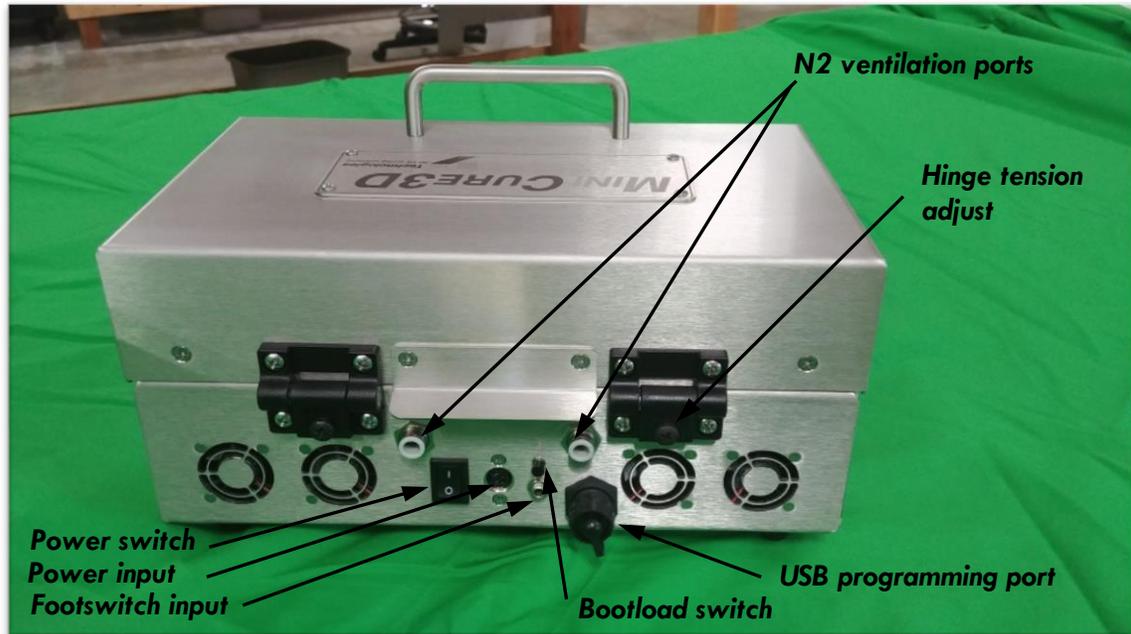


Figure 4. Rear view, MC3D-ELS9/LED.

Read and follow these instructions to prepare your MiniCure3D for use.

Power Adapter. Your MiniCure unit is provided with an AC adapter.

Connect the AC adapter cable to the connector on the rear of your MC3D unit. Connect to the rear of the MC3D unit and then connect to the power source.



WARNING: Connect AC adapter connection to the MC3D unit prior to connecting to the power source.



CAUTION: Connect only the power source supplied with your MC3D. Using other supplies may result in damage to the unit.



CAUTION: Ensure that cooling air intake on bottom of unit is not obstructed. Feet height indicates minimum open areas requirement for proper cooling.

Footswitch (optional). Both MC3D LED units include an input for an optional footswitch (3.5mm mono phone jack, or 3.5 mm TS jack, located on the unit's rear panel). The shield on the connector is common to the MC3D chassis. Only a momentary, normally open footswitch may be used.

Footswitches with an attached, terminated cable are available from Vela.

Drip pan. Your MiniCure LED unit is supplied with a diffuser/drip tray pre-installed. Clean the drip tray of spills and drips as they occur; do not allow them to accumulate.

See Section 11 for drip tray cleaning instructions.



CAUTION: Avoid getting finger oils on the chamber walls and drip pan. When handling the chamber or drip pan, wear clean, powder-free gloves.



CAUTION: Do not press into the chamber walls; they are compressible. Accumulated compressions will degrade performance.



CAUTION: Use care when cleaning the drip tray. Do not Avoid over application of pressure as the quartz tray could crack.

Part supports (optional). Custom part supports are available; contact Vela Technologies for more information.

Hinge adjustment. The rear hinges are designed to provide a soft close. Adjust the opening and closing force as desired using the central adjusting screw on each hinge.

5. PARTS PLACEMENT AND FIXTURING

Your parts should be located within the cure zone of the chamber. Generally, the cure zone is about 0.25 inches (6.35mm) from all chamber walls and not directly above any LED. Fixturing placed inside the chamber should be as small as possible, or fabricated from highly UV transparent (or reflective) material such as quartz (or Teflon). This will minimize the effect of the fixturing on irradiance and uniformity.

Please consult Vela for fixturing advice and engineering of custom fixtures.

6. MC3D-LED and EL9-LED OPERATION

The MiniCure line of LED curing systems includes a 4.3” touch-screen LCD display user interface. Each screen is identified by a title bar across the top. The main portion of each screen (below the title bar) contains icons that are used to navigate among the various screens. The larger icons are active buttons; pressing them will bring up a new screen. Generally, the smaller icons are for information only and are not active.

User input settings are limited to lamp type, mode selection, target value, LED power and calibration value.

- Note that lamp type must always be set to LED for LED based units. Other available lamp type settings are used for non-LED based units only.
- Depending on the firmware version of your unit, the lamp selection option may not be available.

Exposures are simple. Once your parts are ready for curing, simply press RUN  in the READY screen. The controller will energize the LEDs, track the exposure dose or time, and turn off the LEDs once the target dose or time is reached. After you acknowledge the successful run, the system is ready for the next run. No user interaction is required after pressing the RUN button. If a fault occurs, the controller will stop the run and identify the fault.

Power up. During power-up, the processor checks the status of the system. If all is well (e.g., the lid is closed), the READY screen will be displayed. The RUN  and MENU  buttons along the bottom will be active (colored).

If all is not ready for a run (e.g., the lid is open), the WAITING screen will be displayed along with icons indicating the problem (e.g., a door icon  indicates the lid is open). The RUN  button will be inactive (grayed out). Once these issues are cleared, the READY screen will be displayed.

Summary of Screens. Pressing MENU  in the READY screen will bring up the MAIN MENU screen. This contains the following buttons:

- **RUN SETUP**  – to change the run mode and target values
 - Press the desired radio button to change the mode (TIME  or DOSE )
 - Touch the displayed value to change it without changing the mode.
 - Target value units must be in seconds or J/cm²
- **SYSTEM**  – for setting LED power, AUTO RUN and VIEW setup parameters.
 - Set LED power by selecting the “POWER” icon 
 - Set each LED power individually (EL9-LED) or all LEDs together (standard MC3D-LED)
 - AUTO RUN allows sequential curing operations to be controlled by the opening and closing of the lid; no user HMI operations are required after the first exposure
 - VIEW button is for diagnosis/troubleshooting only

- **CALIBRATE**  – to calibrate the internal irradiance monitor
 - Have your radiometer ready and follow the on-screen instructions.



NOTE: Be aware of your MiniCure LED wavelengths and the wavelength response band of the radiometer used for calibration.

- **EXIT**  – to return to the READY, WAITING or MAIN MENU screen.
- **ABOUT**  – to show unit model number, serial number, firmware revision, Vela contact information and sales and service contact information
 - Press **SERVICE**  in the ABOUT screen to display your Vela sales representative or distributor contact information

Password. To prevent accidental or unintended changes to the running parameters, RUN SETUP, SYSTEM and CALIBRATE screens are passcode protected. The passcode is factory set at 147 and cannot be changed.



NOTE: User Passcode is 147.

Status indicators. Icons displayed immediately beneath the title bar of the READY or WAITING screens tell the status of the system.

-  means the lid is open (interlock failure). This will force the system into the WAITING screen. Close the lid to clear the fault and return to the READY screen.

Using the footswitch.

The footswitch triggers a run when it is released. Its meaning is context sensitive:

- If the **RUN**  button is active, pressing the footswitch will initiate a run.
- If the **CANCEL**  button is active, pressing the footswitch will cancel the run.
- If the post-run or fault dialog box is displayed, pressing the footswitch will clear it
- The footswitch will both initiate a calibration and cancel one in progress depending on the active state
- Footswitch inputs are ignored in all other cases



NOTE: The footswitch must be normally open momentary type. The footswitch will be ignored if held closed for more than 5 seconds. No fault will result.



NOTE: The LEDs may be controlled individually in the MC3D-ELS9/LED. Some models of the MC3D-LED may not allow for individual control.

Calibration. The internal UV monitor must be correlated with a calibrated radiometer. This procedure is called “calibration” and requires a small, calibrated radiometer such as the EIT MicroCure Radiometer (not supplied). Your unit was calibrated prior to shipment; however, periodic re-calibration is recommended to ensure the chamber/lamp system is performing properly.

The calibration procedure is described in detail in Section 8.

Contact your sales representative or Vela for NIST traceable radiometers specifically designed for the MiniCure3D system.



NOTE: Calibrate the MiniCure periodically. Please note that many currently available radiometers are not ideally suited for certain LED wavelengths or the MiniCure. Care must be taken when calibrating to an absolute value. Please contact Vela for further information.

7. AUTOMATIC EXPOSURE CONTROL

All MiniCure units may be used as an assembly and dispensing station as well as a curing station. This section only describes curing procedures.

Larger parts will take longer to reach the same dose as smaller parts, regardless of the amount of curable material used.

Common operations. Following are detailed directions for some of the more common tasks. Not all password prompts are listed.

Set the run mode and target value:

- Bring up the MAIN MENU screen
 - From the READY (or WAITING) screen, press MENU 🗨️
 - The MAIN MENU screen will display
- Bring up the RUN SETTINGS screen
 - Press RUN SETUP 🗨️
 - Enter the passcode
 - The RUN SETUP screen will display
- Select the mode (time or dose) and enter the target value.
 - Press the radio button adjacent to the desired mode icon (TIME 🕒 or DOSE 🧪)
 - Enter the target value in the popup keypad and press ENTER
 - Press OK 🟢 to return to the READY (or WAITING) screen with the new mode and target values (confirm popup)
 - Press CANCEL 🚫 to return to the READY (or WAITING) screen without making any changes
- Once back in the READY screen, the system is ready for the next exposure
 - The selected mode will be displayed (🕒 for TIME or 🧪 for DOSE) along with the target value.



SHORTCUT: Pressing the mode icon (🕒 or 🖋️) or the target value in the READY or WAITING screen brings up the RUN SETUP screen (after entering the password). This bypasses the MAIN MENU screen.



SHORTCUT: Pressing the target value in the RUN SETUP screen rather than the radio button will allow you to change the value without changing the mode.

Perform an exposure (Auto Run OFF):

- Ensure the desired mode and target are shown on the READY screen
- Prepare your part
 - Place fixture in chamber, assemble part, dispense UV curable material
 - Close lid when complete
 - The READY screen will display
- From the READY screen
 - Press RUN 🟢 (or the footswitch)
 - RUNNING screen displays with a progress bar
 - RUN COMPLETED dialog displays after a successful run. The dialog box will display run time and dose regardless of operating mode setting.
- Press OK to return to the READY screen
 - Once back in the READY screen, the system is ready for the next exposure

Perform an exposure (Auto Run ON):

- Ensure the desired mode and target are shown on the READY screen
- Prepare your part
 - Place fixture in chamber, assemble part, dispense UV curable material
- Close the lid to start the exposure
 - RUNNING screen displays with a progress bar
 - RUN COMPLETED dialog displays after a successful run. The dialog box will display run time and dose regardless of operating mode setting.
 - No need to touch OK; doing so will require confirmation you want to cancel Auto Run
- Open the lid. The screen will return to Waiting
 - Closing the lid at this point will automatically start the next exposure



NOTE: The first exposure after engaging Auto Run must be initiated by pressing RUN or footswitch. Subsequent exposures will start automatically upon lid closure.

Stop a run in progress:

- In the RUNNING screen
 - Press CANCEL  (or the footswitch)
 - “Run Cancelled by User” dialog displays.
 - Press OK (or the footswitch) to return to the READY screen
- Once back in the READY screen, the system is ready for the next exposure



NOTE: Do not intentionally stop a run by opening the lid.

8. CALIBRATION

For optimal performance, your MiniCure should be calibrated regularly. This is the process for correlating the internal MiniCure UV sensor with an external, independently calibrated radiometer.



NOTE: Due to potential mis-match between radiometer wavelength response and narrow band emission LEDs, obtaining absolute values during calibration can be difficult. Be aware of the response curve of your radiometer compared to the LED wavelengths in your MiniCure.

To calibrate your MC3D-LED or ELS9-LED:

- Prepare the chamber
 - Remove all parts and fixtures from the chamber
 - Leave the drip pan in place
 - Place the radiometer in the center of the chamber with the sensor port looking up
 - Place the Teflon cover over the radiometer (see Figure 5)
 - Close the lid
- Prepare system for calibration run
 - From the READY screen, press MENU 
 - Enter passcode
 - The MAIN MENU screen will display
 - Press CALIBRATE 
 - CALIBRATE screen will display, showing the most recently used radiometer value (in J/cm²) and the present calibration factor derived from that value.

- Calibrate
 - Press CAL →
 - The most recent exposure will determine the duration of the calibration cycle. (see note below)
 - Open lid
 - Remove and read radiometer
 - Enter radiometer dose value at prompt (units must be J/cm²)
 - The new calibration factor will be displayed; press OK
 - MAIN MENU screen is displayed
 - Press EXIT → to return to READY (or WAITING) screen
- Once back in the READY screen, the system is ready for the next exposure



NOTE: Calibration uses the most recent run duration to set the calibration exposure time. If the target value has changed since the last run, the Calibration routine will default to 60 second exposure. It is best to perform a run prior to calibrating to ensure you are calibrating at your operating point.



Figure 5. Calibrated radiometer and cover.



Figure 6. Covered radiometer inserted in chamber.

9. TROUBLESHOOTING

Certain conditions will either prevent a run starting or stop one in progress. The former are not considered faults, so will simply put the system in the WAITING state. They must be corrected before it can advance to READY.

Faults. These are conditions that can cause an unsafe situation or disturb the curing cycle. All faults are identified in the pop-up window that pops up when the fault occurs. Press OK to clear the pop up. However, the fault must be corrected before you can advance to a new state; if not, the pop up fault identifier will simply re-appear because the fault condition still exists.

Faults will cause the LEDs to turn off and the exposure to stop. The lid will remain locked until the pop up window is acknowledged.

Parameter view and reset. The VIEW  button in the SYSTEM SETTINGS screen will show you certain parameters that will be useful in troubleshooting, including certain configurable items. Pressing the RESET  button will overwrite existing values and reset them to the defaults. You must enter the passcode to perform a reset.

10. REPLACING COMPONENTS

A single MiniCure unit may be used at a variety of assembly/curing stations or for a variety of applications by replacing customized part holders. Contact your Vela sales rep for more information or spare parts.

Bushing. (MC3D-LED only) To replace a bushing, remove the two flat head Phillips screws securing the bushing to the deck. (One screw is covered by the bushing lid when closed.) Install the desired bushing and replace the screws. Store the unused bushings safely to protect the white bushing tips from dirt and deformation. The ELS9-LED has no bushings.

Bushing Covers. Remove the bushing, (MC3D only) Using a small Phillips screw driver, remove the white tip. Install a new tip and replace the bushing. The bushings on ELS9-LED are mounted directly to the chamber wall.

Drip Tray/ Diffuser. There are two drip tray designs, depending on the vintage of your MiniCure.

Older models. The drip tray and diffusers are integrated into one quartz plate. To remove it:

- Remove the bushings (MC3D-LED) or bushing cover (ELS9-LED) so the drip pan does not catch on the bushing tips
- Remove the drip tray/diffuser by first removing the screws holding it in place. Next, insert a small Allen wrench with the short leg under the drip tray and pulling upward. Grasp one edge with your (gloved) fingertips or tweezers, taking care not to compress the chamber walls or get finger oils onto the diffuser. Lift the drip tray out and clean prior to replacement. Reinstall the bushings. (MC3D only).

Newer models. The diffusers are integrated into the LEDs and are not replaceable. To remove the drip tray:

- Remove the bushings (MC3D-LED) or bushing cover (ELS9-LED) so the drip pan does not catch on the bushing tips
- Remove the drip by inserting a small Allen wrench with the short leg under the drip tray and pulling upward. Grasp one edge with your (gloved) fingertips or tweezers, taking care not to compress the chamber walls or get finger oils onto the diffuser. Lift the drip tray out.

11. CARE AND MAINTENANCE

Please follow these guidelines during use to maintain the quality and performance of your MiniCure3D:

- Always clean spilled adhesive immediately; follow the directions below
- Take care not to touch the chamber walls, bushing tips and drip tray with bare fingers. Handle these surfaces only when wearing clean, powder-free gloves.
- Do not use sharp objects such as pen tips to press buttons on the touch screen

Chamber cleaning. The MiniCure3D requires minimal maintenance. Occasional cleaning of the chamber walls and bushing tips is recommended. To clean any of the white reflective surfaces:

- Lightly dampen a lint-free wipe with isopropyl alcohol. Do not saturate the wipe.
- Gently wipe the reflecting surfaces. Do not compress the material; be particularly careful not to allow fingernails to press into the material.
- Let dry. If the wipe is properly lightly wetted, the surfaces will dry within seconds.
- If isopropyl alcohol is not effective, acetone may be used following the same procedures. Do not saturate the wipe or chamber walls. Do not use acetone on the touch screen.

Spills inside the chamber. Spills that are allowed to cure to the chamber surfaces will permanently degrade chamber performance. Therefore, spills must be cleaned as they occur.

Do not expose large quantities of UV curable materials that may have spilled inside the chamber; the exothermic reaction may cause thermal damage to the MC3D chamber floor.

Most of the spilled material will be confined to the drip pan. Remove as much of it as possible before removing the drip pan so the drip pan can be removed without spilling the remaining material. After removing the drip pan, clean the chamber surfaces as directed above. Replace the drip pan with a new one. Dispose of the soiled drip pan as recommended by your UV curable material supplier.

Please consult your UV materials supplier for recommended precautions regarding the proper handling, use and disposal of these products.

Exterior cleaning. The exterior (non-chamber) surfaces are either stainless steel (body), anodized aluminum (display bezel of MC3D+) or plastic (bushings, light guide collar). All surfaces may be cleaned with water or isopropyl alcohol. Do not use acetone on exterior surfaces for cleaning. Do not apply cleaning fluid directly to the surfaces being cleaned. Do not use abrasive cleaners. Do not immerse the MC3D in liquid.

Touch-screen display (MC3D+ only). Clean the touch-screen (MC3D+ only) with a wipe lightly wetted with distilled water or isopropyl alcohol. Do not apply cleaning fluid directly to the display. Do not allow ingress of any liquid. Do not use abrasive cleaners.



CAUTION: Follow these cleaning instructions. Failure to do so may result in damage to the chamber, surfaces and performance.



CAUTION: Avoid getting finger oils on the chamber walls. When handling the chamber or drip pan, wear clean, powder-free gloves. Do not press into the chamber walls; they are compressible. Accumulated compressions will degrade performance.



CAUTION: Do not allow the ingress of any liquid into the MC3D units. Do not clean by spray down. Do not immerse.

12. SPECIFICATIONS

Table 1. Specifications.

Specifications	
Input power (MC3D only)	100 – 240 VAC, 1.2 A, 50/60 Hz
LED Wavelength	Factory configurable per user requirement
Dimensions MC3D-LED MC3D-ELS9/LED	5.13" x 11.13" x 10.3" (107 x 249 x 262 mm, HWD) 6.5" x 11" x 11.25" (165 x 279 x 286 mm, HWD)
Dimensions MC3D-LED MC3D-ELS9/LED	~10 lb (4.5 kg) ~12 lb (5.5 kg)

13. MC3D-ELS9/LED SPECIFIC INFORMATION

The MC3D-ELS9/LED is a large chamber version of the MC3D-LED. Operation and maintenance are the same as the MC3D-LED with the exceptions noted here.

The MC3D-ELS9 has a 3 x 3 x 9-inch chamber and eight factory configurable LED wavelengths. It has a few features that are not available on the smaller MC3D-LED:

- Inlet/exhaust ports for nitrogen inerting
- Larger part entry cutouts in chamber ends and mounting holes for side-mounted bushings
- Optional partition package to convert chamber length from 9 to 5.25 inches

This section describes the differences in operation of the MC3D-ELS9 compared to the standard MC3D+ described above.

Larger chamber. The chamber length is increased from 4 to 9 inches to accommodate longer fixture and cure region requirements of some devices. The larger chamber also gives more room for assembly and adhesive dispensing with the part and fixtures in place in the chamber.

You must be careful to minimize light absorbing surfaces inside the chamber to maintain high irradiance. This includes the part being cured and part fixturing.

Nitrogen inerting. On the rear of the MC3D-ELS9 are two 1/4" tubing ports for nitrogen supply and exhaust for filling the chamber with nitrogen during cure. A low flow of low pressure N₂ is sufficient.

Bottom mounting. The chassis bottom has a screw pattern for mounting to your fixturing if needed. The pattern is detailed in Figure 7.

Part entry cutouts. These are larger in the MC3D-ELS9 than in the standard MiniCure3D to allow for larger parts/fixturing to pass thru into the chamber.

No bushings are supplied with the MC3D-ELS9. There are two tapped holes on the chassis sides at each part entry cutout for mounting external bushings or fixturing. See Figure 8 for details.

Partition option. This option allows you to convert the 9" chamber to 5.25 inches. Doing so will increase the irradiance ~50%. The partitions must be installed in both the upper and lower chamber. They may be placed so the useable chamber is either on the right or left side. Installation instructions are provided with the partitions.

Maintenance. Follow the maintenance for the standard MC3D+ with these additions.

Suggested spare parts. In addition to the suggested spare parts for the standard MC3D+, Vela recommends keeping the following in your inventory (). All parts are normally stocked by Vela, but we recommend you keep at least one of each in your inventory to minimize down time.

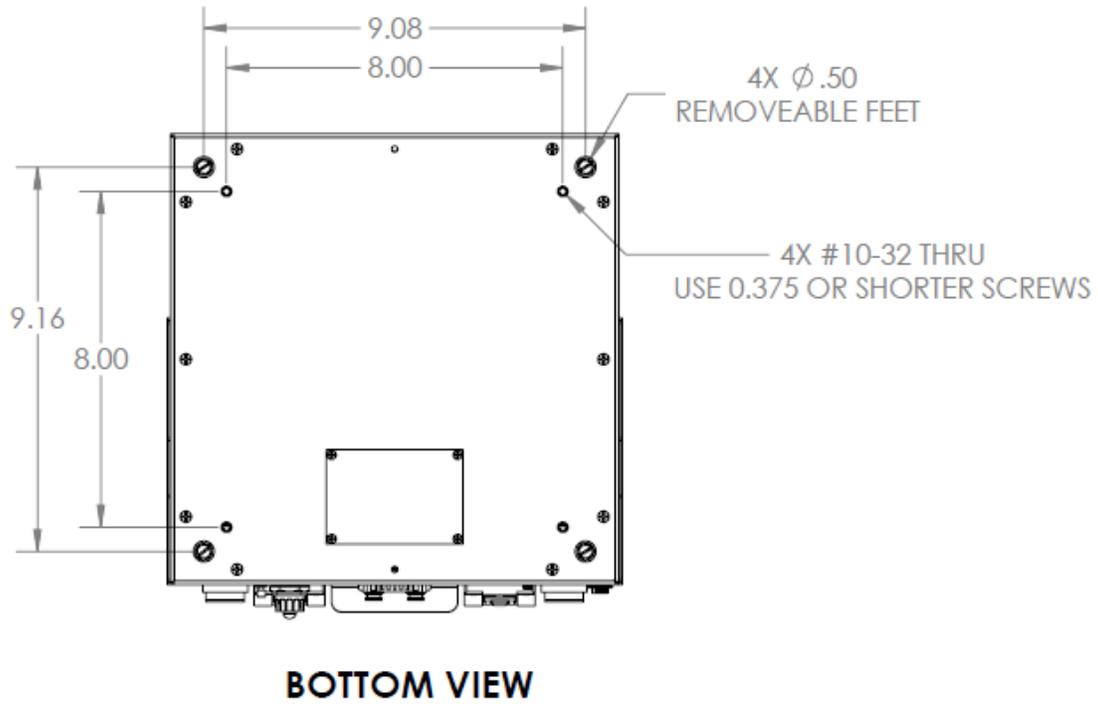


Figure 7. Bottom view of MC3D-ELS9/LED showing mounting hole pattern.

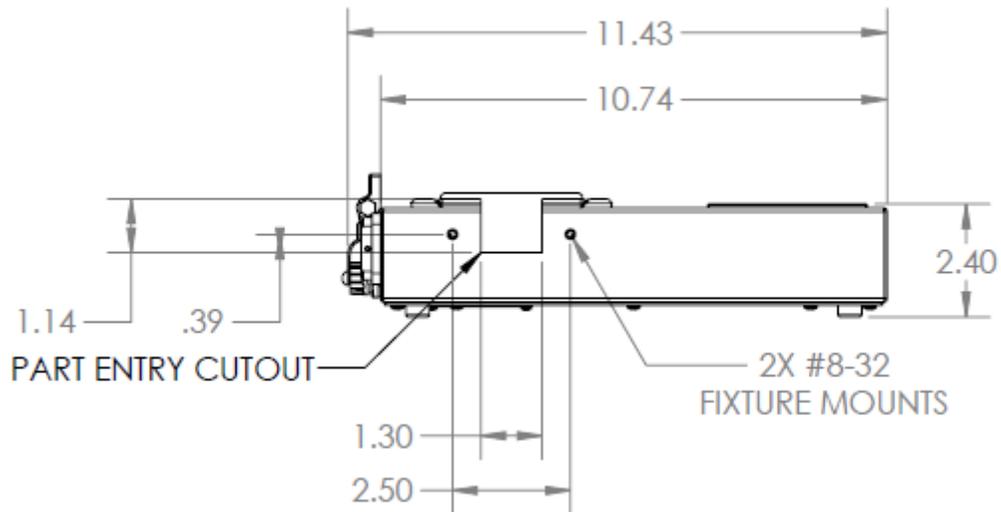


Figure 8. Side view of MC3D-ELS9/LED showing part entry cutout and fixture mounting hole pattern.

14. WARRANTY

Supplier warrants to Buyer that goods delivered hereunder will conform to Supplier's specifications in effect at the time of shipment and be free of defects in material and workmanship for a period of one (1) year from date of shipment. Such warranty excludes loss of reflectivity due to spillage, staining, overheating, abrasion, soilage and loss of substrate adhesion. THE FOREGOING WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING THE WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE AND ANY IMPLIED WARRANTY ARISING FROM COURSE OF PERFORMANCE, COURSE OF DEALING OR USAGE OF TRADE ALL OF WHICH OTHER WARRANTIES ARE HEREBY EXPRESSLY DISCLAIMED. Supplier may repair or replace in its sole discretion any goods delivered hereunder which become defective or fail to meet the applicable specifications during the warranty period, conditioned on: (a) Supplier is notified in writing by Buyer within thirty (30) days after discovery of defects or failure to meet specification; (b) Buyer obtains a Return Material Authorization (RMA) number from Supplier prior to returning any defective goods to Supplier; (c) the defective goods are returned to Supplier suitably packaged, transportation charges prepaid by Buyer; (d) the entire Vela Technologies Inc. original nameplate and the identification of Vela Technologies, Inc. as the manufacturer and the applicable model, serial numbers and any temper-evident strips are fully intact and legible, (e) the defective goods are received by Supplier for adjustment no later than four (4) weeks following the last day of the warranty period and (f) Supplier's examination of such goods shall disclose to its satisfaction that such defects or failures have not been caused by misuse, abuse, neglect, improper installation or application, repair, unauthorized intrusion or alteration, accident, loss of reflectivity due to spillage, staining, overheating, abrasion, soilage and loss of substrate adhesion, or negligence in use, storage, transportation or handling. In the event that any one or more of the foregoing conditions (a) through (f) is not satisfied, Supplier shall have no liability under this warranty whatsoever. Any repair or alterations of the goods shipped hereunder must be authorized in writing by Supplier to prevent voiding Supplier's warranty. Supplier shall have no liability for the consequential losses or damages of Buyer. The limit of Supplier's liability to Buyer hereunder shall be the return of any sums paid by the Buyer for goods alleged to be defective or that fail to meet the applicable specifications. THE FOREGOING STATES THE ENTIRE WARRANTY LIABILITY OF SUPPLIER.

15. REGULATORY



Vela Technologies
8125 Mercury Court, Suite 120B
San Diego, CA 92111

DECLARATION OF CONFORMITY

Name of Responsible Party:	Vela Technologies, Inc
Address of Responsible Party:	<u>8125 Mercury Court, Suite 120B</u> San Diego, California 92103 USA
Product:	MiniCure3D UV Curing Systems
Models:	MC3D, MC3D+, MC3D-ELS9, MC3D-LED and MC3D-ELS9-LED
Assembled by:	Same as above
Address:	Same as above
Applicable directives:	Low Voltage Directive (LVD) 2006/95/EC Emissions Standards EN 61000-6-3 (2007) +A1 +C1 Electro-Magnetic Compatibility EN 61000-6-1 Harmonics Emissions EN 61000-3-2 Voltage Fluctuations EN 61000-3-3

We, Vela Technologies Inc, hereby declare that the equipment bearing the trade name and model names specified above were tested, conforming to the applicable rules under the most accurate measurement standards possible, and that all the necessary steps have been taken, and are in force to assure that production units of the same equipment will continue to comply with same requirements.

Mike Ingram, Vice President
22 Jan 2020