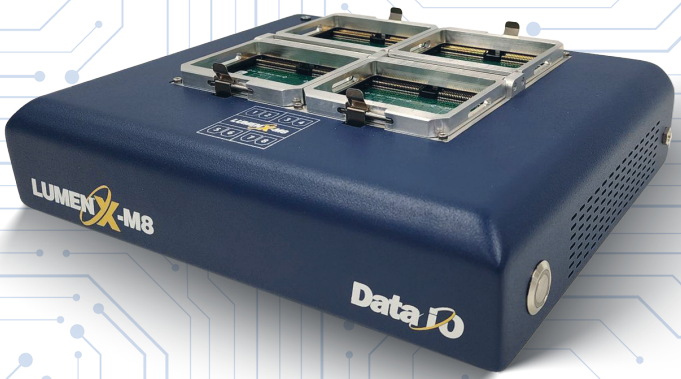
LUMENX®-M8

Manual & Getting Started Guide



Unified Programming Platform
from Design to Production and Beyond

Data I/O

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Doc Part #: 983-5076-002C

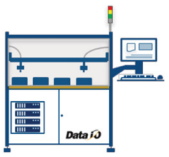
Design
Engineering
NPI
Small Run
Production
QC
Test
Rework

Design, Engineering, NPI

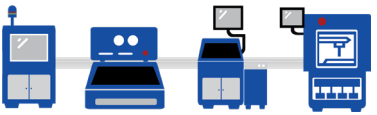
- Control of Data Files
- First Article
- NPI
- Test Fully Programmed Parts

Low & Medium Volume Production

Medium-High Volume Production



- Media Input
- Inspection
- Erase
- Program
- Verify
- Mark
- Media Output



Post SMT Process, Test, QC, Rework

- **Test**
- **Quality Checks**
- **Quality Assurance**
- **Rework**
- **Repair**
- **EOL Support**

Unified Programming Platform

Data I/O offers manual and automated programming solutions that enable our customers to seamlessly transition their programming jobs throughout their preprogrammed parts supply chain on a single, reliable, and scalable platform.

The Lumen®X-M8 is designed to support manual programming for design & NPI builds to validate functionality prior to high-volume production runs. Programming Jobs created on the LumenX-M8 can be seamlessly transferred to any PSV System with LumenX for volume production.

Welcome to the Lumen®X-M8 Manual Programmer Model

Designed for programming first-article builds to validate functionality prior to high-volume production runs, the *Lumen®X-M8* is Data I/O's newest manual programmer. The LumenX-M8 uses the same LumenX programming platform used in the automated PSV Systems ensuring seamless transfer from Engineering to NPI/First-Article and into volume production.

Use this guide to:

- Set Up LumenX-M8 Programmer Hardware
- Install LumenX Data Management Software (DMS)
- Configure Host Network Adapter
- Add LumenX-M8 to LumenX DMS Host
- Download Algorithms from Data I/O
- Update LumenX-M8 Firmware
- Create and Run a Programming Job
- Verify Job Completion

LumenX-M8 Programmer Kit Contents

1. LumenX-M8 P rogrammer (with 4 Faraday cages/EMI shields)
2. Metric Hex Key Set
3. Vacuum Tweezers/Toolkit
4. Power Cord with 24V/4A adapter
5. 1 Gbps Ethernet/Cat6/RJ45 shielded network cable (5 ft, 26AWG)
6. Customer Service Letter 983-0762-001 and conformance documents

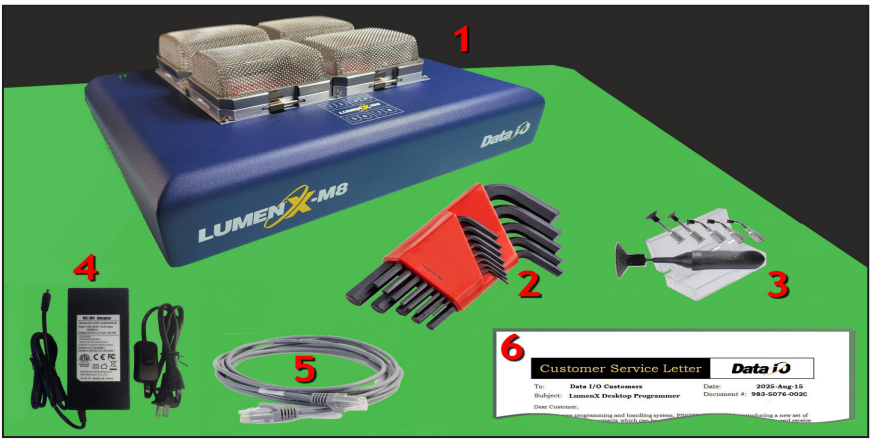


Figure 1: LumenX-M8 package contents.

Requirements

COMPUTER REQUIREMENTS

- **Operating System**: Microsoft Windows 10 (64-bit)
- **Hard disk space**: 200 MB for LumenX Data Management Software
  - 2.0 GB for Algorithm files
  - 10.0 GB for LumenX-M8 firmware (update packages)
  - 200 MB for SentriX Product Creator
  - Also additional space for your jobs and image/data files
- **Network:**
  - Access to your Corporate LAN / Internet access
  - A 1000 Mbps NIC (dedicated, private, Static IP Address) for LumenX-M8
  - (optional) 1000 Mbps Ethernet switch box if networking more than one LumenX-M8 (each LumenX-M8 requires a unique IP address)
  - Access across TCP Ports 5002 and 9000 (License Mgr web and service)
    TCP Port 8090 (LX serialization)
    TCP Ports 8100 and 8101 (LX-AH and LX event client)
    UDP Ports 9080 and 9081 (LX discovery send and receive)

ELECTRICAL REQUIREMENTS

- **Operating voltage:** 100–240 VAC
- **Power Consumption:** 100 watts max
- **Frequency Range:** 50 to 60 Hz

PROGRAMMING REQUIREMENTS

- Your target device(s)
- Socket Adapter for the device
- LumenX Algorithm for the device
- A ground connection

ENVIRONMENTAL REQUIREMENTS

- **Operating Temperature:**
  +10° to +30° C (50° to 86° F)
- **Humidity:** ≤ 90%

REGULATORY COMPLIANCE

- **Applicable EC Directives:**

- Low Voltage Directive 2014/35/EU Class A
- EC Electromagnetic Compat 2014/30/EC Class A

See the "*EC Declaration of Conformity*" certificate included with your LumenX-M8.

Safety First

CAUTION: Electrostatic Discharge Hazard!
Electrostatic Discharge (ESD) may damage equipment and integrated circuits. Discharge static electricity to a common ground. Use ESD prevention devices with 1 M-Ω to 10 M-Ω current-limiting resistors.

Using the equipment in a manner **NOT** specified by Data I/O may impair the protection provided by the equipment.

1. Set Up LumenX-M8 Hardware

1-1. Plug the power cord into the LumenX-M8 (and 100-240 VAC outlet).

1-2. Connect the network cable between the LumenX-M8 and Host PC.

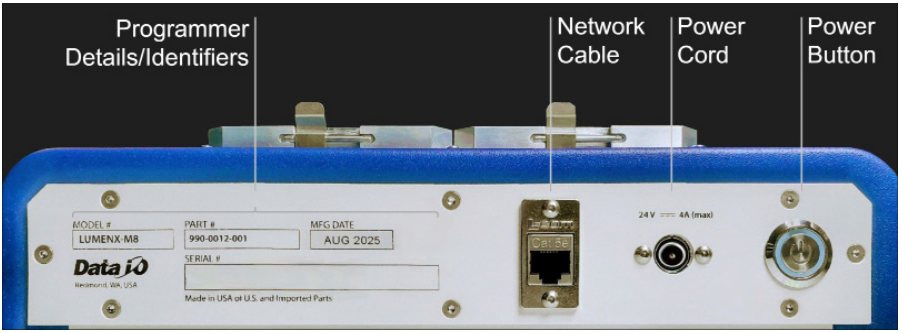


Figure 2: Connect Power and Network for your LumenX-M8.

1-3. To prevent electrostatic discharge (ESD), plug a wrist ground strap into the programmer which has two grounding ports (one on each side).

1-4. Pull up to remove the Faraday cage/EMI shield on top (held by magnets).

1-5. To install a Socket Adapter, pull out slightly on any LumenX 'spring clip' and lift open the socket clamp (which secures one or two Socket Adapters).

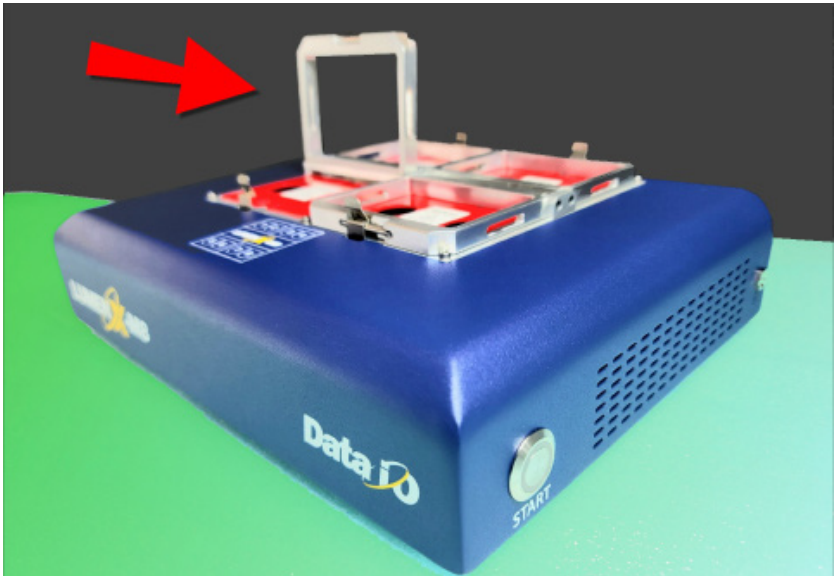


Figure 3: One of four (4) socket clamps open.

CAUTION: Possible programmer damage! Bent or damaged pins can reduce yields or prevent programming. Do not touch connector pins.

1-6. Remove/discard the red protective insulators (for shipping only).

1-7. Rotate the Socket Adapter so the chamfered (angled) corners match the diagram on the circuit board; refer to Figure 3 & Figure 4. Position all locations in the same orientation.

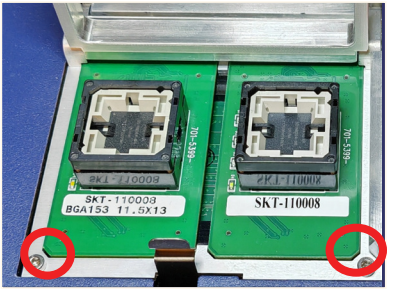


Figure 4: Angled adapter corners fit into programmer socket.

NOTE: The adapter must align with the guide pin at each corner with the holes in the adapter. Refer to Figure 5.

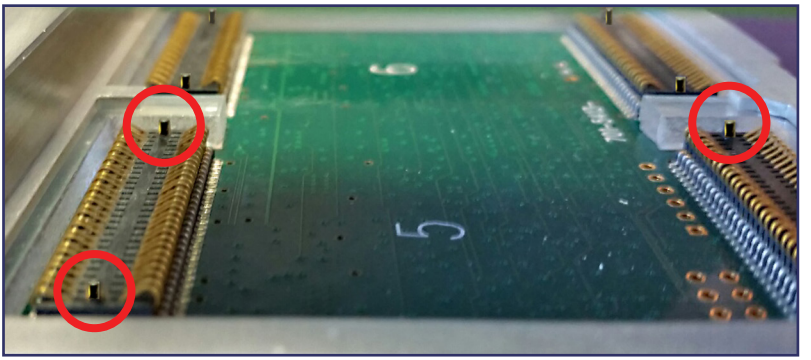


Figure 5: Alignment pins (three of four shown, circled).

1-8. Close the socket clamp.

1-9. Re-attach the Faraday cage(s) that were removed in step 1-4 above.

2. Install LumenX DMS from Data I/O

2-1. Visit **https://www.dataio.com/Support/LumenX-Release** and click **Download LumenX Software Release** (banner above page footer).

2-2. Select **Save file** and then click **OK** to download the current software release file: **LumenXDataManagementSoftware_2.5.0.xx.zip**

2-3. Right-click the downloaded zip file and select **Extract Files**.

2-4. In the folder of extracted files, right-click the **LumenX_Data_Management_2.5.0.xx.exe** file, then click **Run as administrator**. Ex:

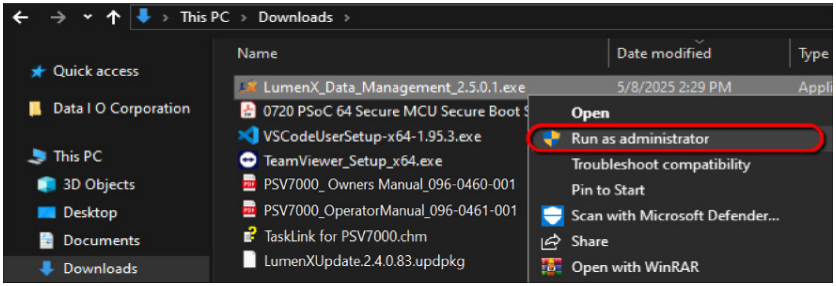


Figure 6: The ***Run As Administrator*** command in right-click submenu.

2-5. Complete the Setup Wizard by accepting all of the default options.

3. Configure Host Network Adapter

Configure the Host adapter for Ethernet connection to LumenX-M8.

3-1. On the Win10 host, click **Start**, type ***control panel,*** and press ENTER.

3-2. In **Control Panel** > **Network and Internet** > **Network and Sharing Center**, click **Change Adapter Settings**.

3-3. Right click **Local Area Connection** (to programmer) > **Properties**.

3-4. Select **Internet Protocol Version 4 (TCP/IPv4)**, and then click **Properties**.

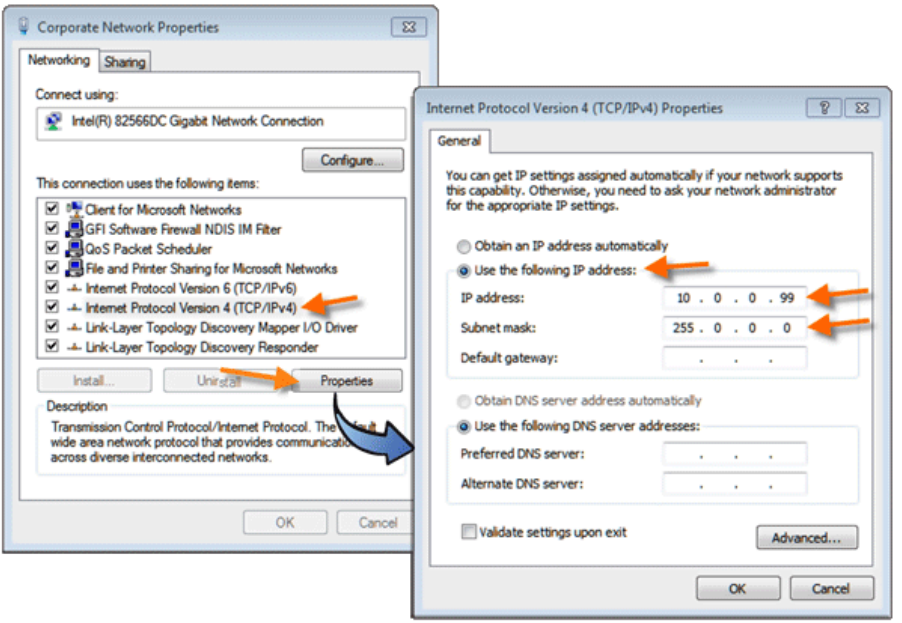


Figure 7: LumenX-M8 Network Settings on host Win10 PC.

3-5. Select **Use the following IP address**.

3-6. Enter IP address ***10.0.0.99***, and Subnet mask ***255.0.0.0***.

3-7. Click **OK** and **Close**.

4. Add LumenX-M8 to LumenX DMS Host

4-1. With your target Socket Adapter(s) installed and the power cable plugged in, push the Power button on the back of LumenX-M8 to turn it ON.

> NOTE: Before proceeding, **wait until the white LED on each socket adapter goes off.** LEDs illuminate at startup and go off when done.

4-2. On the Host PC, start **Data Management Software**, click **Settings** (at top), and then click **Programmers**.

4-3. In the **Programmer Management** window, click **Discover**.

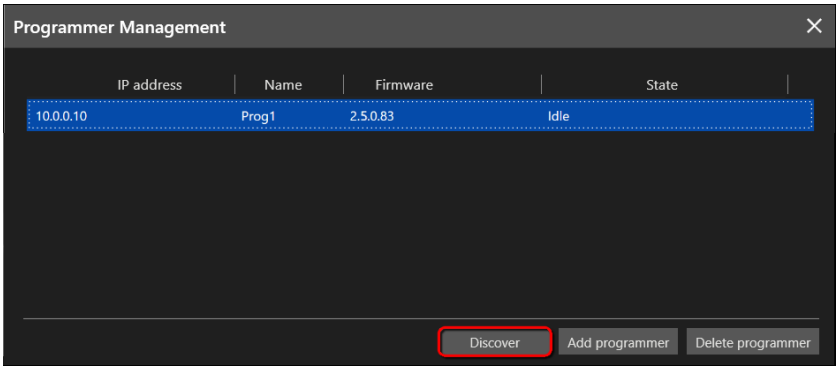


Figure 8: Host can automatically detect LumenX-M8 programmers.

- If LumenX DMS does not locate the progammer by Discovery, then try adding it manually: click **Add programmer,** then specify its IP address.
- If LumenX DMS does not detect the programmer nor add it with the specified IP address, then ensure it is reachable by the Host PC itself:

  A. start a Command Prompt window as Admin
  (**start** > type ***cmd*** > right-click cmd and click **Run as administrator**)

  B. type ***ping 10.0.0.10*** and press ENTER

  - If you see a reply from the IP address, then the Host PC has connectivity with the programmer so please try Discover again.
  - If the *ping* cmd times-out or otherwise receives no response, then the Host PC cannot contact the programmer so please re-check hardware (ex. cable securely attached at both ends and functions properly with other devices..).

5. Download Algorithms from Data I/O

5-1. Start LumenX **Data Management Software** (if not open already).

5-2. Click **Tools** (at the top), then click the **Algorithm Updater** menu item.

5-3. In **Algorithm Updater**, click the **Remote** tab, then click **Update list**.

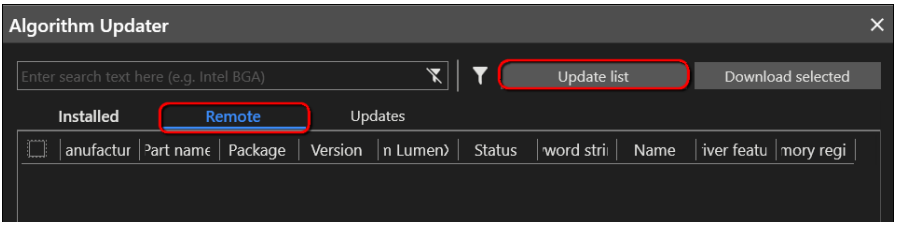


Figure 9: Check remote server for updated algorithms.

5-4. After the list updates, download specific algorithms by typing keywords in the search box, then check the corresponding box(es) in the first column, and then click **Download selected**.

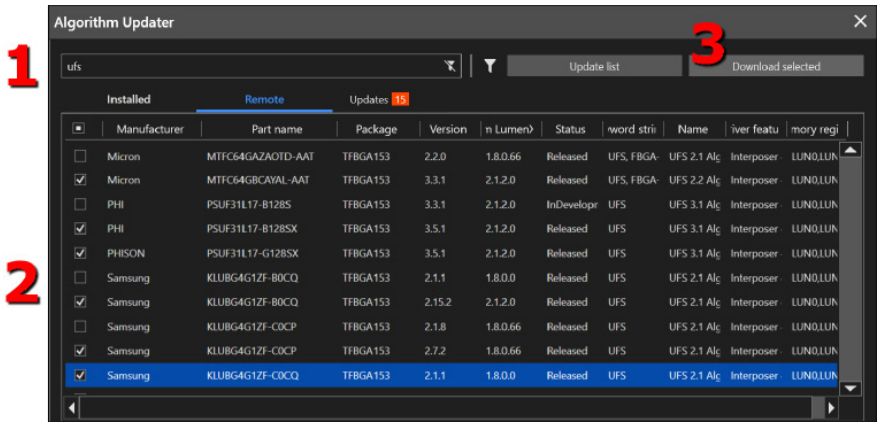


Figure 10: Update LumenX algorithms.

Or, to download all available algorithms, check the top-most box in the first column (to Select All), and then click **Download selected**.

6. Update Programmer Firmware

6-1. From **Tools** (at the top), click the **Update Programmer(s)** menu item.

6-2. In the left pane, check the box for the programmer(s) to update.

6-3. From the **Choose Update Version To Install** drop-down list, select the update version to apply, then click **Update**. This step may take 2 minutes.

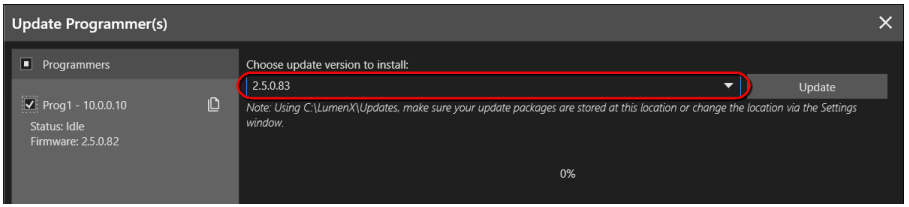


Figure 11: Update firmware version on programmer.

6-4. In the left pane, verify that the **Status** of the programmer changes:

- Idle > Updating > Verifying > Rebooting > Idle

6-5. Under **Programmers**, verify that the **Firmware** version is updated.

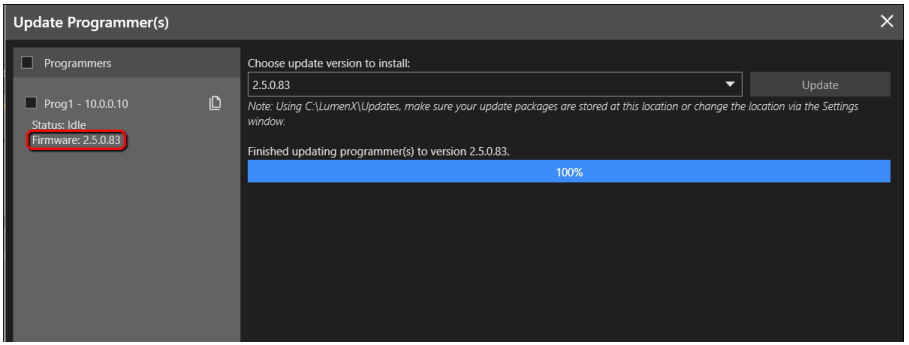


Figure 12: Confirm new firmware version on programmer.

Congratulations! Your LumenX DMS host and LumenX-M8 programmer are now ready to program devices. In the next section, you create a job in LumenX DMS to configure device settings and image data.

7. Create and Run a Job

7-1. At the main window, click **Settings** (at top), and then open **Settings**.

7-2. On the **General** tab, from the **Presenter Mode** drop-down list, select **Desktop Mode**, and then click **Save** (bottom).

7-3. Close the **Settings** page ("**X**" in upper-right corner).

7-4. On the **Jobs** page, click **New** (lower-right corner).

7-5. On the **Devices** page, select a device, and then click **Next**.

7-6. On the **Algorithms** page, select an algorithm, and then click **Next**.

7-7. On the **Create Job** page, type a job name, description, and any notes.

7-8. In the **Device** group, from the **Adapter Id** drop-down list, select the desired adapter. Similarly, from the **Settings** drop-down list, select the desired functions for the programming job (ex: Device Erase, or the specific processing supported by the device and algorithm).

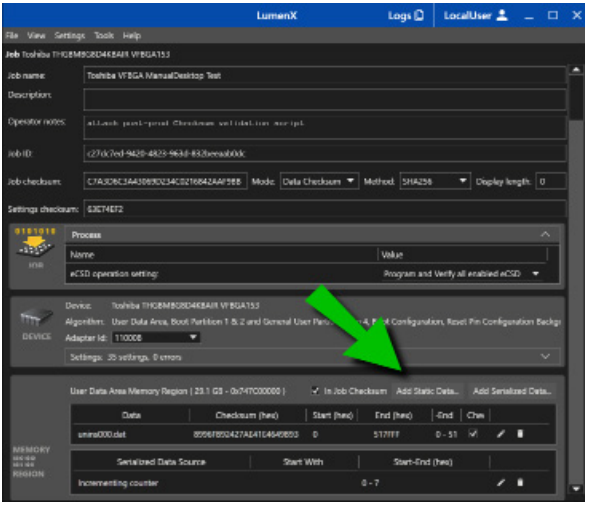


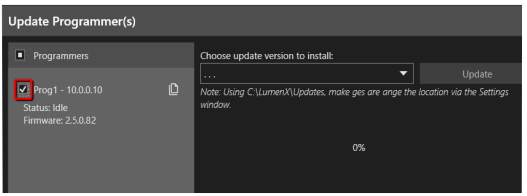
Figure 13: Select desired settings, static data/image file, and processes.

7-9. In the **Memory Region** group for which the image file is intended (ex. ***User Data Area***), click **Add Static Data** (Green arrow) > **Browse**, navigate to your image file, select it, and then click **Open**.

7-10. Repeat the previous step for any/each additional file, then click **Save**.

7-11. Manually actuate the socket and use the vacuum tweezer/tool to place device(s) into the programmer. Pin1 location is indicated on the device.

7-12. In the **Programmers** (left) pane, ensure intended programmer(s) are checked, then click **Run** (job downloads to programmer for processing).



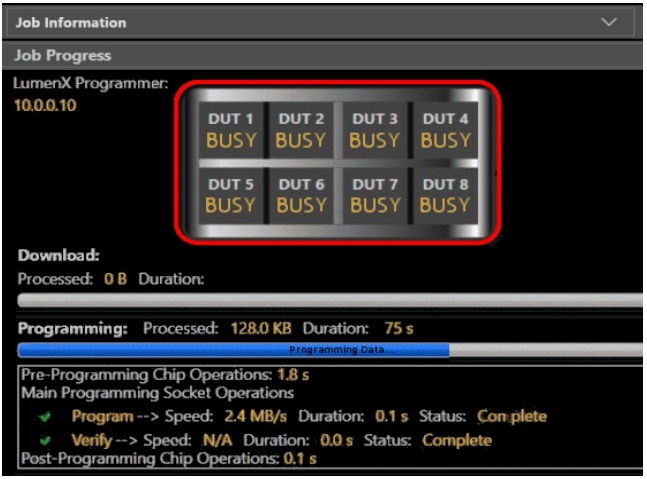


Figure 14: The ***Job Progress*** dialog displays the following status:

DUT = Device Under Test = Socket
IDLE = the job is downloading or there is no activity in the slots.
BUSY = the job is programming.
PASS = programming job successfully completed/ready.
FAIL = if errors occur.

7-13. To check socket(s) progress at any time, click **Show statistics**.

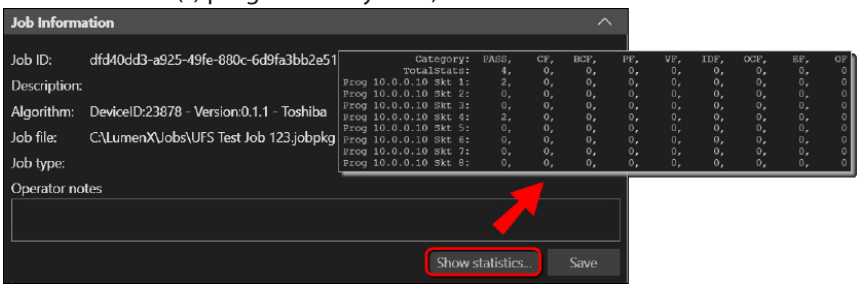


Figure 15: View socket statistics for any job in-progress.

8. Verify Job Completion

8-1. On job completion, LumenX automatically displays a Session Log.

8-2. Ensure (on the left) that the **Status** of each programmer has returned to ***Idle***, and (on the right) that the status of each socket shows **PASS**.

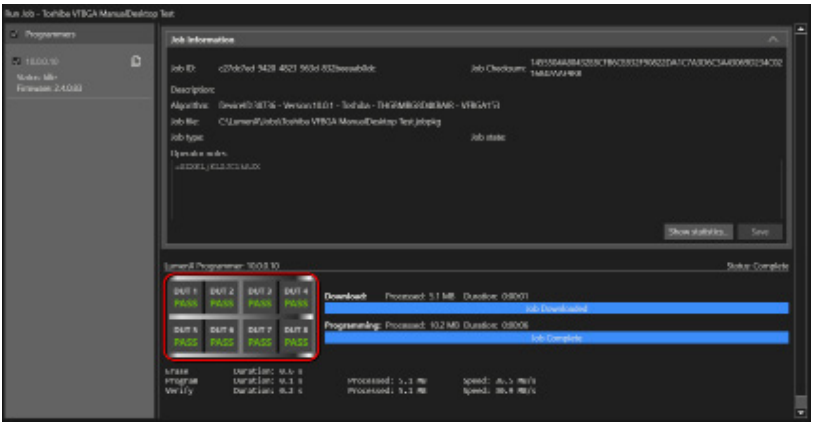


Figure 16: Job has completed and PASSED.

8-3. To repeat the same programming job for the same device/part, push the **Start** button located on the right side of your LumenX-M8:

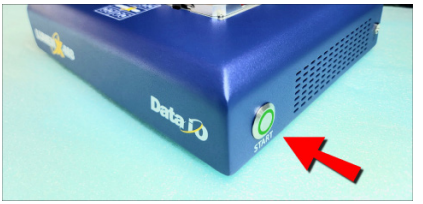


Figure 17: Push the **Start** button to continue programming.

8-4. If an error occurs, click the alert indicator in the lower-right corner:

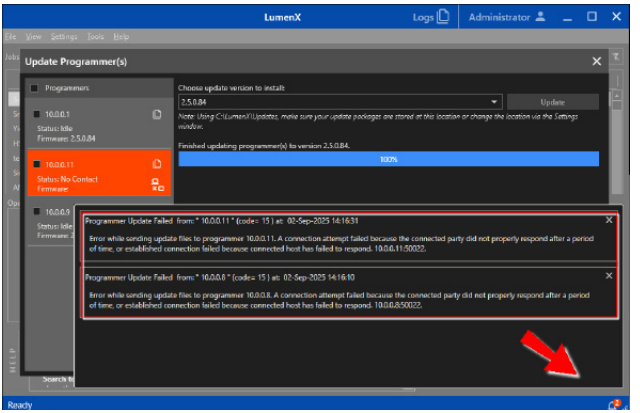


Figure 18: Click the Error Alerts (red arrows) to read the message. Each Adapter's red LED also illuminates for errors.

Socket Adapter LEDs

GREEN = PASS

YELLOW = BUSY

RED = FAIL

WHITE = CONTINUITY ERROR

Figure 19: All LEDs flash on startup.

On LumenX-M8 startup, the Power-On Self-Test (POST) beeps for 4 seconds, then all LEDs flash for 5 seconds and go dark when startup completes.

Similarly on the right-side of LumenX-M8 itself: the physical Run button lights Green when done/ready. In contrast, the physical Run/push button only illuminates in Green (no Yellow, Red, or White as on socket adapter boards).

Revision History

Version	Date	Change
001A	FEB 2014	Initial LumenX Manual Desktop Programmer release
001B	NOV 2019	Updated Auth/Security roles and cmd line usage
001C	MAR 2023	Updated requirements and screenshots
002A	JUL 2025	Initial LumenX-M8 release
002B	AUG 2025	Added network ports and safety protection clause
002C	SEP 2025	Updated hardware and software graphics

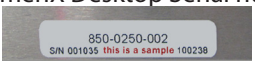
Technical Support

First check the **Troubleshooting** section of the product documentation at:
C:\Program Files (x86)\Data IO\DMS\Help\Web\articles\troubleshooting.html

To contact your local representative, please perform a lookup at:
- https://www.dataio.com/Contact-Us/Representative-Search

To submit a service request (requires account registration), please login to our MAX Customer Portal:
- https://myaccount.dataio.com

FOR QUICK ACCURATE SUPPORT, PLEASE PROVIDE THE FOLLOWING:
- LumenX Desktop Serial number (see label)



- Software Version (**Help** > **About**)
- Detailed description of the problem you are experiencing (if any)
- Event logs and/or error messages (if any)
- Device manufacturer, part number, pkg style, number of pins, etc.
- Name, telephone number, address, and e-mail address

Contact Sales

For specific questions about our products and services, please visit:
- https://www.dataio.com/Contact-Us/Sales

For all general inquiries, please visit:
- https://www.dataio.com/Contact-Us

Self Help

To view Help in LumenX Data Management Software:
- click the **Help** menu item (at the top), then click **Help**; OR
- open browser to C:\Program Files (x86)\Data IO\DMS\Help\Web\index.html

To learn more about our products and services, please visit:
- https://www.dataio.com/Support/Technical-Library

LumenX-M8 Resources Guide & Quick Links

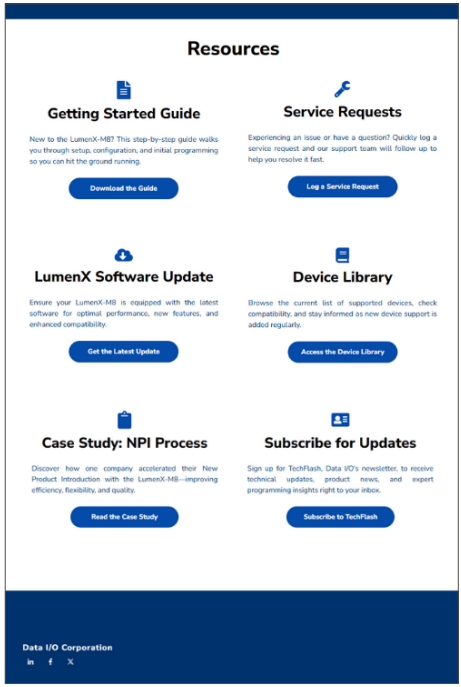
For the latest software, support, and resources for your LumenX-M8 manual programmer, visit our online Resource Hub. It's your one-stop destination for setup guidance, device updates, service requests, and more.

Visit: https://info.dataio.com/lumenx-m8-product-resources

Or scan the QR code below.

Access to:

- **e-Getting Started Guide**
- **Service Requests**
- **LumenX Software**
- **Device Library**
- **Case Studies**
- **TechFlash email Updates**



Data I/O Corporation
6645 185th Avenue NE
Suite 100
Redmond, WA 98052 USA

Telephone: +1 425-881-6444
Toll Free in USA: 800-426-1045
Email: sales@dataio.com
www.dataio.com

Europe
Data I/O GmbH
Gräfelfing, Germany
www.dataio.de

Asia
Data I/O Electronics (Shanghai) Co.
Shanghai, China, PRC
www.dataio.cn