



LUMEN[®]X²-M4

Manual Programmer

SUPPORTING DESIGN TO VOLUME PRODUCTION & BEYOND

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



Design, Engineering, NPI



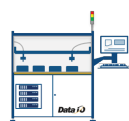
- Control of Data Files
- First Article
- NPI
- Test Fully Programmed Parts



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

DATA I/O CORPORATION



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DEVICE SUPPORT

- eMMC Flash Memory 4.41, 4.50, 4.51, 5.00, 5.10
LumenX supports eMMC standard speed, HS, HS200 and HS400 modes
- SPI NOR
- Universal Flash Storage (UFS) 2.0, 2.1, 3.0, 3.1, 4.0, and 4.1; Gear 3 2-Lane (Rate A)
- Secure Elements
- Microcontrollers:
 - Voltage: 1.2V to 5.0V
 - Number of Pins: 36

PERFORMANCE

- Up to 750 MB/sec read for UFS devices with VerifyBoost license*
- Up to 160 MB/sec read (standard performance)**
- Up to 160 MB/sec write (standard performance)**
- Up to 50 MB/sec download

**VerifyBoost requires a license. VerifyBoost is only available for UFS devices. Standard verify performance up to 160 MB/sec without a VerifyBoost license.*

***Read/write speeds vary by device specifications*

FILE SIZE SUPPORT

- 256 GB cache memory standard
- Extensible up to 512 GB

***Cache memory upgrade purchased separately*

ENVIRONMENTAL & REGULATORY SPECIFICATION

- **Operating Temperature Range:** +10° to +30° C
- **Humidity:** ≤90%
- **Regulatory Compliance:** CE, RoHS

VALUE ADDED SOFTWARE

Command Line Interface
Serialization
ConneX Software

PC WORKSTATION REQUIREMENTS

- **Operating System:** Windows 10 and 11

ADAPTER + SOCKETING TECHNOLOGY

- Standard burn-in sockets (5,000-10,000 insertions per socket)
- Medium Insertion Count (MIC) for BGA, QFN, QFP, SOP (50,000 insertions per socket)
- High Insertion Count (HIC) for BGA, TSOP, QFP (250,000 insertions per socket)
- Upgrade kit with UFS single socket interface board for UFS programming

- **Network Interface:** 1 Gigabit (1000 BASE-T)
- **Programming Yield:** Up to 99.5%
- **Changeover:** Tool-less
- **Device Capacity:** 8 single socket adapter boards per LumenX programmer

PHYSICAL SPECIFICATIONS

- **Width:** 29.2 cm (11.5")
- **Depth:** 22.9 cm (9")
- **Height:** 7.7 cm (3")
- **Weight:** 3.27kg (7.2 lbs)

SUPPORT CONTRACTS

The first year of support for factory parts and labor warranty included in purchase price and can be extended via annual service contract. The service contract program enables access to new and optimized algorithms, system software and LumenX Software updates and hardware support.

LUMENX SOFTWARE (FOR STANDARD PC INTERFACE)

- Role based user authentication to control access to create, modify, and run programming jobs
- Version Control (to lock down jobs from modification)
- Read from Master
- Basic Serialization
- VerifyBoost License