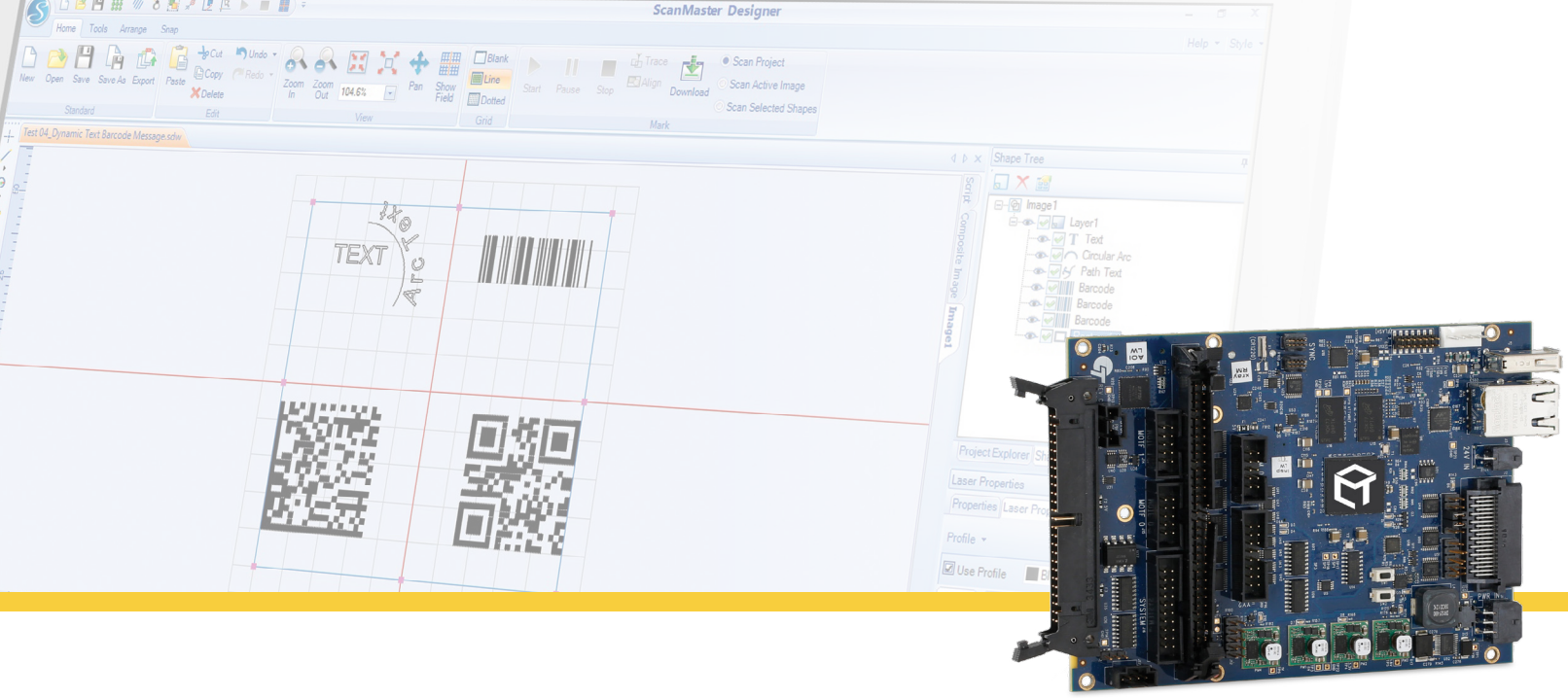


ScanMaster Controller

Product Highlights

The industry's highest system throughput, resolution, and accuracy are now possible by integrating our ScanMaster Controller (SMC) and ScanMaster Designer (SMD) software with our Lightning™ scan heads. The SMC is designed to synchronize mirror position with laser firing using proprietary ScanPack algorithms or with traditional control schemes. The ScanPack's algorithm optimizes the synchronization process to further increase throughput making it ideal for demanding applications such as via-hole drilling (VHD), laser additive manufacturing and digital converting.

Achieve highest throughput and unmatched accuracy using our technology

KEY BENEFITS

- **Simplified laser integration** with plug-and-play laser adaptors
- **Unmatched positioning accuracy** enabled by the industry's highest 24bit GSBus command resolution[1]
- **Uniform laser power density and higher throughput** empowered by our proprietary ScanPack algorithm[1]
- **Optimized laser processing** with our adaptive wobble trajectory capability
- **Flexible system integration and easy job creation** driven by powerful object oriented ScanMaster API
- **Standalone operation** built in >15M vector commands buffer and 3.5GB on-board memory for job storage, expandable to 256GB

Reference:
1. When using fully digital Lightning™ II scan heads only

CAMBRIDGE TECHNOLOGY
A Novanta Company

www.CambridgeTechnology.com

ScanMaster Controller

Product Specifications

Galvanometer Control

Compatible Products	2-Axis and 3-Axis configurations
Max Number of Scan Heads	Two 2-Axis or two 3-Axis scan heads[1]
Control Scheme	Traditional or ScanPack (Lightning™ scan head only) mode
Communication Protocol	16-bit XY2-100 with standard status codes 24-Bit GSBus with real time status and signal monitoring (Lightning scan head only)

Laser Control

Interface	Laser-specific adapters for common laser types[2] • 25-pin fiber laser adapter • Single-ended BNC CO_2 laser adapter • Adapter for RJ45 laser control connector • 68-pin fiber laser adapter • Adapter with 24V circuitry for high power laser
Laser Control Signal	15x Digital output signals 2x 0-10V Analog output signals 6x Digital input signals for status read-back 1x High-speed digital sync input 1x RS-232 serial communication port

System Integration

Communication	100/1000 BaseT Ethernet 2x RS-232 serial interface[3]
Multiple Boards	Any number of SMC boards with Ethernet hub and master/slave synchronization through digital I/O
External Equipment Control	4x 5-24V User-defined digital outputs 4x 5-24V Dedicated status outputs – Busy, Lasing, Ready & Job Active 4x 5-24V Optically-isolated user-defined digital inputs 2x 5-24V Dedicated optically-isolated synchronization inputs 2x Quadrature encoder inputs for Mark-On-The-Fly (MOTF)
Auxiliary I/O Board (optional)	2x XY2-100 Compatible 25-pin D-Sub connectors for dual scan head operation 16x 5-24V User-defined digital outputs 16x 5-24V Optically-isolated user-defined digital inputs
Safety	2x Interlock inputs
Stand-alone Operation	3.5GB On-board Micro SD card for stand-alone jobs
Power Supply	15V to 48V Single supply Separate 24V input for optical isolation circuits (optional)
Dimensions	6.9 in. x 4 in.
Weight	Approx. 0.14 kg

Software Environment

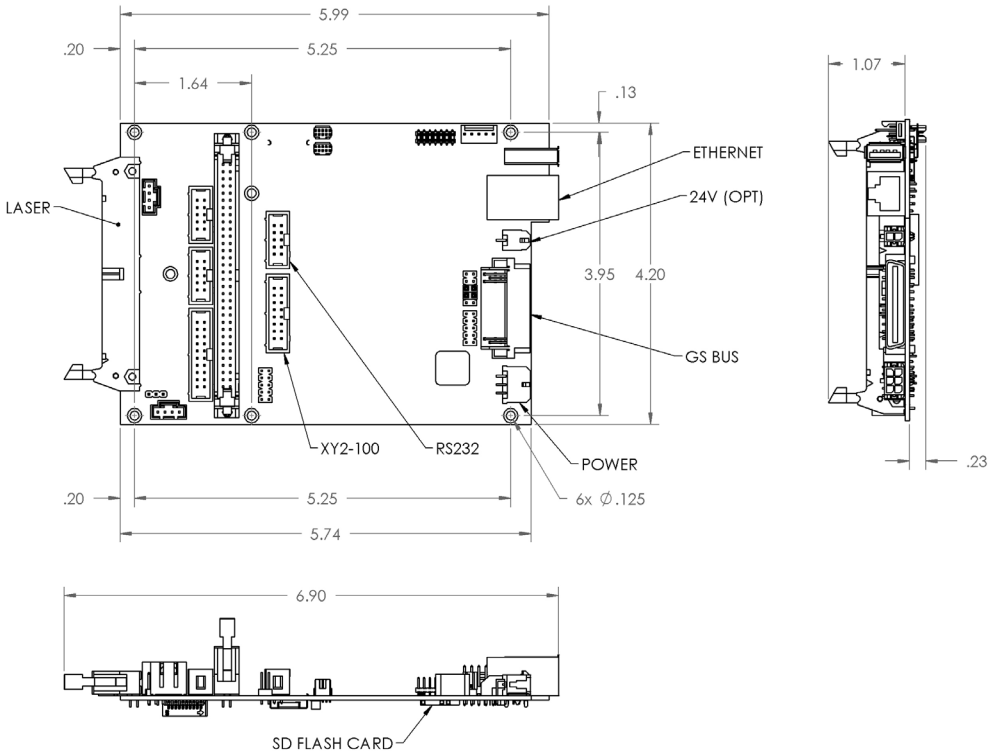
Application Programming Interface	ScanMaster API (.NET and Win32 DLL) ScanMaster Designer (Optional)
Operating Systems	Windows 7 & 10 32-bit/64-bit

Notes:
All Models are RoHS compliant. All specifications subject to change without notice.

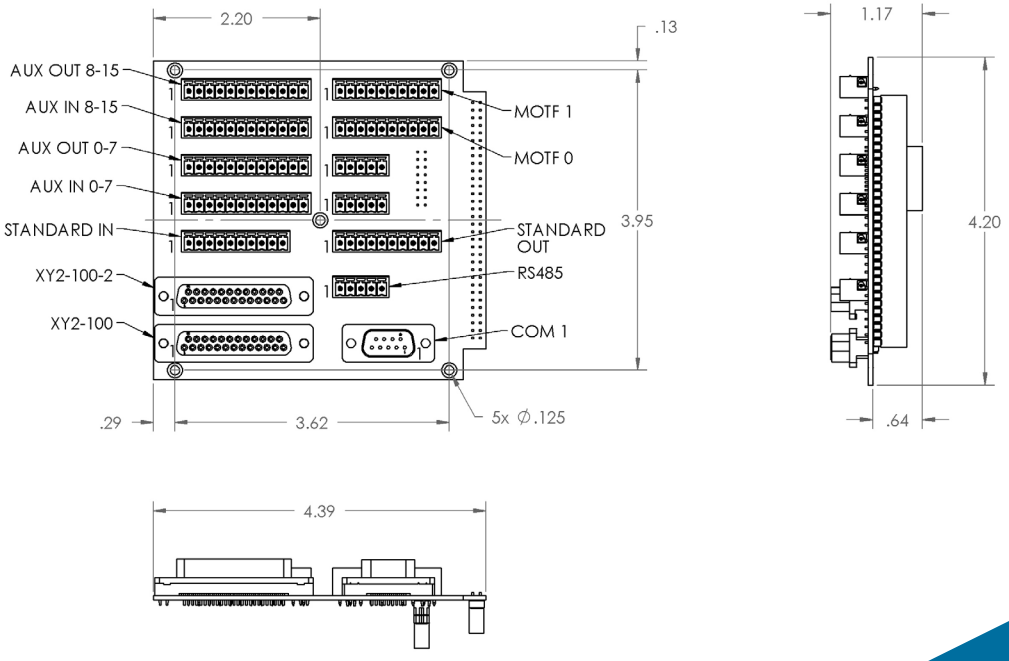
References:
1. When using XY2-100 protocol, a second scan head requires the auxiliary I/O board. 2. Contact Cambridge Technology to discuss availability of other adapters. 3. Second general purpose RS232 is on auxiliary I/O board.

ScanMaster Controller

ScanMaster Controller Board



ScanMaster Controller Auxiliary I/O Board



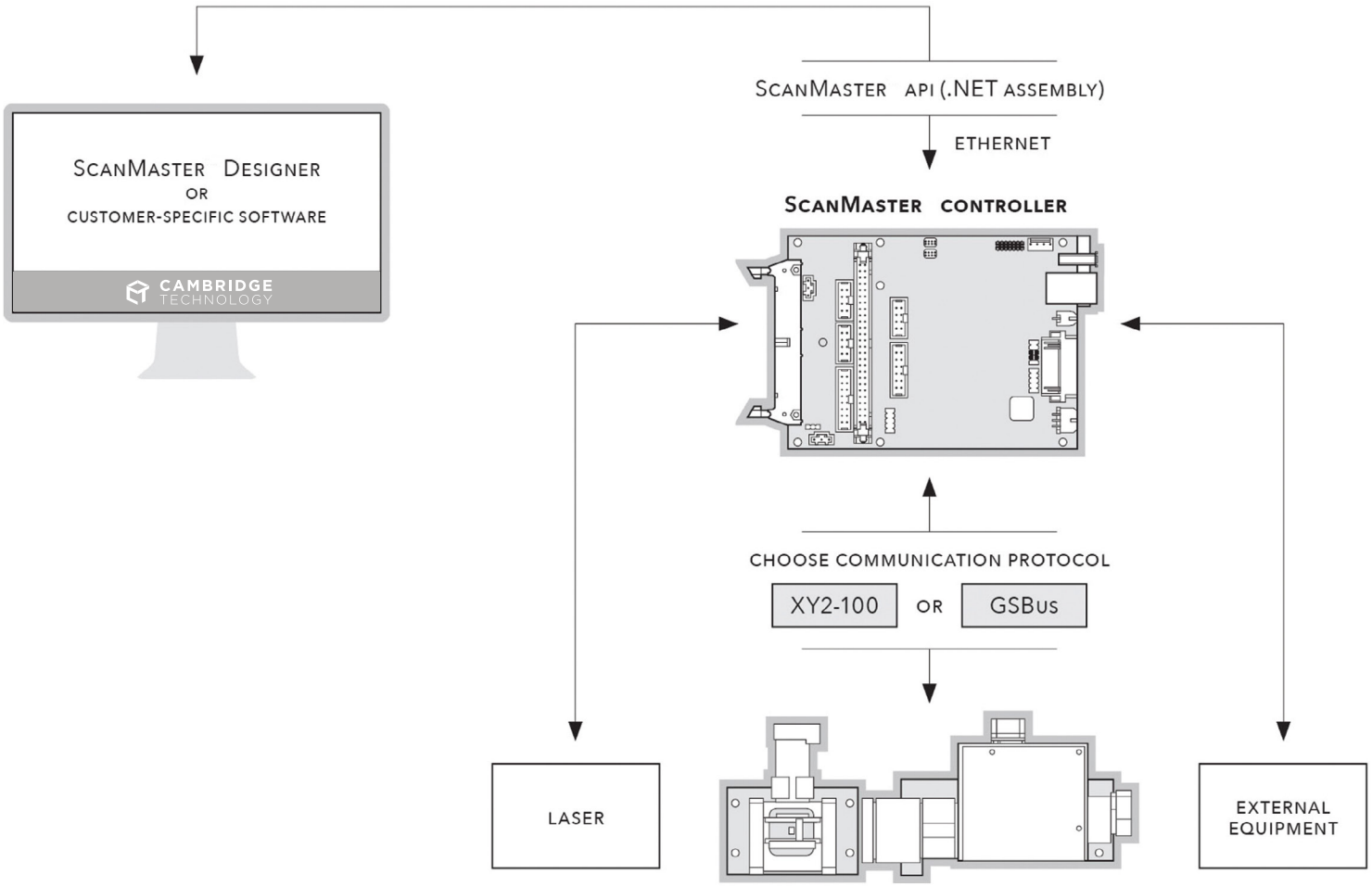
Notes:
All dimensions are in inches, unless otherwise noted. All specifications are subject to change without notice.

CAMBRIDGE TECHNOLOGY
A Novanta Company

www.CambridgeTechnology.com

ScanMaster Controller

Integration Schematic



About Cambridge Technology

With close to 50 years of expertise, Cambridge Technology designs, develops, and manufactures innovative beam steering solutions including polygon- and galvanometer-based optical scanning components, 2-axis and 3-axis scan heads, scanning subsystems, high power scanning heads, and controlling hardware and software. We excel in collaborating with our key OEM partners to engineer products that meet their needs from the largest engineering solution to the smallest component. Key market applications include advanced industrial processes like additive manufacturing, laser converting, laser marking, and via-hole drilling, and medical applications such as laser treatment and optical coherence tomography. Cambridge Technology is a Novanta company.

CAMBRIDGE TECHNOLOGY: AMERICAS
+1 (781) 266 5800 | support-us@cambridgetechnology.com

CAMBRIDGE TECHNOLOGY: EMEA
+49 (0)89 31707 0 | support-eu@cambridgetechnology.com

CAMBRIDGE TECHNOLOGY: JAPAN & KOREA
+81 (3) 5753 2462 | support-jp@cambridgetechnology.com

CAMBRIDGE TECHNOLOGY: CHINA, SINGAPORE, MALAYSIA, THAILAND & INDONESIA
+86 (512) 6283-7080 | support-cn@cambridgetechnology.com

CAMBRIDGE TECHNOLOGY
A Novanta Company

www.CambridgeTechnology.com