Motion Control Communication Bus
Automation1 HyperWire

Flexible, Reliable Performance at Light Speed

The fiber-optic, light-based HyperWire® motion control bus is the fastest, highest-throughput communication bus in motion control. It enables 20 times the throughput that was possible with a 100BASE-T Ethernet.

With HyperWire, you can count on reliable communication that is immune to electromagnetic interference (EMI) and nearly free of jitter. Plus, the HyperWire protocol operates at 100 kHz—five times the speed of competing solutions—enabling efficient, multi-input, multi-output (MIMO) control algorithms you won't find anywhere else. Hyperwire is flexible enabling servo motor and laser scan head drives to be simultaneously added to a single HyperWire network.

Automation1

The HyperWire Motion Control Communication Bus is a part of the user-friendly Automation1 motion control platform, which includes the following:

- **Development Software**
- **Controls**
- **Motor Drives**
- **Fiber-Optic HyperWire® Communication Bus**

KEY FEATURES:

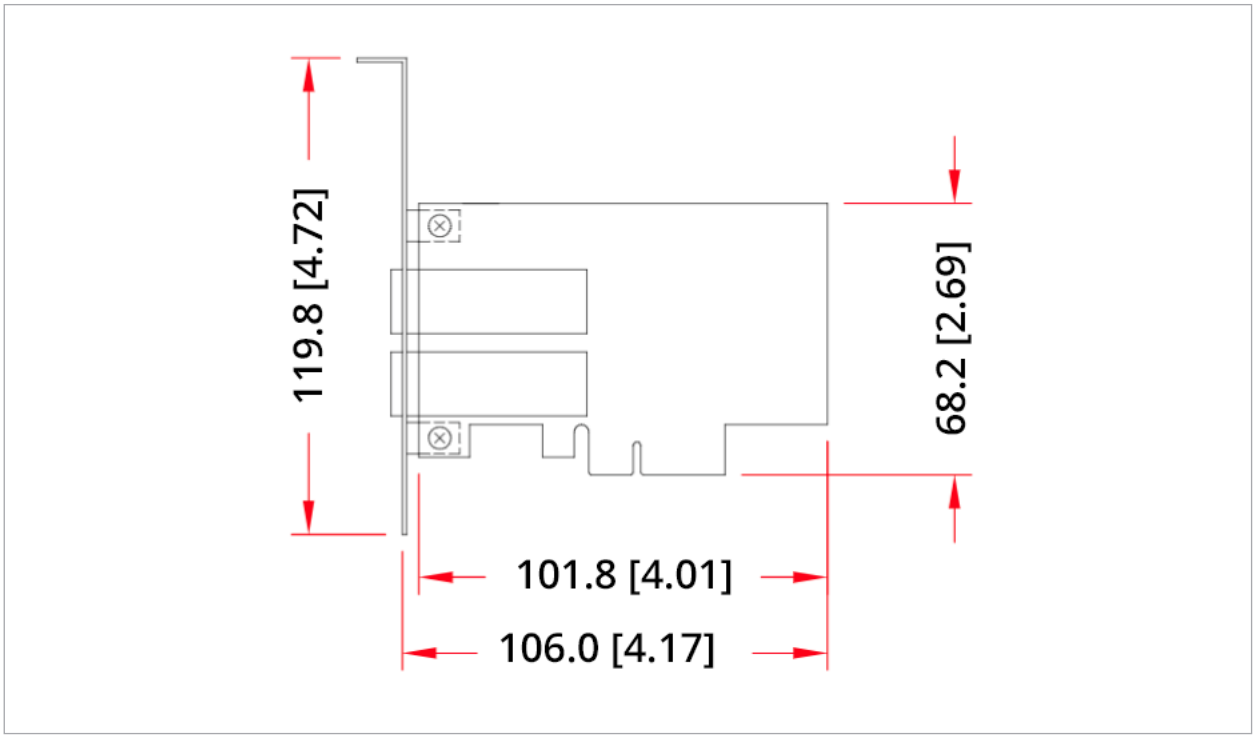
- Controls **UP TO 32 AXES** with no performance loss
- **20X THE THROUGHPUT** of 100BASE-T Ethernet
- **ZERO-JITTER** technology (patented)
- 100 kHz cycle time for **LOW-LATENCY, DRIVE-TO-DRIVE DISTRIBUTIVE CONTROL**
- Uses standard glass optical fiber cables with **SMALL FORM-FACTOR PLUGGABLE (SFP) CONNECTORS**
- Immune to EMI noise

AUTOMATION1 HYPERWIRE SPECIFICATIONS

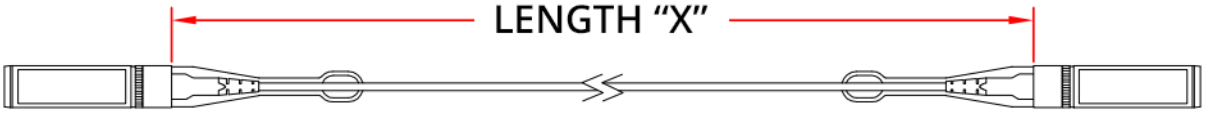
SPECIFICATION	DESCRIPTION
Communication Rate	2 Gbps
Jitter	< 1 nanosecond achievable (after 16 axes)
Network Rate (Up to 32 Axes)	100 kHz
Connected Axes of Motion	PC-Based Controller - 32 Axes (16 on port A / 16 on port B) Drive-Based Controller - 12 Axes, single port
Trajectory Point Data Types	64-bit double-precision floating point values
Servo Motor Drive Trajectory Rate	20 kHz
Galvo Scan Head Drive Trajectory Rate	100 kHz
Physical Connectors	SFP (small form-factor pluggable)
Cable Type	Glass optical fiber
Drive-to-drive MIMO Communication	Within a single 20kHz servo-cycle

AUTOMATION1 HYPERWIRE DIMENSIONS

AUTOMATION1 HYPERWIRE PCIe CARD



AUTOMATION1 HYPERWIRE CABLES



HYPERWIRE CABLE LENGTH "X"	MAXIMUM ALLOWABLE CONNECTOR TO CONNECTOR SPACING
0.5 Meters	0.4 Meters
1 Meter	0.9 Meters
3 Meters	2.9 Meters
5 Meters	4.9 Meters
20 Meters	19.9 Meters

AUTOMATION1 ComAcc: HYPERWIRE COMMUNICATION PCIe CARD

ORDERING OPTIONS	OPTIONS
Example Selections	HyperWire Selections
HyperWire PCIe	HyperWire PCIe HyperWire Interface Card, PCIe Bus

Note:

Example Configuration: HyperWire PCIe

CABLE COMMUNICATION: AEROTECH COMMUNICATION CABLES

ORDERING OPTIONS	EXAMPLE SELECTIONS	HYPERWIRE SELECTIONS
Cable*	HyperWire AO10-5	HyperWire AO10-5 HyperWire Active Optical Cable, 0.5 meters HyperWire AO10-10 HyperWire Active Optical Cable, 1.0 meters HyperWire AO10-30 HyperWire Active Optical Cable, 3.0 meters HyperWire AO10-50 HyperWire Active Optical Cable, 5.0 meters HyperWire AO10-200 HyperWire Active Optical Cable, 20.0 meters

Note:

**Special lengths available*