



# 20Gb/s Thunderbolt™ 2 to 10GbE (SFP+ LC Optical) Desklink Device

## ThunderLink™ NS 2102

Thunderbolt 2 to ATTO's 10 Gigabit Ethernet Desklink Devices provides maximum throughput for high bandwidth network connectivity for demanding IT and media and entertainment applications.

### Industry Proven Technology

ATTO has over 25 years of experience developing first-to-market high performance and reliable storage connectivity solutions for customers. ATTO ThunderLink Ethernet products now provide creative professionals using Thunderbolt-enabled hosts, cost effective access to storage not previously available using FireWire or USB. The integrated family of ThunderLink products boasts an extensive list of customer design wins and certifications with respected industry partners.

### Flexible Connectivity Solutions

ATTO 10GbE Desklink Devices provide the most flexible and scalable connectivity for today's high bandwidth content creation environments. By leveraging support for software iSCSI initiators, including ATTO Xtend SAN, ThunderLink 10GbE Desklink Devices can support both local and storage area networks. ThunderLink 10GbE Desklink Devices offer driver support for Mac OS® X 10.9 and later and Windows® 7 and 8 (Linux® when Thunderbolt-enabled platforms become available), providing a single connectivity solution for customers with heterogeneous operating system environments.

### Performance Engineered

With 10Gb/s data transfer rates and multiple offloads (TCP, IPv4, UDP), ATTO Ethernet Desklink Devices are the premier connectivity choice for bandwidth-intensive applications such as data back-up and restoration, IP content delivery, medical imaging, and video rendering. With multi-core processors driving the need for higher bandwidth, ThunderLink 10GbE delivers superior throughput to meet that need.

### Advanced Management Tools

ThunderLink 10GbE Desklink Devices provide a common foundation for both local and storage networks. The ThunderLink NS 2102 leverages standard OS management and monitoring tools to dramatically reduce the cost and complexity of a data center's administration and infrastructure.

### Technical Features

- Dual 10GbE (SFP+ LC Optical) ports
- Supports 4K video file transfer and display simultaneously with dual 20Gb/s Thunderbolt 2
- Supports ATTO Xtend SAN iSCSI initiator
- Daisy chain up to 5 additional Thunderbolt technology-enabled devices
- Backwards compatible with 10Gb/s Thunderbolt
- Exclusive Advanced Data Streaming (ADS™) Technology
- Minimized interrupts for low latency
- TCP, UDP and IPv4 checksum offloading and Tx/TCP segmentation offloading
- Industry's lowest power consumption
- 3-year standard product warranty
- RoHS Compliant

### Technical Specifications

#### Applications

ThunderLink 10GbE Desklink Device solutions combine the unparalleled performance of 10 Gigabit Ethernet, the lossless benefits of Enhanced Ethernet and robustness of iSCSI initiator software, to meet the performance and economic needs of today's growing data centers. The ThunderLink NS 2102 is ideal for applications that require low latency, high bandwidth data transfers, such as data back-up and restoration, video-on-demand and video streaming, medical imaging, and clustered databases.

#### General Features

- Data rate per port: 10GbE
- TCP, UDP, IPv4, and IPv6 checksum offloading
- Tx/TCP segmentation offload (Large Send Offload—LSO)
- Low latency interrupts
- Interrupt Coalescing/Moderation
- Interrupt levels INTA, MSI, MSI-X
- Data Center Bridging (DCB) support
  - Priority-Based Flow Control 802.1Qbb rev.0
  - Enhanced Transmission Selection 802.1Qaz rev.0 protocol
- Header splits and Replication in Receive
- Receive Side Scaling for multiple Rx queues
- Direct Cache Access (DCA) eliminates cache misses and reduces CPU load
- IEEE 802.3 2005 flow control support
- 802.1p—Priority Encoding
- 802.1q—VLAN Tagging
- 802.3ad—Link Aggregation
- Override MAC Address
- VLAN support with tag insertion and stripping
- Plug and play specification support
- Advanced Packet Filtering

#### Advanced Software Features

- Adaptive load balancing
- Teaming support
- PCI Hot Plug/Active peripheral interconnect

#### Network Standards

- IEEE802.3ae: 10GBASE-SR, 10GBASE-LR
- SFF-8431: 10GSFP+Cu (Direct Attach Copper)
- 802.1 qbb: Priority Flow Control
- 802.1 qaz: Enhanced Transmission
- DCBX Protocol

#### Management Tools

- Easy system monitoring with Simple Network Management Protocol (SNMP) and Remote Network Monitoring (RMON) Statistic Counters
- Watchdog Timer for chip/driver status monitoring

#### Operating System Support

- Mac OS® X 10.9 and later
- Windows 7 and 8

#### Dimensions

- Depth 9", Width 5", Height 2.5"

#### Power Adapter

- 100-240VAC, 50-60Hz, 0.6A Max
- 12VDC

#### External Connectivity

- 10Gb/s, 1Gb/s, 100Mb/s SFP+ LC fiber-optic connectors
- 2 LED indicator per port
- LED Indicators: LINK (solid), ACTIVITY (blinking), LINK SPEED (ON = 10Gb, OFF = 1Gb, 100Mb)

#### Environmental

##### Operating Temperature :

- Temperature: 0-40° C
- Humidity: 10-90% non-condensing

##### Storage Temperature :

- Temperature: -40 C to 70° C
- Humidity: 5-95% non-condensing

#### Compliance

- FCC Part 15 Subpart B, Class A
- EN55022, Class B/EN55024
- EN60950-1
- cTUVus
- EU RoHS (2002/95/EC)

#### Warranty

- 3 Years

#### Ordering Information

Phone: 716-691-1999 ext. 241

#### Thunderbolt 2 to 10GbE SFP+ LC

ThunderLink NS 2102: TLNS-2102-D00

ThunderLink NS 2102: TLNS-2102-DE0

#### Complementary Products

ATTO Celerity™ Fibre Channel HBAs  
 ATTO ExpressSAS™ HBAs and RAID Adapters  
 ATTO FastFrame™ CNAs & NICs  
 ATTO FastStream™ RAID Storage Controllers  
 ATTO FibreBridge™ Fibre Channel Bridges  
 ATTO FibreConnect™ Fibre Channel Switches  
 ATTO premium cables

ThunderLink NS 2102	
Model Number	TLNS-2102-D00 (US) TLNS-2102-DE0 (UK/EMEA)
Input Connectors	(2) 20Gb/s Thunderbolt™ 2
Output Connectors	(2) 10GbE
Connector Type	SFP+ LC Optical
Form Factor	Desktop
Warranty	3 Years

