

# MILITARY & DEFENSE

## Data I/O Converter



Integrators, engineers and project managers working with the military are cognizant of the need to translate the wealth of tactical information acquired by aging technology into useful and timely data for today's military operations. New advances in the computing environment provide for increasingly efficient and faster information processing. The IXI Technology Data I/O Converter enables you to take advantage of these efficiencies by translating data from legacy military systems into industry-standard protocols that work with contemporary technology.

The Data I/O Converter links weapons, radar and other systems to Windows or UNIX/Linux based computers over Ethernet. It allows for the freedom and flexibility of transferring data to systems that are not directly connected to the military I/O channels. The Converter provides real-time, highly-reliable communications and control that military systems demand, without the bulky, costly, cable connections associated with these systems.



NTDS (MIL-STD-1397C) and ATDS (MIL-STD-188-203-1A, Appendix D2) interfaces are currently supported.

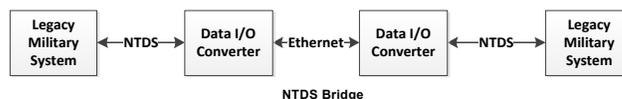
### Fault Tolerant

The Data I/O Converter features two NTDS/ATDS channels and two Ethernet ports. The dual Ethernet ports allow redundant connections to the remote computer, improving network fault tolerance and reliability in that data transfer continues even if one Ethernet link drops. The dual NTDS/ATDS channels add additional system flexibility and reliability.

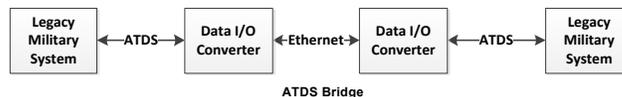
### NTDS and ATDS Bridges

Instead of connecting with a remote computer, the NTDS Bridge connects two legacy NTDS equipment via Ethernet and minimizes the length of NTDS cable runs between displays, sensors or weapon systems while extending their communication range far beyond MIL-STD-1397C maximum distances. The NTDS Bridge consists of two Data I/O Converters, one linked to the

legacy NTDS device at each end of the connection. From the perspective of the legacy NTDS equipments, the Bridge functions as a transparent, long NTDS cable, and so no modification is required on the two legacy equipments. Moving the long haul communications to Ethernet permits redundant paths through the network fabric, greatly improving the survivability of the communications channel. Cable bulk and weight are also greatly reduced.

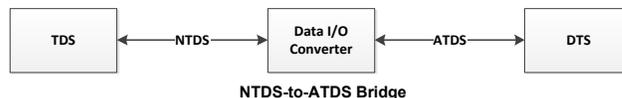


Similar to the NTDS Bridge, the ATDS Bridge connects and extends the cable run between ATDS equipment. It consists of two Data I/O Converters that communicate over Ethernet.



### NTDS-to-ATDS Bridge

Unlike the NTDS and ATDS Bridges, the NTDS-to-ATDS Bridge contains only one Data I/O Converter. This bridge provides a transparent hardware and protocol conversion that allow Tactical Data System (TDS) computers and Data Terminal Set (DTS) modems to communicate over heterogeneous data links. This makes it possible to connect an NTDS TDS computer with ATDS DTS modem, and vice versa to connect an ATDS TDS computer to an NTDS DTS modem.



### Information Assurance

While connecting military systems to Ethernet provides a great deal of communication flexibility, data sent across Ethernet may be vulnerable to interception by unauthorized agents. To ensure security and data confidentiality, the Data I/O Converter encrypts all Ethernet data.

The Data I/O Converter contains non-volatile memory to store firmware and configuration information. This storage memory can be write-protected to prevent unauthorized modification or data recording during tactical operations.

## Programming Interface

IXI Technology offers Windows and UNIX/Linux based software libraries to communicate with the Data I/O Converter.

Customers who have already developed software to communicate with IXI Technology's native NTDS Interface cards can seamlessly migrate to the Data I/O Converter. A redirection software offered by IXI Technology allows one to treat a remote NTDS channel on the Data I/O Converter as if it were a local, native NTDS card. The redirection software maintains the same API as the native NTDS card. However, instead of communicating with the native NTDS card, the redirection package interacts with the remote NTDS channel.

Applications with rigorous real-time requirements that cannot tolerate non-deterministic network latencies can be achieved by developing custom software modules that run directly on the Data I/O Converter. For example, the developer can partition the software such that that time critical, real-time processing is executed by the custom software module, and non-real-time tasks handled by the Windows or UNIX/Linux computer.

- Data encryption
- Storage write-protection
- Dual Ethernet redundancy
- Built-in configurable diagnostics
- Real-time statistics via SNMPv1/v2/v3
- Trace capability
- Remote configuration and updates via Telnet or SSH
- Windows and UNIX/Linux based software available to Communicate with Data I/O Converter over Ethernet.
- Optionally run user-generated software real-time

Data I/O Converter - Rugged



Data I/O Converter – 1U 19" Rackmount



## Technical Specifications

	Rugged	1U 19" Rackmount
Temperature (Operating)	MIL-STD-810G, 0 to +50 C	0 to +55 C
Temperature (Non-operating)	MIL-STD-810G, -40 to +70 C	-40 to +85 C
Slide Rails	N/A	Included
Shock	MIL-S-901D, Grade A, Type I, Lightweight	MIL-STD-810G
Vibration	MIL-STD-167-1A Type I, 4-28Hz	MIL-STD-167-1 Type I, 4-28Hz
Humidity	MIL-STD-810G, 5% to 95% (non-condensing)	MIL-STD-810G, 95% (non-condensing 20 to 60 C
Electromagnetic Interference (EMI)	MIL-STD-461F	MIL-STD-461F (Optional)
Drip	MIL-STD-810G	
Structure Borne Noise	MIL-STD-740-2	MIL-STD-740-2
Airborne Noise	MIL-STD-1474, Requirement 5, Equipment Grade A12	MIL-STD-1474, Requirement 5, Equipment Grade A12
Altitude	Operation to 15,000 ft.	Operation up to 15,000 ft.

	Transport to 40,000 ft.	Transport to 40,000 ft.
Power	MIL-STD-1399, Section 300B Paragraphs 5.3.1, 5.3.2, 5.3.3 90-264 VAC, 47-440 hertz, single phase, 60 watts avg. consumption	100-240 VAC, 50-60 hertz, single phase 65 watts avg. consumption
Weight	Under 20 lbs.	Under 20 lbs.
Dimensions	4.76"H x 10.52"D x 11"W	1.72"H x 11.19"D x 19"W
FCC	Part 15, Subpart B	
CE	EN55022, EN55024	
UL	UL 60950-1 for Information Technology Equipment	

	Rugged	Rackmount
Ethernet Ports	2x 10BASE-T/100BASE- TX/1000Base-T Copper, 1000Base-LX Single-Mode Fiber, or 1000Base-SX Multi-Mode Fiber	2x 10BASE-T/100BASE- TX/1000Base-T Copper, 1000Base-LX Single-Mode Fiber, or 1000Base-SX Multi-Mode Fiber
Ethernet Connectors	2x RJ-45 or 2x M28876.1B1S1 fiber optic connectors	2x RJ-45 or 2x ST fiber optic connectors
NTDS Interface	MIL-STD-1397C	MIL-STD-1397C
ATDS Interface	MIL-STD-188-203-1A, Appendix D2	MIL-STD-188-203-1A, Appendix D2
RS-232 Connector	DB9 male	DB9 male
Display Interface		DisplayPort (20-pin female)