



## VersaMux 4000

### Multi-Channel Protocol Conversion and Circuit Multiplexing

- 16 Mbps Aggregation
- NRZ/CDI/Fiber Protocol Conversion
- Front Panel Control Interface
- Voice and Data Circuit Extension
- Mix and Match Port Configurations
- Data Rate Flexibility
- JTC3A 9109C Compatible
- Crypto Support
- Modular Design for Simple Upgrade or Expansion Path

#### Overview

Military field communications have been tasked with providing greater access to data, voice, and video. In order to accomplish this task, higher speed radios and modems are being integrated into field systems. Legacy group multiplexers, used in existing vans and shelters, are bandwidth restricted, limiting full use of next generation transmission equipment. In addition, the size and weight of legacy group multiplexers often limit mobility for rapid deployment.

Today's communication vans need to consolidate data traffic and integrate COTS equipment in the most efficient and portable manner possible. To that end, Ultra Electronics - DNE Technologies has designed the VersaMux 4000, a four-port multiplexer in a 1-RU chassis which also supports NRZ/CDI/Fiber/FOM conversions.

The VersaMux 4000 allows the user to multiplex four ports onto a single aggregate for transport, consolidating field traffic at a van or shelter for efficient transport to a remote site. This traffic consolidation results in fewer cable runs, improving set up time and mobility for deployments.

The wide range of data rates supported by the VersaMux 4000 results in superior control of bandwidth allocation, as well as better throughput and response times from network traffic.

The VersaMux 4000 offers a modular approach to system replacement and circuit upgrades, providing an extended return on investment and overall operational savings when compared to fixed-configuration legacy equipment.

The modularity of the VersaMux architecture provides the user the ability to tailor both port and aggregate interfaces for specific field applications. Users can allocate bandwidth on a per-channel basis, providing the user with the ability to react to new network configurations quickly and inexpensively.

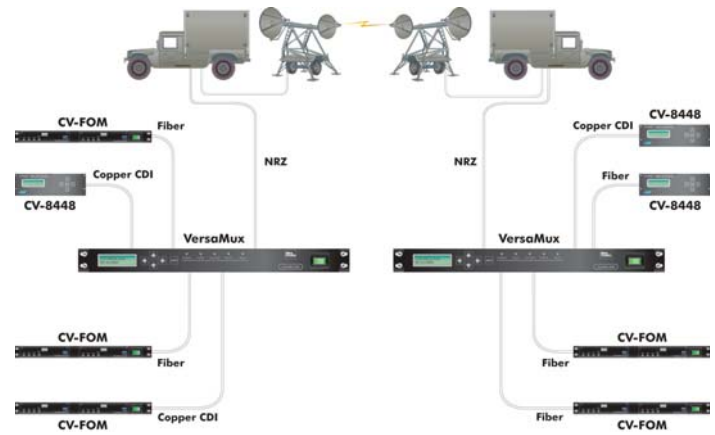
Overall, the VersaMux 4000 provides an economic and reliable solution for voice/data transport and bridging field applications, by combining circuit extension, FOM interoperability, crypto resync, and circuit multiplexing into one compact and versatile unit.

## Technical Overview

The VersaMux 4000 offers modules which provide interoperability with existing DNE fiber and copper NRZ/CDI protocol converters as well as JTC3A 9109C FOMs. The NRZ aggregate can easily connect to existing field encryption and satellite/radio transmission equipment, extending the multiplexed circuit in a highly efficient manner. Port interfaces are software configurable from a front-panel LCD interface or DB-9 Craft Port and allow the user to select operation modes.

Both Singlemode and Multimode fiber are supported simultaneously within a single configuration. Individual modules are hot-swappable, minimizing field down-time.

A Built-In Self Test (BIST) will let the user know of any potential VersaMux 4000 failures. A Bit Error Rate Test (BERT) is also offered, allowing the user to identify data dropout.



This diagram shows the multiplexing capabilities of the VersaMux 4000. Here, CDI sources can be either fiber-optic or copper and circuits multiplexed through the VersaMux for economical circuit extension. The output is NRZ for simple interface with encryption devices and transmission equipment.

## VersaMux 4000

### CDI Interfaces

Unbalanced

SMA supporting Normal and Pass-Through\* connectivity at rates 96, 112, 128, 144, 192, 224, 256, 288, 320, 384, 448, 512, 576, 640, 768, 960, 1024, 1152, 1344, 1536, 1544, 1920, 1952, 2048\*, 2304, 2560, 2816, 3072, 3088, 3200, 3584, 3904, 3968, 4096\*, 4608kbps

Optical

Universal Fiber @1300nm metal, ST type, Supporting 62.5/125µm multimode and 9/125µm singlemode Supports CV and Pass-Through Modes\* at rates of 96, 112, 128, 144, 192, 224, 256, 288, 320, 384, 448, 512, 576, 640, 768, 960, 1024, 1152, 1344, 1536, 1544, 1920, 1952, 2048\*, 2304, 2560, 2816, 3072, 3088, 3200, 3584, 3904, 3968, 4096\*, 4608, 4800, 4824, 5120, 5632, 5856, 6144, 6312, 6656, 7168, 7680, 7808, 8064, 8192\*, 8448 kbps.  
Supports FOM rates from 96 to 16384 kbps in 8kbps increments

### NRZ Interface

The Balanced RS-422 NRZ interface is a female DB-25 connector, supporting rates of 1856, 2048, 3776, 4096, 7808, 8192, 9824, 10240, 11840, 12288, 15616, and 16384 kbps.

Timing

External timing is provided by one Female BNC connector for Station Clock input, of type Balanced RS-422, Bipolar/Zero Cross or TTL. Internal timing has an accuracy better than +/- 100ppm.

### Additional Features

Data Mark Sense is user-selectable to be either positive or negative upon configuration.  
Integrated orderwire filtration at port interface for rates of 256, 288, 512, 576, 768, 1024, 1152, 1536, 2048, 2304, 4096, 4608 kbps  
User selectable activation of Synch Inhibit input on NRZ interface, allowing suspension of resynchronization during highly errored data bursts.

### Compatibility

Compatible with DNE's earlier CV-2048 and CV-8448 models at rates supported by both units.  
Compatible with DNE's AN/FCC-100 multiplexer, CV-HTU-16M and all DNE CV-MCU option modules, at rates offered by both units.  
Compatible with JTC3A 9109C FOM units such as the GSC-54 and the MD-1272 at rates supported by both units.

### Environmental

-10° C to 50° C Operating, -20° C to 65° C storage, Up to 95% Humidity (non-condensing), Operating altitudes of up to 15,000 ft (4600m), storage altitudes up to 40,000 ft (12,200m)

Power

90-240 VAC, 47-63 Hz, 15 Watts Typical.

### Menu Selection

All configuration selections are made via the front panel or from a DB-9 interface

### Dimensions

19" W x 1.75" H (1RU) x 17" D Weight: 8 pounds



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