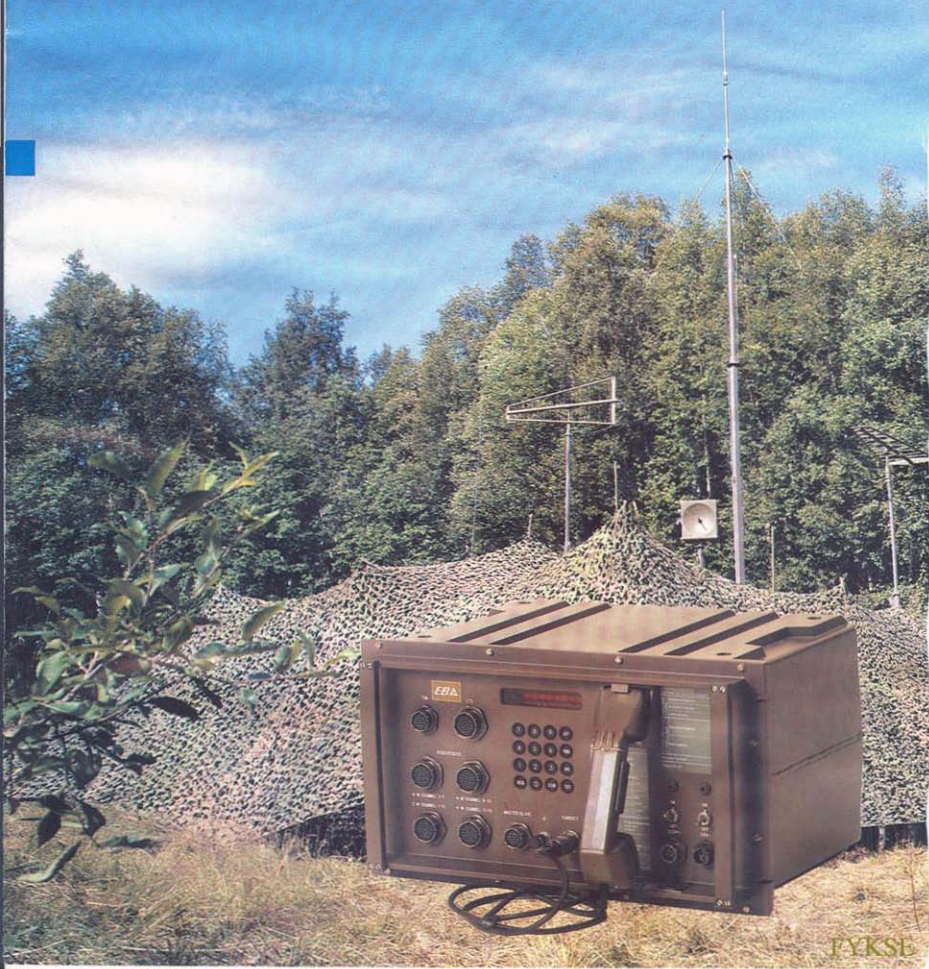


DELTAMUX

Tactical
Digital
Multiplexer

DMU200



FYKSE

DELTAMUX — the subscriber access unit for the DELTAMOBILE system.

DELTAMUX has a capacity of 15 channels, expandable to 120 channels.

DELTAMUX accepts both analogue and digital subscriber equipment.

DELTAMUX can be connected to a Deltaswitch or be used in a point-to-point connection.

DELTAMUX is based on NATO and Eurocom specifications.

DELTAMUX is field proven and in operational service.



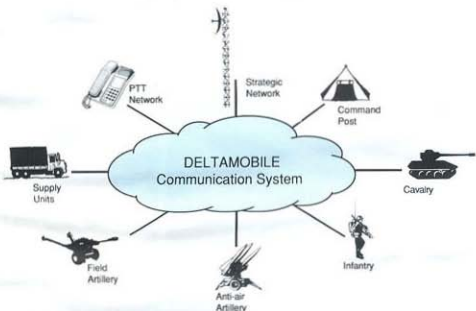
DELTAMUX

DELTAMOBILE Operational Concept

Fast, secure and reliable interchange of information is essential for effective operation of any army.

Coordinated real time operations between all relevant units is the key to successful results.

DELTAMOBILE provides the communication solution



The Deltamux DMU 200

The Deltamux is a 15 channel time division tactical multiplexer. Two Deltamuxes can be combined in a master/slave configuration to provide 30 channels. By using a Delta combiner, the unit capacity is expandable to 120 channels.

The Deltamux is built to the strictest military specifications, and can be run on AC and DC power sources.

*Deltamux with
Subscriber
Connecting Unit*



Deltamux is a vital part of the DELTAMOBILE communication system. It is the subscribers' interface to the system, and ensures that the subscriber equipment can rapidly be connected to the network without the need for specially trained personnel.

Main advantages of the Deltamux are:

- It accepts virtually any type of subscriber equipment, analogue as well as digital, in a free mixture.
- The type of subscriber interface is programmed from the front panel keypad.
- EMP protection is provided by the Subscriber Connecting Unit.
- The Deltamux can be applied in a switched tactical network, or in a point-to-point configuration. It can also interface existing analogue multiplexer systems.



Deltamux Features

Channel Versatility

The Deltamux offers the widest variety of user interfaces available in any tactical system, with 15 self-contained channel units, one for each subscriber. No additional subscriber adapting unit is required. The channel unit can be of either of the following types:

- **Analogue Channel Unit** for analogue telephones and exchanges.
- **Digital Channel Unit** for digital telephones and terminals (16 or 32 kbit/s synchronous data).
- **Asynchronous Data Channel Unit** for connection of data terminals or teleprinters (50–4800 bit/s)
- **Synchronous Data Channel Unit** incorporating Forward Error Correction (FEC) for connection of terminals at 4,8 or 9,6 kbit/s

The channel units can be freely mixed in each Deltamux, and the channels are individually programmed from the front panel for the specific equipment to be connected.

This flexible channel set-up makes it possible to include the Deltamux in an already existing communication system, whether it is digital or analogue. The Deltamux enables the start of digitalizing tactical networks today without making present analogue equipment redundant.

Simplified Operation

After the subscriber lines have been connected, the operator performs a simple programming sequence on the front panel keypad to prepare each channel for the type of equipment used.

Built In Test Equipment (BITE) helps to maintain the unit in the field without the need for highly trained personnel. If an irregularity is discovered, the operator uses the keypad to set up a test procedure. The display window will, in plain language, tell the nature of the irregularity. Field repair is carried out by changing plug-in sub-units.

Among other keypad functions are programming of the Deltamux TDM interface, Eurocom A or C, selection of synchronization from internal or external clock, and various alarm and control functions.

The Deltamux can also be remotely programmed from the Network Control Terminal in a network, or from the remote Deltamux in a point-to-point connection.



TDM connection via single cable to Deltaswitch, radio links, etc.



Subscribers are connected to the Subscriber Connecting Unit



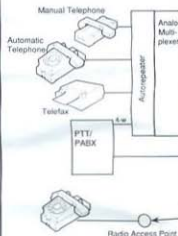
Each channel unit is programmed for the specific type of equipment connected



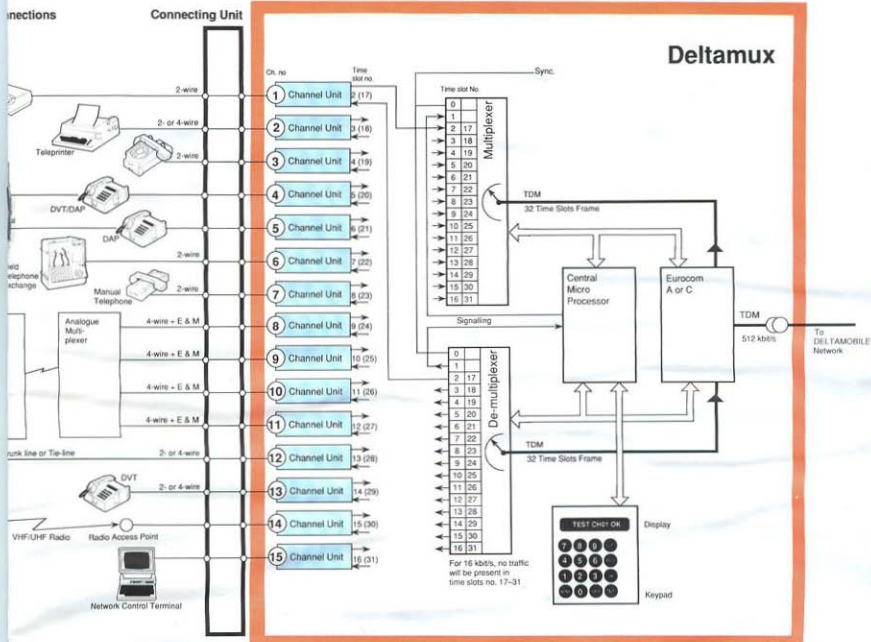
Channel status is displayed on the Deltamux front panel

Typical Subscriber Co

DVT: Digital Voice Terminal
DAP: Data Access Point



Deltamux Architecture

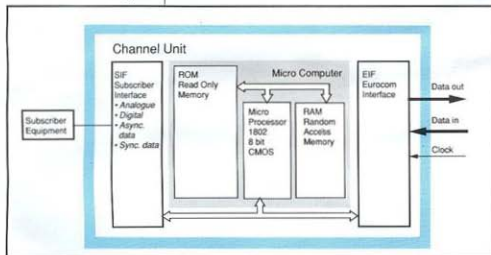


Deltamux architecture and subscriber connections

The Deltamux hardware design is based on a Central Micro Processor controlling multiplexing and de-multiplexing functions as well as the Eurocom A or C functions towards the network.

Channel Unit Layout

The central micro processor also handles the man-machine communication via the



display and keypad on the Deltamux front panel, for operational, alarm and maintenance functions.

The Eurocom Interface (EIF) and the micro processor are common to all channel units, whether digital or analogue. The Subscriber Interface (SIF), however, is different for the various versions. This enables easy adaption to future types of subscriber equipment, since only the SIF function needs new design to make the Deltamux compatible to new user equipment or facilities.

The Deltamux software has a hierarchical design and is built up according to strict rules of structural programming. This ensures an efficient and reliable control of all software data.

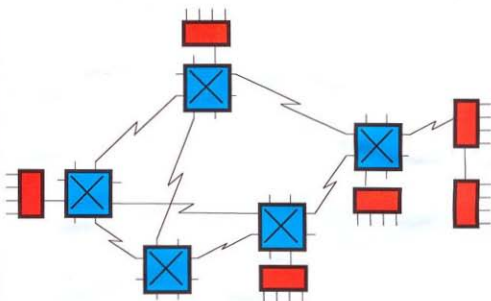
Deltamux Applications

A Multiplexer for the Field

The Deltamux can be used both as a mobile and stationary unit, and can be applied in switched networks as well as in point-to-point configurations.

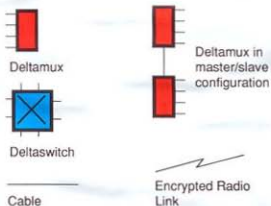
A Deltamux is normally installed in a light army vehicle. It fits into a standard 19 inch rack, but as the unit is rugged and designed to withstand field conditions, it can also be operated as a stand-alone unit in tents or directly on the ground in open air.

Digital telephones can be connected via two-wire subscriber lines. The Deltamux is equipped with EB's patented echo-cancelling system which makes it possible to use two-wire cables as well as four-wire which are used with most tactical communication systems. The maximum distances between the Deltamux and the subscribers when connected by ordinary two-wire field cable WD-1/TT is 8 km for analogue equipment and 5 km for digital equipment. The distances can be considerably increased by using other types of cables, for example up to 40 km for analogue equipment.

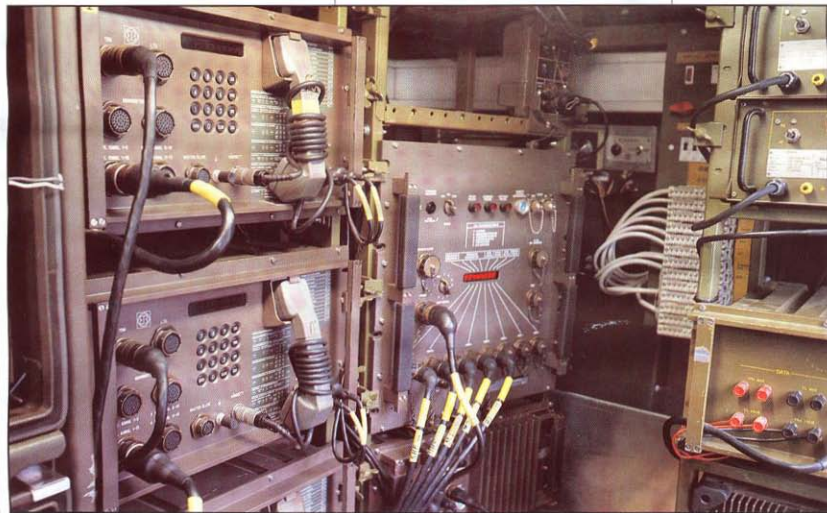


Deltamux in a switched network.

Legend

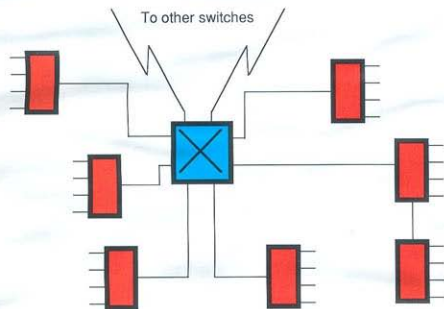


Deltamux vehicle installation





Delta-mux in a point-to-point network



Example of access node configuration for up to 105 subscribers

Tactical Advantages

All connections are placed on the Delta-mux front panel for convenient operation. The operator may:

- call locally connected subscribers
- call remotely connected subscribers in a point to point configuration

Subscribers are connected to the Delta-mux via the Subscriber Connecting Unit. The Subscriber Connecting Unit also incorporates EMP protection.



In order for the Delta-mux to take care of the data coding and multiplexing as well as signalling conversion, each Delta-mux channel is equipped with a microprocessor.

This principle of distributed intelligence means increased survivability. If the central microprocessor should break down, all channels will continue to operate in their last programmed mode. If one or more of the channel microprocessors should break down, the others will continue to operate.

When the Delta-mux is switched off, all programmed instructions are stored centrally in battery back-up RAM.

When incorporated in a DELTAMOBILE network, the Delta-mux can be integrated in the DELTAMOBILE Network Control System. By connecting a Network Control Terminal, the system offers centralized network management with remote supervision and control.

Main Technical Data

Capacity

- 15 channels, free mix of analogue and digital channels.
- 30 channels in a master/slave configuration
- 120 channels using the Deltacombiner

Analogue Channel

- **Impedance:** 600 ohms
- **Return loss at 300-3400 Hz, 600 ohms balanced line:** > 15dB
- **Nominal input level:** 0 dBm
- **Nominal output level:** -4 dBm
- **Loop length, CB or LB**
 - with WD-1/TT field cable: 8 km
 - with low-loss cable: 40 km

Digital Channel

- **Interface:** Complying with EUROCOM D/1, interface K
- **Bit Rate:** 16 or 32 kbit/s
- **Loop length (2-wire)**
 - with field cable: up to 5 km
 - with low-loss cable: up to 15 km

Data Channel

Asynchronous:

- **Interface:** RS 232C, EUROCOM class 2
- **Speed:** 50 - 4800 bit/s, free mix

Synchronous:

- **Interface:** EIA RS 449, RS 232C
EUROCOM class 4
- **Speed:** 4,8 or 9,6 kbit/s

Subscriber Equipment

- Virtually all types of analogue (LB or CB) and digital subscriber equipment

TDM Interface

- Eurocom A or C

BITE

- Local built-in test functions
- Centralized test and alarm functions

Environmental

- **Temperature (operating):** -40°C to +55°C
(-40°F to +131°F)
95% relative humidity
- **Bump, shock, vibration, free fall etc.** DEF-STAN 07-55
- **EMC:** MIL-STD-461
- **EMP:** DEF-STAN 07-55

Dimensions (WxHxD)

- 483x266x355 mm

Weight

- 30 kg

Power Supply

- 220 VAC or 24 VDC

Power Consumption

- 40 W nominal

This publication is issued to provide general information about the equipment, and is not to be regarded as a complete system specification, or to be used as a contract document.
We reserve the right to change the design or specifications for any product without prior notice.



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