# Tactical Switch TA S 300

- the reference in tactical switching

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# TAS300

## A compact autonomous switch with an evolutionary design

The TAS300 provides all network services required by a modern army in terms of high availability, quality of service and robustness in the battlefield, integrating switching, subscriber access, encryption, voice and data communications into one single autonomous unit. The evolutionary design of the TAS family of switches provides safety for the investment through an open platform for upgrades. The basic technology has been field proven in many armies for several years.

## Commitment to standards

The TAS300 is designed in accordance with the EUROCOM D/1 standard, the only existing standard for tactical area networks, as well as applicable NATO standards and ITU recommendations, providing excellent transport facilities for TCP/IP as used in tactical internet.

Typical applications are area and access networks for all echelons of army units, air defence units, task forces and rapid deployment force, with requirements for lightweight compact equipment.



## Main features

- Robust non-blocking switch with optional integrated encryption according to customer requirements
- 8 ports configurable for up to 8 TDM ports and up to 4 subscriber access ports
- Up to 60 subscriber access interfaces
- Analogue interfaces with echo cancelling for voice and fax
- Digital interfaces for voice and data according to EUROCOM and civil standards
- Digital interfaces for data rates up to 512 kbit/s
- Integrated high speed X.25 packet switch with military facilities, suitable for tactical internet
- Sophisticated routing and synchronisation for high availability
- Military and civil gateways for high interoperability based on ISDN, STANAG and EUROCOM
- Multichannel and single channel satellite communications
- Radio access to many radio systems
- Physical characteristics according to military standards

## High availability

The combination of a non-blocking switch with an advanced adaptive routing system enables a TAS300 based network to reroute voice and data traffic instantly with the fast changing topology of a network in    the battlefield. The network will find even a frequently moving subscriber anywhere in the network with the least possible effort. The TAS300 can be managed from the sophisticated net-work management system SYSCOM or from the front panel. This means that the TAS300 is an autonomous, selfcontained unit when the situation requires it.
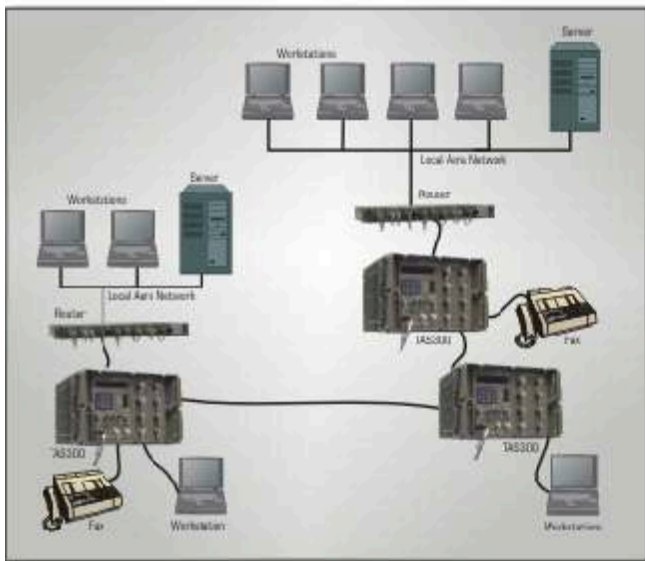


## Quality of service

The TAS300 has a large set of military and civil services for voice and data providing the best possible use of network resources for optimal service quality under rough conditions. The high speed packet switch integrated in the TAS300 represents a highly surviv-able autonomous data network even in an environ-ment with high bit error rate and changing topology. The military enhanced high speed packet switching protocol is suitable for a wide range of applications from fire support to tactical internet. Even inexpensive asynchronous terminals, including standard PC's, can be connected to the packet switch via the integrated PAD (Packet Assembler and Disassembler).

## Robustness in the battlefield

In addition to the robust services provided by the network, the TAS300 is also a physically robust device, conforming to military standards for environmental, electromagnetic compatibility and electromagnetic pulse characteristics.  Even inte-grated TDM encryption can be provided in order to allow highly classified information to be handled by the network.

## Evolutionary design

In a time with rapid techno-logical development and increasing requirements for integration with civil stan-dards, systems and equipment THALES will steadily provide hardware and software upgrades which will meet these requirements. We support several demanding customers who require evolution towards the technology of tomorrow without degrading the value of current investments. We take active part in the development of new standards, both military and civil. The quality of our complete activity is approved by both military (AQAP) and civil (ISO9000) quality authorities.



# TAS300

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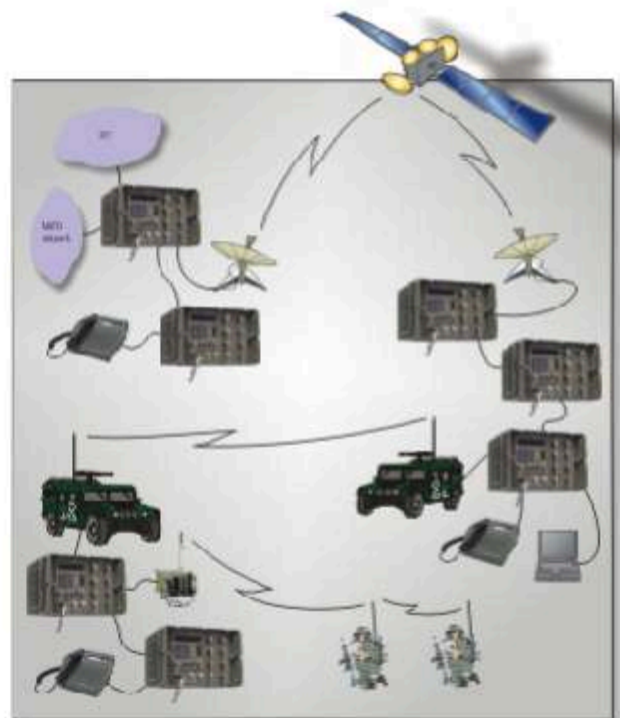
# TAS 300
## Technical specifications

## Baseline Specification
EUROCOM D/1

### Circuit Switch
Up to 8 ports (Group or Subscriber)
Non-blocking Switching matrix of 1024 user channels

Subscriber/single channel ports (Up to 4)
Subscriber interface modules:
- 15 analogue interfaces
- 15 digital Eurocom K interfaces
- 4-8 data interfaces (V.28)
- 6 digital Eurocom K interfaces and 3-6 data interfaces (V.36 and V.28)

Group interfaces (Up to 8)
- Eurocom Trunk Group:
  256, 512, 1024 and 2048 kb/s.
  Dynamic allocation of 16 to 1024 kb/s channel rate.
- Eurocom Loop Group:
  512 kb/s
- Symetric Loop Group:
  512 kb/s

Singel channel gateways
- STANAG 5040
- Analogue exchange line to PTT

Multi channel gateways
- ISDN PRA 2048 kb/s
- Eurocom D/1 IIA 256, 512 kb/s
- STANAG 4206 256 kb/s

Routing
- Full saturation search
- Multilevel saturation search
- Deterministic routing (adaptive)

Synchronization
- Mutual synchronization
- Plesiochronous operation
- Master-slave operation

## Single channel interfaces

Analogue CB subscriber line
- 2-wire Central Battery, dial pulse or DTMF dialling.

Analogue universal interface
- 2-wire Central Battery, DTMF or pulse dial
- 2-wire Local Battery
- 2-wire exchange line to PTT, DTMF or pulse dial
- 4-wire E&M

Digital Interfaces
Eurocom data classes: 1,2,3,4
- ITU rec. V.24/V.28 (RS-232):
  300 b/s to 64 kb/s synchronous
  300 b/s to 38.4 kb/s asynchronous
- ITU rec. V.24/V.36 (RS-422):
  300 b/s to 512 kb/s synchronous
  300 b/s to 19.2 kb/s asynchronous
- Eurocom K:  16/32 kb/s, 2-wire/4-wire

## Packet Switch

Packet Switching
- ITU rec. X.25

Packet Assembly/Disassembly (PAD)
- ITU rec. X.3/X.28/X.29

Switching capacity
Up to 700 packets per second  (128 octet)
Trunk bitrate up to 307.2 kb/s
Subscriber access bitrate up to 512 kb/s

PS line capacity
Up to 40 lines (subscriber or trunk)
Up to 1000 virtual connections (VC)

X.75 and X.25 gateways
- Military enhancements
- 64 kb/s
- ISDN or singel channel gateway

Routing
- Saturation search
- Spanning tree search
- Deterministic routing (adaptive)

## Facilities

Subscriber handling
- Integrated CS/PS subscriber profiles
- Multiple subscribers on one line
- Affiliation
- Reaffiliation
- Deaffiliation

Circuit switch facilities
- Normal call
- Sole user circuit
- Hotline (delayed/switched)
- Abbreviated dialling
- Compressed dialling
- Camp-on busy
- Automatic ringback
- Call hold
- Call transfer
- Call transfer on busy
- Call transfer on no answer
- Dialling out into other networks (DOD)
- Dialling in from other networks (DID)
- Closed user groups
- Conference
- Broadcast
- Call barring
- Precedence / pre-emption
- Group number (multihoming)
- Operator services (queueing of calls, intrusion, night service etc.)

Packet switch subscriber facilities
- Basic X.25 services
- Security
- Precedence / pre-emption
- Other Military Enhancements

## Local Control
- Display and keypad on the front of the unit
- Handling of TDM interfaces; bitrates, local status, remote status, etc.
- Handling of single channel interfaces; modes, bitrates, etc.
- Handling of subscriber characteristics: profiles, hotlines etc.
- Alarms; visual.
- BITE; automatic test of each printed circuit board on start up, periodic test of interfaces during operation.
- Non volatile storage of subscriber database and interface characteristics.

Encryption (optional)
- Integrated TDM trunk encrytion, generic or customer specific
- Encryption for up to 8 TDM ports on a singel board
- TDM trunk bitrate up to 2048 kb/s
- Local control from display and keypad on the front of the unit
- Alarm LED's and bar code reader interface for key loading
- Tempest filtering

## Physical characteristics

Temperature
- Operation:      -40$^{\circ}$C to +55$^{\circ}$C
- Storage:        -55$^{\circ}$C to +70$^{\circ}$C

Environmental
- DEF-STAN 07-55

EMC/EMP
- MIL-STD 461C/462

Reliability and maintainability
- MTBF: typical more than 4400 hours
- MART: typical less than 30 minutes

Dimensions
Width:      482 mm
Height:     132 mm
Depth:      432 mm

Installation
19 inch rack, IEC 297
All cabling on front

Weight
Approx. 35 kg

Power inlet
20-32 VDC

Power consumption
100 W nominal

Quality
The TAS350 is designed, built and tested under the quality provisions of AQAP 110, AQAP 150 and ISO 9001.

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