

Leap from analogue to digital
- with the complete TetraFlex®



TetraFlex®

ODDAMM

TetraFlex® is the smart, flexible, scalable and affordable way to TETRA

TetraFlex® is a global brand with unique and innovative capabilities setting new standards for TETRA systems.

TetraFlex® is developed for industries and organisations with a high demand for reliable communication and future-orientated solutions. TetraFlex® can grow and expand in line with your requirements change.

Smart

TetraFlex® is the smart choice in digital radio communication, regardless of whether you need a single site system, multi sites or if leaping from analogue technology to TETRA.

TetraFlex® is 100% based on IP technology which connects the site controller, base stations, dispatchers, network management facilities and external gateways in one state-of-the-art infrastructure. Using the IP technology and the DAMM maintenance facilities you can monitor the entire network, manage subscribers, operate the sites and much more regardless of where you are in the world. The only thing you need is an IP connection.

TetraFlex® is a complete single or multi site system including all necessary hardware and software handling both voice and data communications. It has been developed as a PMR system ready to enable any organisation to have instant, reliable and secure communications you can count on.

Flexible

The extensive product programme from DAMM offers outdoor base stations, which are small in size and weight and can be used for several installations, including buildings, towers, ships and cars or even on motorcycles – ready for immediate operation. TetraFlex® is further available with the well-known DAMM high capacity indoor base stations - or as a

combination of both indoor and outdoor units. That is what we call flexibility.

Regardless your requirements TetraFlex® offers plug-and-play simplicity for easy set-up and fast deployment.

Scalable

TetraFlex® became world-famous as the small and intelligent single site solution used for local TETRA coverage. With the latest developments TetraFlex® can do so much more than that!

If your requirement is for more than a single site system, TetraFlex® can easily be expanded with scalable software to a highly professional multi site system. Within the capability of TetraFlex® you can start small and expand step by step as your requirement increases or until the desired capacity has been achieved. We call it scalable TETRA.

TetraFlex® adapts to state-of-the-art, router-based IP architecture for inter-site communication making site expansions easy and smooth. This can even be made when TetraFlex® is in operation.

TetraFlex® multi sites can be used for a wide range of applications, including railways, military, highways, utility services, transportation and even cross-border communication.

Affordable

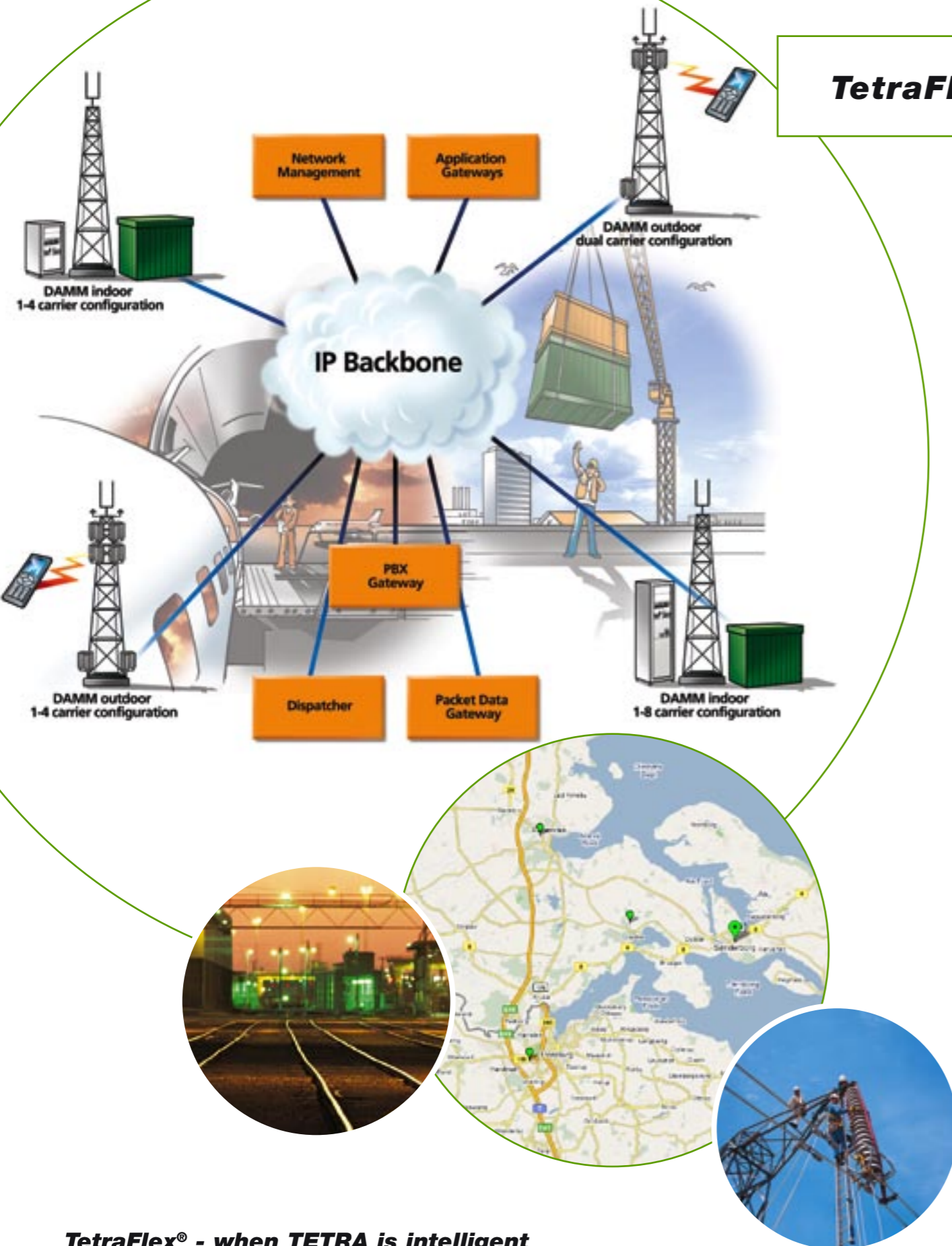
Yet here is the biggest surprise of all: TetraFlex® offers an excellent price/performance ratio in the business. It is cost effective compared to other systems on the market offering the same capability. As the system is from Damm Cellular Systems A/S – a leader in TETRA technology – you know you can count on it for quality.

Application areas:

- Harbors
- Airports
- Airfields
- Military training centers
- Military deployment areas
- Golf courses
- Sport stadiums
- Construction sites
- Manufacturing sites
- Utility
- Naval ships
- Cruise liners
- Security systems
- Transportation
- Government
- Municipals
- Police and emergency
- Shipping
- Fleet management
- Industry
- Civil protection
- Fleet management
- Shopping malls
- Resorts



TetraFlex® - the best way to operate, communicate and integrate



Why is TetraFlex® the way to go?

Regardless your choice of a single site or a multi site system, DAMM supplies high-quality TETRA solutions. TetraFlex® is the complete system that includes all the integrated hardware and software functions you need. Even mounting tools are included for outdoor units, making it easy to install sites on walls, in small, local or rural areas or even to install it in a vehicle. DAMM's indoor base station programme compliments TetraFlex® with a wide range of advanced multi-carrier technology options of up to 8 carriers per site.

TetraFlex® is 100% IP-based offering architectural security while providing flexibility. IP is an approved, recognised, high-speed network technology, which gives you the opportunity to integrate hardware and software programmes with a shared interface anywhere in the network.

With its IP architecture TetraFlex® provides a shared interface for Dispatchers, Network Management work stations, Packet Data Gateways, PBX gateways and software applications - at the same time offering the possibility of remote management and support wherever you are in the world.

TetraFlex® provides secure communication at different levels - the choice is yours. Achieve security in your communication by setting up a redundant system or just additional carriers on the same site. A system failure will automatically activate the redundant system or redundant carriers. Redundancy with several base stations per site means that high uptime is ensured.

The TetraFlex® architecture

TetraFlex® works by using a distributed architecture. Issues on the system's master site thus have no effect on continued operation as system information is always replicated to all sites in the network. Likewise local call and data traffic will continue uninterrupted in fallback mode even if one site loses connection to the rest of the network.

TetraFlex® Network Management

Gain an overview and view status of all sites with the unique TetraFlex® graphical management feature. TetraFlex® Network Management clients provides graphical locations* for each site, using Google™ maps. This feature is simple and user-friendly and offers a new way of gaining an operational insight of the complete TetraFlex® architecture.

TetraFlex® complies with ETSI standards

All these services are at your command: voice services, individual or group calls, emergency calls, pre-emptive priority calls, data services, packet data, SDS - and a number of other services such as group attachment, push-to-talk transmission management, late entry, energy economy mode, secondary control channel and DGNA (Dynamic Group Number Assignment). Check the latest TetraFlex® facility update at www.tetraflex.dk

In addition, TetraFlex® provides:

- Dispatcher connectivity**
 Services are available for connection of external dispatcher applications allowing development of customer designed dispatcher applications, using the TetraFlex® Application Programming Interface
- API**
 TetraFlex® is supplied with Application Programming Interface for use in programme development and connectivity for third party developments i.e. dispatcher and AVL solutions
- Supplementary services**
 Supplementary services improve your communication. Check www.tetraflex.dk for the latest services

TetraFlex® highlights:

- Single or multi site configurations
- 100% IP based architecture
- Architectural flexibility with redundancy
- Dispatcher services
- Graphical Network Management
- Scalable from 1 to 8 carriers per site
- Individual simplex and duplex calls
- PBX connectivity
- PSTN gateway connectivity
- Remote management and support
- SDS gateway connectivity
- Packet Data gateway connectivity
- Distributed architecture
- Application Programming Interface
- Fall back mode

TetraFlex® benefits:

- One system meets all your needs
- Cost effective configurations
- Excellent price performance
- Instant communications
- Flexible command and control
- Heightened security
- Low weight and size for deployment systems
- Indoor and outdoor equipment
- Plug & Play simplicity
- Guaranteed value for money

TetraFlex® - when TETRA is intelligent

* Requires Internet connection.



TetraFlex® works. Here is how



Unique Management System

TetraFlex® is supplied with a graphical management system used for configuration and surveillance of the entire TetraFlex® network - all sites are remotely controlled from this function, avoiding extra investments to third party management systems. Further the management system includes a user-friendly and smart subscriber management system for creation of new subscribers and registration of user profiles. It offers the choice of configuring larger groups of users and subscribers via a text file or the system's unique Graphical User Interface.

Storage Media

TetraFlex® uses a database system, comprising a compact flash card used for storage media; this ensures a long lifetime for your database compared to traditional mechanical rotating hard disc technology. The database, which includes all the system information, is replicated automatically to all sites with a dedicated site used as a master site.

TetraFlex® VoIP gateway interface

TetraFlex® voice (VoIP) gateway interface uses SIP (Session Initiate Protocol) which is build on a HTTP approach. SIP is an application-layer control (signaling) protocol, widely used for Voice over IP systems.

Quick Calling

TetraFlex® provides a quick calling advantage. TetraFlex® has a unique feature which allows using the same user telephone number, regardless of weather you call internally within the TETRA network or externally to PSTN numbers. There is no difference between a SSI or PSTN telephone number. TetraFlex® provides an excellent connection and quick and easy operation.

Terminals

TetraFlex® supports terminals from a wide range of suppliers and conforms to the ETSI ETS 300 392, the ETS 300 394 and the Tetra Mou TIP specifications.

Technical aspects of the TetraFlex® base station programme

TetraFlex® offers both indoor and outdoor base stations for single and multi site use. If today a single site TetraFlex® system needs to be expanded to a multi site configuration the existing hardware can easily be used.

Outdoor base stations

Base stations in the TetraFlex® outdoor programme are typically mounted close to the antenna installation. Coaxial cable attenuation is thereby diminished and traditional coaxial cabling involving expensive low-loss cables can be avoided. Outdoor base stations deliver with up to 4 carriers divided among 16 time slots and 2 base stations control-units per. site. TetraFlex® base stations are provided with full dual RX diversity for optimal sensitivity, and have a built-in duplex filter with an output power to the antenna connector of up to 10W. Outdoor base stations connect to a ground-mounted service box with a power supply and a separate LAN and WAN side allowing on-site or remote service connection with a laptop PC.

Indoor base stations

If more capacity is needed or other harsh conditions require, you can use the TetraFlex® indoor base station programme. Indoor base stations deliver with up to 8 carriers the equivalent of 32 time slots and 2 hot swappable base station control-units pr. site. The indoor base stations provide support for 1 transmit antenna and up to 2 receiver antennas (receiver diversity).

Operative system

Base station control units BSC412 (indoor) and BSC421 (outdoor) operate with Windows® XP embedded with the most current security updates.

Synchronisation

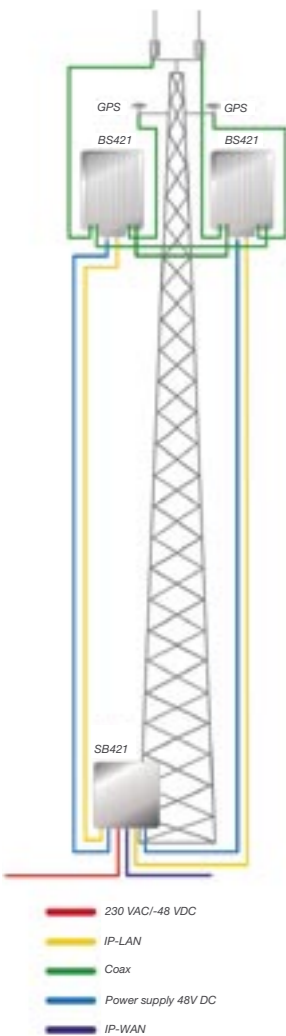
The TetraFlex® base station programme has an internal GPS receiver used for time and frequency synchronization. External GPS sync input and output signals allow more base stations to be synchronized from a single GPS antenna. The system even allows external synchronization in tunnels and other areas where GPS signals cannot be received.

Test of the TetraFlex® system

Base stations in the TetraFlex® system is provided with a special RF Test Loop functionality, which allows remote test of the RF parameters, including RX antenna return loss and RX sensitivity. IP connectivity further allows remote diagnostics, tests and software updates. Windows® remote desktop, file transfer, and the DAMM Operation and Maintenance interface are remotely available.

If you want to know more

Dedicated product sheets for the TetraFlex® base station programme are available. Please see www.damm.dk.



Leading the way in TETRA

DAMM Cellular Systems is a leading TETRA technology company that rapidly delivers the benefits of advanced base stations and complete TETRA systems to customers.

DAMM has world-class OEM partners and radio- and datacommunications customers as well as an exclusive network of distributors.

We intend to continue to define the way TETRA advances technologically through superior engineering, by reducing complexity and lowering cost of ownership to enable customers to adopt leading edge technologies.



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