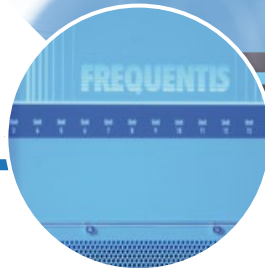


COMMUNICATION SYSTEMS

COMMITTED TO AIR TRAFFIC MANAGEMENT ... COMMITTED TO YOU



FREQUENTIS

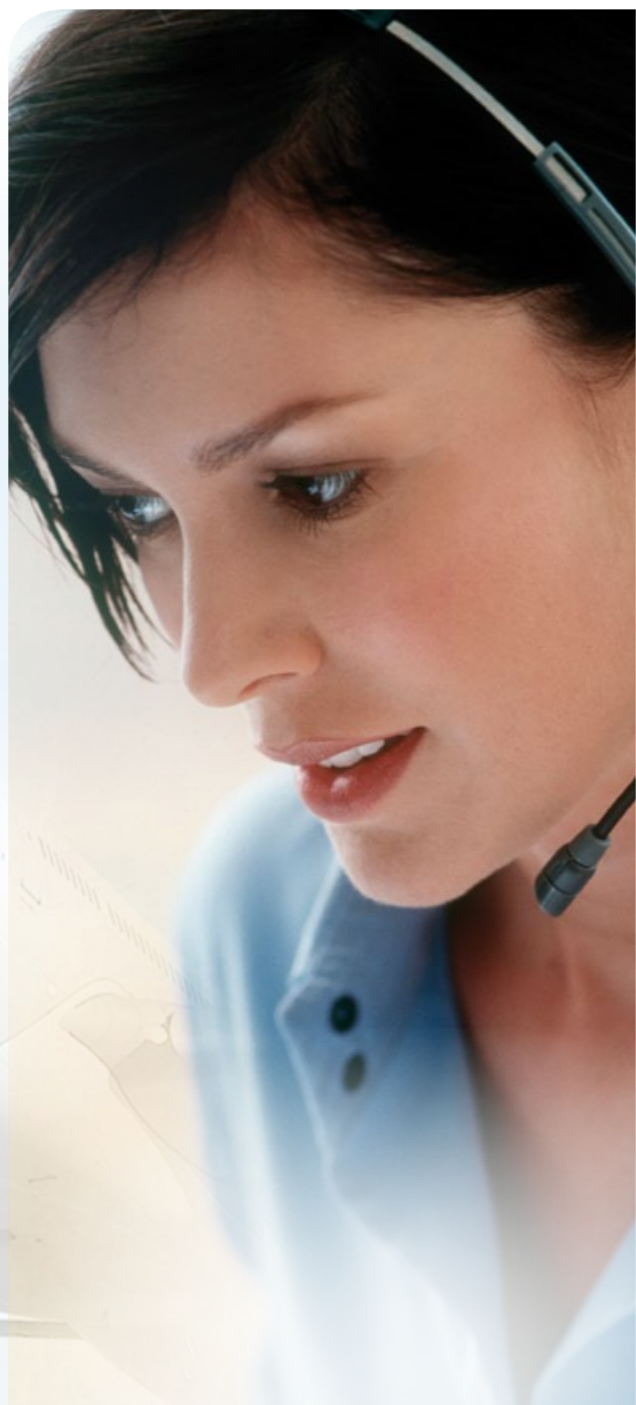
COMMITTED TO AIR TRAFFIC MANAGEMENT...

We make choosing an Air Traffic Control (ATC) solution easy. Not just because we bring you the technology and expertise you'd associate with Frequentis. But because we take the worry and complexity out of the project equation.

We treat your Air Traffic Management project needs as our personal responsibility. So we work with you to ensure you get the right – and complete – solution for your unique situation.

Frequentis delivers products and services in the fields of communication, tower automation and information systems. We are the only company worldwide that offers a complete ATC communication portfolio.

This means we can develop, build and install a full range of industry-leading products for all ATC communication requirements, including voice communication systems, network nodes, backup systems and voice/data/screen recorders.



...COMMITTED TO YOU

Behind our award-winning products is a commitment that underpins our responsibility to you: a fundamental commitment to air traffic safety.

We are dedicated to developing future-proof ATC systems that exploit new technologies in robust and useful applications. And we are obsessive about ensuring that these systems fit the needs of the user.

Frequentis is the first supplier to have implemented EUROCAE WG-67 specifications in all of its communication product lines. We provide open architecture, IP-based communication services that are compatible with the EUROCAE ED-137/ED-138 VoIP for ATM standards. Relevant solutions include the successful VCS 3020, the VCX network product and the Frequentis DIVOS 3 *log* recorder.

Note: ED-137 covers Interoperability Standards for VoIP ATM Components, while ED-138 addresses Network Requirements and Performances for VoIP ATM Systems.

WE UNDERSTAND YOUR NEEDS... AND WE HAVE THE ANSWER

Since every user – and every tower or control centre – is different, we work by combining our deep understanding of the ATC working environment with your own special requirements and perspectives.

The outcome is a complete, one-stop project solution based around our flexible palette of proven technologies.

Whether a small installation or a major integrated ATM system, we bring you peace of mind at all stages of the project: from pre-purchase consulting through installation and beyond.

But you're not just buying a technical and project solution. You're buying that commitment to you. And you're buying security.

The security that comes from working with the established market leader and the collective expertise of hundreds of specialists, with an unparalleled wealth of global project experience.

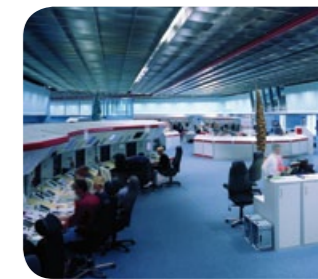
The security that comes from our uncompromising determination to deliver on a Frequentis reputation built on many decades of successful Air Traffic Management project implementation.

SOME EXAMPLES

A regional European airport needed a compact VCS system for a new tower. And quickly. Frequentis had the solution, delivering an off-the shelf product to extremely tight deadlines...with just weeks between a signed contract and completed installation.

A large Air Navigation Service Provider (ANSP) needed new tower systems for four major airports, requiring combined data and voice communications, tower automation systems, recorders and network integration. Frequentis had the solution, delivering this extraordinarily advanced ATC system on time and within budget.

A large international airport needed a hugely complex, distributed VCS system with 115 operator positions and various features – like dedicated role management – customised to its unique requirements. Frequentis had the solution, not only delivering one of the largest and most sophisticated ATC systems in history, but also ensuring a smooth transition from the old to the new equipment.



YOUR NEEDS...

VOICE COMMUNICATION SYSTEMS (VCS)

Operators working at more than 14,000 positions throughout the world rely on Frequentis technology to ensure air traffic safety. Our VCS solutions are built to minimise human errors, and suit any control centre size... whether you need one or 250 positions.

FLEXIBLE...

- Custom features and functions match your unique situation
- Personalised user layouts – based on pioneering user interface research – and an enhanced role system allow staff to adapt their working environment to operate more efficiently
- Integrated ED-137 VoIP for ATM interfaces meet modern backbone integration and interoperability challenges

COST-EFFECTIVE...

- Each VCS matches your operational needs so you don't pay for unused capacity
- The flexible feature and function configurations keep costs down and efficiency up
- High interconnectivity with other products means seamless integration, safer solutions and lower prices

SAFE...

- Built-in scalability protects your investment as your needs change and grow
- Clear and guaranteed migration and maintenance policies remove the uncertainty from future system management
- Cutting-edge technologies based on field-proven components and the safest architecture ensure performance, robustness and the highest safety standards for your airspace

Our VCS products continue to evolve with the challenges faced by the Air Traffic Management industry and through the many new technologies emerging from the Frequentis research labs.



...OUR COMMUNICATION SOLUTIONS

VCS 3020X

A combined voice and data switch suited to APPs and ACCs with up to 250 operator positions. The global success of the VCS 3020X stems from its multitude of performance features, its famed flexibility and the security of proven design and components.

The Frequentis focus on usability means users get innovative icon-based control panels adapted to local preferences. The result is a smoother transition to a new technology, with reduced training requirements and a more intuitive and efficient working environment.

The VCS 3020X is also built for change. The design and system architecture, together with a clear migration path, ensure compatibility with growing and future technologies (such as IP). Scalability allows the system to grow with your air traffic and operator position needs. Your investment is safe.

SMART3020X

The smart3020X is a scaled-down version of the VCS 3020X and is suited to tower and approach systems requiring up to 12 operator positions. It's scaled-down in size, but not in performance. The smart3020X retains all the features and functionality of its larger sibling, but in a compact, modular all-in-one design (it's even available as a mobile version):

- Additional modules allow easy scaling should your needs change
- Compact operator positions and a slim architecture help when space is at a premium
- Quick installation saves time and keeps disruption to a minimum

CUSTOMISED SYSTEMS

Both the VCS 3020X and smart3020X have built-in flexibility and custom options to ensure the best fit with your needs.

Sometimes, though, you need something above and beyond the standard. Our user commitment and focus means we will develop special features for you.

We have the right research expertise, technology know-how and field-proven systems and components to meet your special individual requirements in full, while keeping customisation costs down and development times short.



AIR TRAFFIC MANAGEMENT NETWORKS

VCX

A modern ATC infrastructure demands the integration of data and voice communication, with compatibility across information transport modes and interface protocols. Frequentis offers various solutions through both the VCX network node product line and our network design and implementation services.

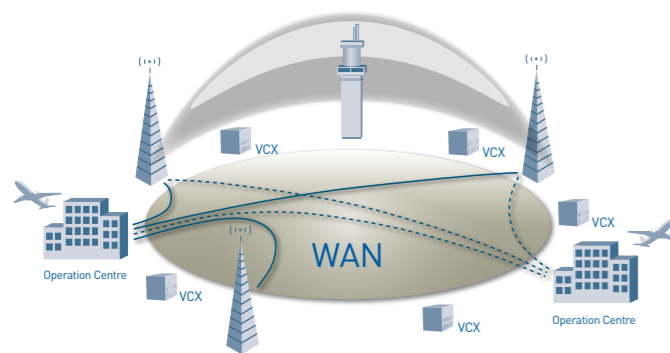


The VCX was designed specifically for Air Traffic Control applications, featuring...

- Network sizes ranging from a single gateway to hundreds of nodes spread across a continent
- Excellent interoperability for different types of legacy systems
- Support for both circuit-switched (e.g. TDM - Time Division Multiplexed) and packet-based (e.g. ED-137 VoIP for ATM - Internet Protocol) transport modes
- Gateways between the different interface protocols found in ATC
- Remote Control and Monitoring Systems (RCMS) as an intrinsic part of the network

The result is a safer network, unified network management and independence from local telecom providers. Users report savings of up to 47% in network costs.

...all of which translates into safer skies for air traffic and safer infrastructural investments for you.



BACK UP SYSTEMS

ATC BACK-UP SOLUTIONS

must satisfy a range of critical requirements, where the right back-up strategy depends on the type of communication involved and the switch-over between the main and back-up systems.

A critical technical requirement, for example, is that the back-up must work independently of the main system. A vital safety requirement is that the user interface must be familiar to the operator...sharing the look and feel of the main system.

Our back-up systems address the full spectrum of system requirements and back-up strategies, and range from simple independent radio back-up systems to highly integrated and customised solutions.

RECORDERS

DIVOS 3 log

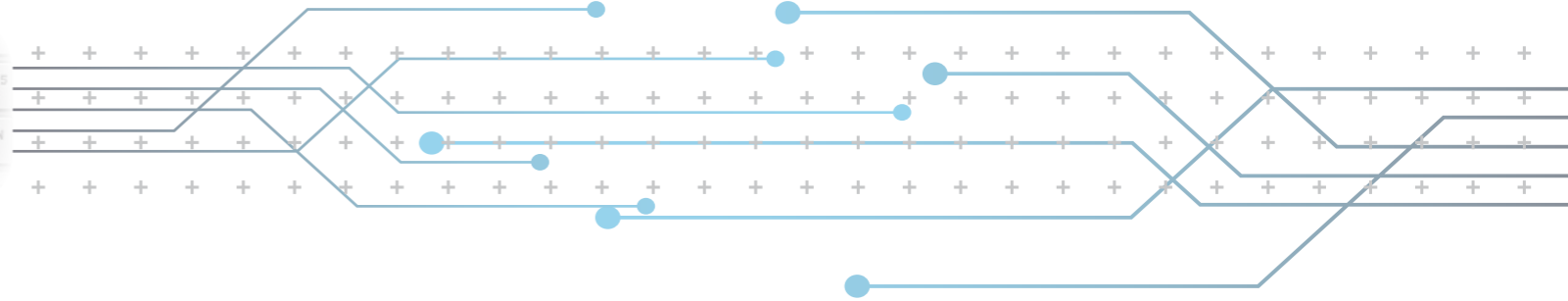
offers synchronised recording of all relevant forms of voice, data and video information, giving you the guaranteed non-violated records you need both for legal follow-up of the chronology of Air Traffic Management activities and for training or monitoring purposes.

DIVOS 3 log offers...

- More efficient search and playback of recorded information through an intuitive, feature-rich user interface
- Simple reconstruction of the chronology of ATC activities: reliable, synchronised recording and playback allows cross-referencing of different communication forms
- Easy and reliable setup and operation

DIVOS 3 log...

- is a modular, scalable system that fits the size of your operation, availability requirements and the needs of your working environment
- is a commercial off-the-shelf product
- supports remote management and maintenance
- integrates with your existing IT infrastructure and management system



INTEGRATION

All our communication products reflect our commitment to providing flexible integrated solutions suited to your present and future needs. Our design and engineering teams created all these products to perform both as standalone solutions and as components of a wider network or system.

But integration isn't just about product compatibility, where all components of the system work together seamlessly and share a common graphical user interface. Integration goes beyond that.

Another facet of our overriding customer focus is the availability of complete ATM project solutions. We are a single point of contact for your entire system needs. We will design, source, build and install a complete integrated solution using the mix of Frequentis, third-party and existing systems and components that gives you the best solution for your individual situation.



SERVICES

Our service options begin with helping you find the right solution, through...

- Consulting
- User interface design and usability engineering
- Network design
- Safety management and evaluation
- Transition planning and support

...then ensuring that the delivered system is installed and operating to your and our complete satisfaction...

- Installation
- Ongoing project and transition management
- Integrated logistics support
 - Operator and maintenance training
 - Documentation
 - Configuration management

...and finally accompanying you through the life of the system to ensure it continues to address your needs into the future...

- Maintenance
- Continuous improvement plan with product and software upgrades
- Lifetime support

The goal of all our products and services reflects the underlying commitment that drives all the staff at Frequentis: to air traffic safety, to technical excellence, to our reputation and – most importantly – to you. This commitment pervades all that we do.

SO RELAX, SAFE IN THE KNOWLEDGE THAT WE WON'T...UNTIL THE JOB IS DONE.

Technical specifications and requirements are correct at the time of going to press, but may change without prior notice as our products and services are continually updated. Frequentis has endeavoured to ensure that the information in this document is, to the best of its knowledge, correct, but does not accept any liability whatsoever for any error or omission.

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