ATMSys – Complete ATM Solution

ATMSys supports Air Traffic Control operations for En-route (ACC), Approach (APP) and Tower (TWR) control. It was first launched for operational use in 1999 and has been incrementally upgraded with functionality while conforming with Single European Sky regulation and SESAR strategy.

ATMSYS IS DESIGNED AND PROVEN TO BE:

- flexible and configurable for any size of ATC systems
- easily expandable in size and functionality
- phased implementation and low risk development
- life-cycle cost effective
- highly adaptable
- redundant and fault tolerant

OVERVIEW

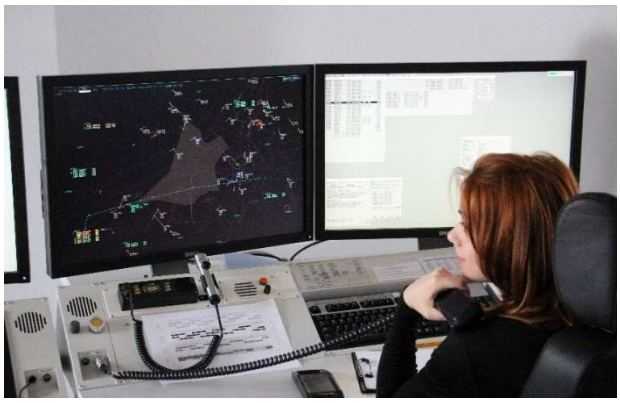
ATMSys encompasses the following functions:

- True (centralised) multi sensor tracking, SDPS; Radar, WAM, MLAT, ADS-B, ADS-C, mode S, GNSS etc.
- Fully automatic flight plan data processing with route analysis and trajectory prediction
- 4D trajectory management for trajectory-based operations
- Paperless & stripless controller HMI
- On Line Data Interchange (OLDI)
- Recording and playback
- System monitoring and control with SNMP
- Medium term conflict detection (MTCD)
- Integrated Arrival manager (AMAN)
- Integrated Departure Manager (DMAN)
- Datalink application CPDLC
- Technically advanced fault-tolerant solutions built upon several levels of redundancy
- Safety nets, including STCA, MSAW, APW and APM
- Monitoring aids with conformance monitoring and reminder handling
- Integration with A-SMGCS and airport FIDS systems
- Provision of departure clearance delivery by means of data link
- Strip printing functions on request

SESAR ATM FUNCTIONALITY COMPLIANCE

Complies with Single European Sky (SES) legislative framework 2018/1139, 550/2004, 716/2014 and 409/2013, to prepare European ATM system for network operations. Si ATM has achieved compliance with the SESAR functionality of the Pilot Common Project (PCP) and Common Project 2 (CP2):

1. Extended arrival management and performance-based navigation
2. Airport integration and throughput, including departure management
3. Flexible airspace management and Free Route
4. Network Collaborative Management
5. Initial System Wide Information Management (iSWIM)
6. Initial (4D) trajectory information sharing



ATMSys – Complete ATM solution

FLIGHT PLAN DATA MANAGEMENT

Flight Data Assistants (FDA) have an efficient HMI to support editing, browsing and queue handling with support for complex search criteria.

ATS message handling: A large set of ATS messages, in ICAO or ADEXP format, are exchanged via AFTN or AMHS.

FPLs are normally created automatically from RPLs or received and updated from AFTN/AMHS. They can also be searched, created, modified and deleted manually.

Billing data is automatically transferred to an external billing system at termination.

Route analysis: For RPLs and FPLs, route details are examined against the local airspace structure for compliance with ICAO rules. The airspace structure is defined by means of system parameters.

Trajectory calculation: A trajectory describing the flight's path through airspace is calculated with consideration to aircraft performance characteristics and current weather data. Wherever applicable, SID or STAR are selected automatically. The trajectory's path across ATC sectors determines the distribution of flight data to controller working positions.

SSR code management: SSR codes can be allocated and assigned to FPLs according to "classical" ORCAM rules. It can also be managed by the centralised Eurocontrol assignment service CCAMS (Centralised SSR Code Assignment and Management System).

Correlation: Correlation between tracks and FPLs is normally determined based upon Mode-A from the track and the SSR code assigned to FPLs. In Mode-S airspace for flights flying with Mode-A = 1000 this can be achieved based upon Mode-S transmitted Aircraft identity and the Aircraft Identity of the FPL.

Data preparation handling: The system is easily adaptable to any operational environment by the extensive use of system parameters.

CONTROLLER FUNCTIONS

The Controller HMI is window driven suitable for single or double monitor configuration. The HMI is specially designed for a paperless environment. Required data is presented while additional information is easy to retrieve.

Each flight is dynamically updated based on input of clearances. Inputs are available in any of the flight objects.

Operational configuration handling is decentralised and flexible. It supports online redefinition of sector status.

Surveillance data processing is executed by means of an advanced centralised true multi-sensor tracker from radar stations, MLAT, ADS-B&C, mode S, GNSS etc. The resulting system tracks are correlated with FPLs.

Elementary and enhanced Mode-S data is processed for various purposes: aircraft address, type, registration or identification, altitude in 25 feet resolution, ACAS resolution advisory, selected altitude, barometric pressure setting, magnetic heading, IAS and Mach number.

The following ATC tools are available: monitoring aids, Medium-Term Conflict Detection, Short-Term Conflict Alert, Minimum Safe Altitude Warning, Area Proximity Warning and Approach Path Monitoring. They have been developed strictly in accordance with Eurocontrol specifications.

Various kinds of internal silent coordination are supported. Coordination with and transfer of control to adjacent centres are performed by means of OLDI.

AIS data is received, processed, stored and presented to controllers.

Pre-departure clearance is implemented by using a data channel between the ATC centre and the aircraft. Implementation of CPDLC functionality is mature.

Recording and playback: Data is continuously recorded. At playback, operational scenarios are recreated at a controller work position. Voice can be recorded on standard interfaces and synchronized with other data.

System monitoring and control is performed by means of graphical presentation and tools for diagnostics and configuration control. Parameter changes can be made without interrupting operational use.