



PRISMA

AIR TRAFFIC MANAGEMENT SYSTEM

HIGHLIGHTS

- Powerful and highly scalable ATC Automation System for En-Route, Approach and Tower Control
- Adaptable to any operational environment
- FDPS with dynamic flight profiles, inter-sector coordination, accurate estimations, revision management and traffic forecast
- State-of-the-art multi-sensor SDPS, supporting PSR, SSR, Mode S, ADS-B, ADS-C and WAM sources
- Full set of innovative ground-based Safety Net functions
- Data, voice and screen content recording
- Support of stripless operation
- Advanced Holding Stack Management
- Sophisticated Arrival Management
- Flow Management Capability

COMSOFT





PRISMA is an advanced and powerful solution for ATC automation. Build of highly sophisticated modules with outstanding performance and functionality, COMSOFT offers an innovative ATC automation system for area control centres, approach units and tower control.



Modular Air Traffic Management System

PRISMA's open and modular architecture allows for individual and optimal site-specific tailoring and easy integration into all kinds of environments. PRISMA's advanced components with standard interfaces ensure the smooth and swift integration at no risk.

The central parts of the PRISMA architecture are the advanced flight plan data processing system (FDPS) and surveillance data processing system (SDPS). These can easily be supplemented by a multitude of highly developed components such as the PRISMA for safety net functions, traffic statistics and billing information, traffic forecast and advanced recording and replay.

PRISMA features a unique set of graphical user interfaces, each tailored to the specific needs of the individual user of the ATM system. The focal point for all operations is the ATCO's controller working position (CWP). The CWP integrates a real time depiction of the air situation combined with the corresponding flight planning information. A large variety of intuitively accessible functions and clear representation support the ATCO's work.

FLIGHT PLAN DATA PROCESSING SYSTEM

PRISMA's flight plan data processing system manages the operational status of all flights that are seamlessly assigned to the respective control. For this purpose PRISMA receives and automatically processes flight plan messages from AFTN/AMHS networks and adjacent ATS units. All incoming information is constantly assessed as to consistency and coherence. The PRISMA FDPS automatically extracts flight paths, calculates and updates flight profiles and sector sequences. Furthermore, PRISMA applies an incremental online processing mechanism that guarantees instant response to all human interactions, as well as quick adaptation to situational changes. By means of OLDI and AIDC interfaces, PRISMA FDPS improves coordination with adjacent ATS units, reducing controller's workload.



PRISMA Building Blocks

In order to guarantee utmost data availability in case of catastrophic failure of a server element, PRISMA's FDPS is hosted on fully redundant servers. This measure encompasses the consequent duplication of all major data sets including the active flight data base, traffic statistics and dynamic profiles as well as forecasts for sectors, waypoints and airports. As a result the system ensures seamless and transparent switchover in case of single-server failure.

FDPS characteristics:

- Powerful redundant Flight Plan Data Processing for instant responses
- Comprehensive and detailed flight profile calculation
- Traffic forecast and statistics
- Billing data collection
- Internal and external coordination
- Interfaces for AFTN, AMHS, OLDI, AIDC
- Meteorological data processing
- Featuring RVSM and P-RNAV support
- Integrated performance monitor
- Multi-Aerodrome capability
- Integrated departure flow management and slot allocation functions

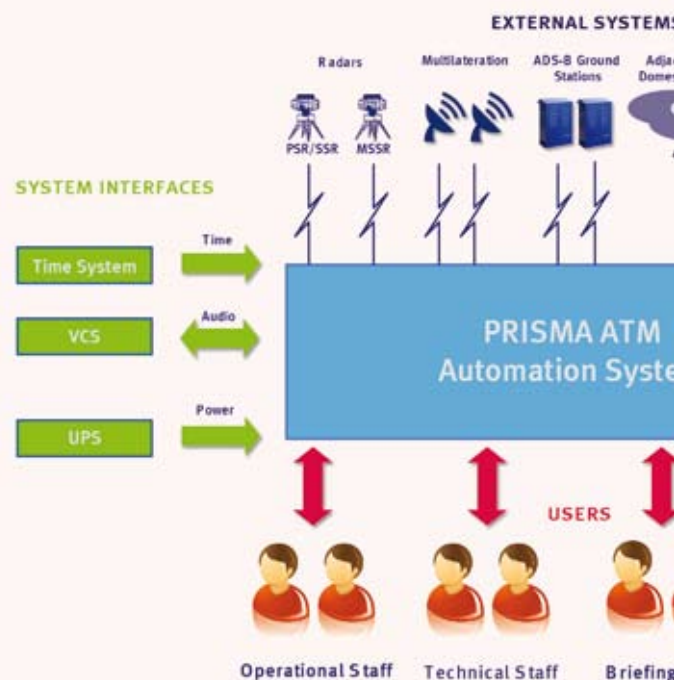
PRISMA MULTI-SENSOR SURVEILLANCE DATA PROCESSING SYSTEM

The PRISMA multi-sensor surveillance data processing system handles data from all kinds of surveillance sources, such as conventional radar – including primary, secondary and Mode S radar, – ADS-B, ADS-C and Wide Area Multilateration.

All data is processed by state-of-the-art interacting multiple model tracking algorithms, creating a consolidated, real-time air situation picture.

SDPS characteristics:

- Interacting multiple model tracking
- Support of:
 - Conventional PSR and (M)SSR
 - Mode S
 - ADS-B
 - ADS-C/CPDLC
 - Multilateration networks





The PRISMA controller working positions feature a clearly structured and integrated presentation of the air situation, combining actual surveillance sensor data and planning information.

The display combines the static and dynamic data of each aircraft on one screen. It displays position, identification plus current course and heading on coloured maps of the airspace under control. The picture is enhanced by positional data, safety net alerts, holding stack information, exit coordination and auxiliary details. Each CWP user can specify his individual preferences in a personal profile that can be retrieved from every working position. Moreover, as an option the system supports stripless or conventional operation for the processing of flight strips. The CWP can also record the screen content and save the entire data presentation in video sequences for later investigation. An export option makes such recorded data available for incident analysis.

CWP characteristics:

- Powerful air situation display
- Fully graphical user interface
- Coloured maps
- Personal user profiles
- Integrated Holding Stack Management support
- Medium Term Separation Tool

- Exit Aid Coordination Tools
- Screen content recording (AVI, MPEG4)
- Integrated Bypass functions for contingency operation
- Integrated presentation of arrival management

TOUCH INPUT PANEL

The PRISMA controller working positions can be complemented with Touch Input Panel (TIP). TIP responds to user interactions and offers a context sensitive command input that facilitates the ATCO's work. The TIP is not just an intelligent keyboard but offers direct feedback to user inputs. Especially in installation areas with limited space for keyboards the TIP is a smart way to combine input devices with extra space for information presentation.

ELECTRONIC STRIP DISPLAY

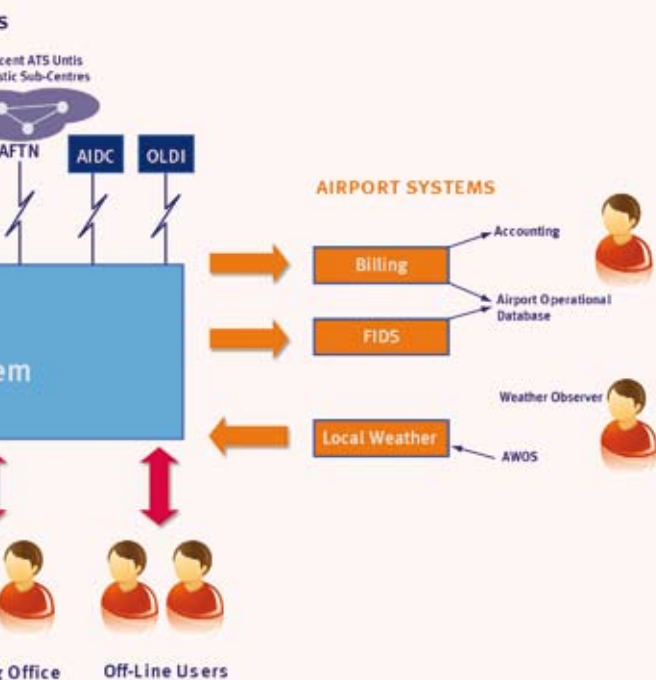
The Electronic Strip Display Sub-System is fully integrated with PRISMA FDPS. Offering an adjustable presentation of flight plan information and status as well as supporting the close collaboration of multiple devices, PRISMA Electronic Strip Displays present an innovative approach.

ASSISTANT WORKING POSITION

The PRISMA assistant working position presents all flight plan information in a compact and well structured form. Data can be arranged and processed on a single screen, which accurately displays the status of flights. Thus the assistant can efficiently manage high traffic peaks.

AWP characteristics:

- Single screen data management
- Enables prior data input for improved FPL management during peak times
- Interactive flight plan data management
- Traffic Load Forecast
- Accurate Traffic Forecast
- Integrated departure flow management and slot allocation functions



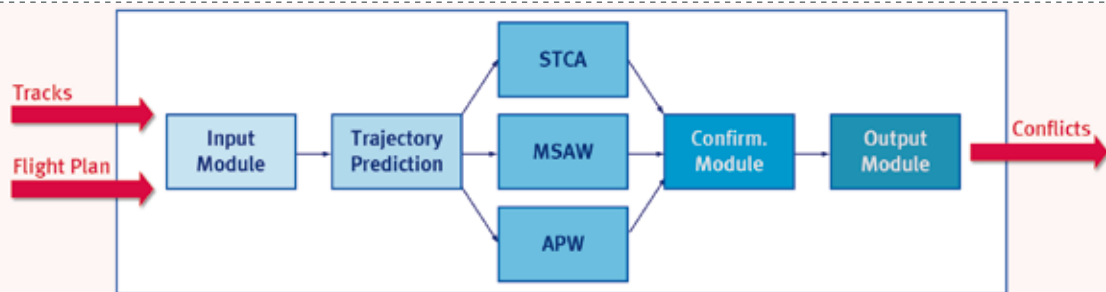
PRISMA SAFETY NETS

The PRISMA Safety Nets offer a crucial contribution to the safety of air traffic. Attracting the ATCO's attention to safety critical situations, PRISMA Safety Nets substantially support air traffic services.

Powerful algorithms based on probabilistic methods, implemented by PRISMA Safety Nets, achieve best trade-offs between early safety alarms and the least possible number of nuisance alerts. In addition to predictive safety net functions, PRISMA includes situational safety nets that monitor aircraft movements and their adherence to given clearances.

Safety Nets characteristics:

- Short Term Conflict Alert (STCA), Minimum Safe Altitude Warning (MSAW) with integrated Approach Path Monitoring (APM), Area Proximity Warning APW and Restricted Area Intrusion Alert (RAI)
- Advanced joint trajectory prediction model
- Probabilistic assessment of safety criticality
- Route Adherence Monitoring (RAM) and Cleared Level Adherence Monitor (CLAM)



Generic Concept of Safety Nets

PRISMA RECORDING & REPLAY MODULE

The PRISMA recording and replay module supports the synchronous recording of surveillance and optionally audio data, enabling most accurate reconstruction and assessment of any kind of air situation. Furthermore, the screen content of each individual workstation is captured, showing the actual information for subsequent evaluation. Simple to use graphical user interfaces give access to recorded information thus permitting immediate investigations without the need of complex set-ups or media retrievals.

Recording & Replay characteristics:

- Synchronous recording of surveillance and audio data
- Accurate recording of screen contents
- Instant access to recorded information via Internet browsers

All PRISMA modules are available as stand-alone ATM solutions, which can be integrated into existing environments. Supporting open and configurable

interfaces, PRISMA modules combine outstanding performance with a high degree of flexibility and scalability. Stand-alone solutions are especially attractive for Air Traffic Service Providers who require gradual system upgrades and the modernisation of an existing environment. PRISMA stand-alone solutions can be as compact as single workstations for radar display or may constitute the backbone for ACC/APP solutions.



PRISMA Server Cabinet

TECHNICAL DETAILS

PRISMA ARRIVAL MANAGER

With the PRISMA arrival manager the full runway capacity can be used. Through clear indications in all phases of an inbound flight, the arrival manager assures that optimal landing times under consideration of individual aircraft parameter and separation criteria is achieved. PRISMA arrival manager uses available resources in the most efficient way assuring that delay times are kept to a minimum.

INTEGRATION INTO EXISTING ENVIRONMENTS

Apart from being a stand-alone ATM automation system, PRISMA can easily enhance existing communication, navigation and surveillance (CNS) infrastructures. For example, PRISMA can effortlessly receive surveillance data from any tracking system and is perfectly suited to interact with ARTAS, the EUROCONTROL SDPS. The same applies to pre-processed flight plan information originating from external sources.

SAFETY COMPLIANCE

PRISMA, from the start, has been designed and developed in accordance with the stringent needs of mission critical systems rendering ATC services and thus substantially contributes to the safety of air traffic. As a safety critical system, PRISMA complies with internationally recognised standards that support ESARR conformant implementation.

PRISMA conforms to ESARR 4 on system level and ESARR 6 for the software development, and substantially supports an ESARR 3 compliant safety process.

SDPS

Multi Sensor Fusion; PSR/SSR & Mode S, ADS-B; Wide Area Multilateration

CWP Control

- Manages up to 20 CWP/AWP Suites; Sector and Role Management
- Internal Coordination

Core FDPS

FPL Processing; Route Processing; Status Management; OLDI / AIDC

Dressed FDPS

- User Interactions and E-Strips; Status Management
- Traffic Statistics and Forecast Planning; Statistics and Billing

Safety Net Functions

Fully featured Safety Net functions supporting early identification of hazardous situations including STCA, MSAW, APW. Furthermore, the systems monitor the implementation of clearances given by the ATCO including RAM, CLAM and Hold Management.

Arrival Manager

- Integrated Arrival Management supporting controllers to optimise and manage arrival sequences and landing traffic
- Simultaneous support for multiple airports and approach units

Recording

Synchronous Data and Voice Recording; Video Screen Content Recording





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