

# ATRiCS Surface Manager SMAN



The **ATRiCS** Surface Manager (SMAN) is the world's most advanced and operationally proven software system for automated routing, guidance and control of aircraft movements on the ground. The high performance system supports all A-SMGCS functions recommended by ICAO up to implementation level V.



## ATRICS Surface Manager

### Functions

Similar to the autopilot of an aircraft, SMAN is a fully human-centered automation system in the control tower. Based on controller clearances and individual taxi routes, SMAN processes the input from the surveillance system and automatically controls the taxiway center line lights and stop bars while continuously monitoring the traffic situation.

#### Individual Routing

SMAN proposes an individual taxi route to the controller for each aircraft in the movement area. The proposal is dynamically computed and takes into account the current traffic situation, routing preferences and physical constraints. At any time, the controller can change an aircraft's route or destination.

#### Automatic Guidance

During taxi, SMAN automatically switches the taxiway center line lights ahead of an aircraft to unambiguously indicate the assigned taxi route to the pilots. The lights are automatically switched off behind the aircraft.

#### Control

During take-off and landing, SMAN automatically controls the runway stop bars to prevent aircraft or vehicles from entering the runways. In low visibility operations, SMAN provides longitudinal spacing between aircraft by dynamically switching intermediate stop bars.

At intersections, SMAN controls the stop bars to indicate a given clearance limit or to establish a given sequence advisory.

#### Conflict Detection

On the runways, SMAN detects separation conflicts between arriving, departing and crossing aircraft. The system will provide a warning if an aircraft or vehicle crosses a lit stop bar or if an aircraft is lining up or is about to land on an unintended runway.

On taxiways, an alert is triggered in case of route deviations, excessive velocity, loss of longitudinal separation or area infringements.





## Benefits

▲ **Safety:** Avoids up to 75% of all runway incursions by eliminating the effects of main causal factors such as disorientation of pilots, incorrect use of phraseology, misunderstandings and unclear information signs.

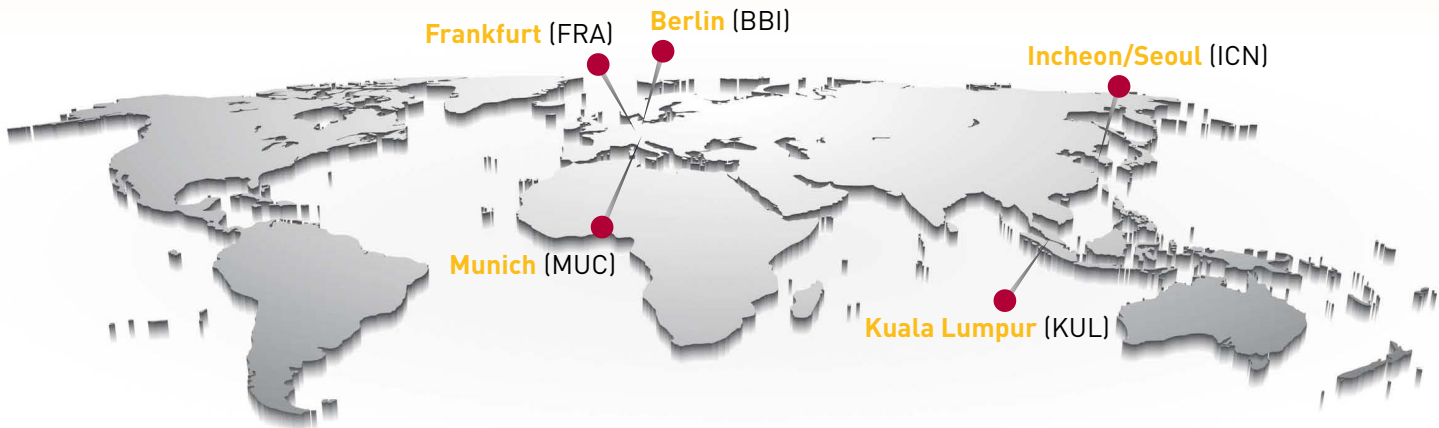
▲ **Capacity:** Increases the movement rate in low visibility conditions by eliminating the controller workload caused by the manual control of stop bars required for spacing.

▲ **Efficiency & Environment:** Reduces taxi time by eliminating delays and interruptions in the flow of traffic caused by disoriented pilots or blocked radio frequencies. As a direct result, fuel burn and CO<sub>2</sub> emissions are reduced proportionally.

▲ **Cost-Effectiveness:** Improves controller productivity by reducing workload and saves operating costs for the airfield lighting system by reducing the lamp illumination time up to 95%.



## References





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