



**Reducing the risks of
runway incursions and collisions**

Honeywell's Runway Awareness and Advisory System (RAAS) - a safety solution that improves situational awareness for pilots and increases operational efficiency.



Enhanced aircraft situational aw



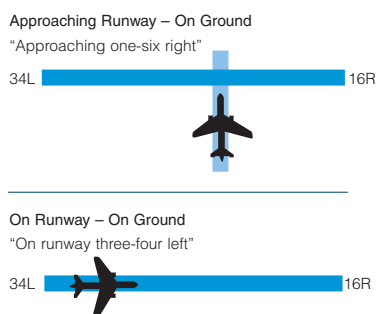
Runway safety management is a dynamic process that involves measuring runway incursions, understanding the factors that contribute to runway collision risks and taking action to reduce those risks. Recent FAA reports and Eurocontrol have estimated that at least one runway incursion takes place each day, which can cause scheduling delays and aircraft damages. The FAA has identified three major factors contributing to these runway incursions: communication, airport familiarization and cockpit procedures for maintaining orientation. Additionally, they attribute the loss of positional awareness as a causal factor in 44% of runway incursions.

Incursion prevention

To help prevent such incursions, close calls and collisions, the industry requested a safety system that helps maintain situational awareness during taxiing, take-off and landing. RAAS uses a proven "heads-up" aural advisory system to alert the aircraft crew of their relative runway position on the ground, on take-off and on approach to land. Based on research and FAA runway safety reports, ten advisories were developed to provide maximum situational awareness to minimize the most common runway incursions. The advisories provide pilots with increased situational awareness and can help reduce the number of

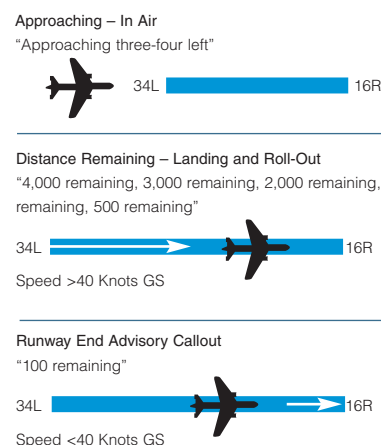
ROUTINE ADVISORIES

Aural messages that will always be announced to the flight crew



OPTIONAL ROUTINE ADVISORIES

Aural messages that will always be announced to the flight crew, if enabled





Awareness and runway safety

flight delays caused by disorientation, a key concern for pilots flying into unfamiliar airports.

Low installation costs

RAAS identifies the aircraft position at the specific airport by taking advantage of Honeywell's Enhanced Ground Proximity Warning (EGPWS) System worldwide runway database. Requiring only a simple software upgrade, this system can be implemented in less than an hour, reducing the impact on airline operations.

Immediately after implementation, the system tracks the aircraft's position, heading and ground speed using the aircraft's internal Global Positioning System (GPS). Logic algorithms create a "virtual box" around the EGPWS runway(s) and activate RAAS to announce the aircraft's position when the aircraft is entering or approaching an active runway. The logic algorithms also determine the appropriate advisory sequence and timing based on the aircraft's ground speed and the remaining length of the runway.

Key RAAS Benefits

- Reduced delays caused by crew disorientation
- Simple EGPWS software upgrade minimizes aircraft down-time
- Increased cockpit efficiency and reduced pilot workload
- Global operations support with worldwide airport runway database
- Increased situational awareness with "heads-up" voice advisories
- Select those advisories that best fit your operations to reduce costs and delays

Why Honeywell?

- 30 years of avionics system experience
- An industry leader in safety system integration
- Broad range of avionics products and services
- Innovative technologies with proven reliability
- Global service and support network (24/7/365)

OPTIONAL NON-ROUTINE ADVISORIES

If enabled, rare aural messages that will be announced to the flight crew only when appropriate

Extended Holding On Runway

"On runway three-four left, on runway three-four left"



Taxiway Takeoff

"On taxiway! On taxiway!"



Intersection Departure – Insufficient Runway

"On runway three-four left, 2,000 remaining"



Approaching Short Runway – In Air

"Approaching three-four left, 3,000 available"



Rejected Takeoff

"4,000 remaining, 3,000 remaining, 2,000 remaining, 1,000 remaining, 500 remaining"



Select only those advisories appropriate to your operational needs.

Maximizing airline efficiency

Operating environments and procedures are customer specific. Therefore, customers evaluate and test all ten RAAS advisory options prior to selecting their configured software. Customers base their advisory on a variety of factors including pilot familiarity with the destination airports, typical amount of traffic or risk associated with the airports they serve, and standard operating procedures. The result is to maximize cockpit efficiency and pilot situational awareness and therefore reduce operational costs.

Worldwide coverage

There are more than 1,900 airports and 6,500 runways in the database. Additional airports and runways can be added upon customer request to ensure worldwide accuracy and availability.

Cockpit efficiency

The system offers five routine voice advisories with an additional five non-routine call-outs for special circumstances. The limited number of advisories reduces cockpit chatter and allows a pilot to quickly react to specific situations without monitoring additional screens or flight deck hardware. Customers evaluate and select the advisories and audio levels appropriate to their operation. There is a menu of selectable audio volumes. All advisories are delivered calmly over the aircraft's audio system (speakers or headphones) in the operator's preference of a male or female voice announced in either feet or meters. Additionally, an optional RAAS inhibit switch is available to silence advisory messages during operation. These features enable you to select the advisories that will maximize operational efficiency.

Honeywell aerospace

Honeywell is a leading global provider of integrated avionics, engines, wheels and brakes systems and service solutions for aircraft manufacturers, airlines, business and general aviation, military, space and airport operations.

For more information on Honeywell Aerospace, visit us online at www.honeywell.com/aero

Global network of support services

Honeywell's resources span the Americas, Europe, Middle East, Africa, Asia and the South Pacific to deliver dedicated 24/7 service support. As a world leader in aviation aftermarket services, our global repair centers, logistics network and field services engineering teams are able to quickly repair, supply, and warranty equipment whenever and wherever it is needed.

Find out more

For further information on Honeywell's Runway Awareness and Advisory System (RAAS), visit us online at www.honeywell.com/RAAS.

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