

POWER AND THERMAL MANAGEMENT SYSTEM



INTEGRATED SOLUTION FOR NEXT-GENERATION AIRCRAFT

The aircraft power and thermal management system (PTMS), developed by Honeywell, combines the functions of an auxiliary power unit (APU), emergency power unit (EPU), environmental control system (ECS) and thermal management system (TMS) in one integrated system.

For the F-35 aircraft, this approach resulted in a substantial reduction in overall aircraft size and weight, as compared to configurations using separate “federated” secondary power and cooling systems. Future aircraft, incorporating the new, more electric architecture (MEA) and energy efficient aircraft (EEA) initiatives, are likely to benefit from this integrated approach as well, but they are also likely to require increased electric power generation capability, greater cooling capacity and higher operating efficiency. Further, these aircraft will likely require an adaptive power and thermal management system (APTMS) which can be reconfigured to optimize operation for various flight conditions, diverse missions and for use on a variety of platforms.

Honeywell is working to provide for these future aircraft needs by the

incorporation of new technologies and architectures, further integration with other aircraft systems and harvesting the benefits of more advanced control and protection algorithms.

FOUR SYSTEMS – ONE SMALLER, LIGHTER PACKAGE

Future aircraft will be smaller, lighter, more fuel efficient and more electric. That means they’ll require better, more efficient power-generation systems and greater cooling capacity to handle the heat generated by electrical components and batteries.

The system delivers maximum efficiency by using common turbomachinery to support power and cooling, which contributes to an overall aircraft size and weight benefit in current military configurations.

Honeywell’s proven success of the power and thermal management system (PTMS) on the F-35 aircraft gives the company a unique advantage for providing integrated solution for next-generation commercial aircraft. The PTMS combines all the functions of an auxiliary power unit, emergency power unit, environmental control system and thermal management system in one integrated package.

Honeywell



NEW REQUIREMENTS FOR NEW-GENERATION AIRCRAFT

The drive toward more-electric aircraft creates a whole new onboard environment that includes more-efficient engines and more-reliable electronic actuation. PTMS technology has advanced significantly over the last decade and future systems will be more integrated with the main engine, power generation system, flight controls and other systems.

Honeywell engineers are working today to improve power extraction, electrical utilization and thermal management, to meet the needs of the next generation of aircraft. The PTMS will be an integral part of the overall airplane energy-management structure, resulting in significant improvements to aircraft performance, reliability and total cost of ownership.

The next generation of PTMS will incorporate new architectures with new modes of operation and use more advanced subsystems and components to drive even higher levels of efficiency.

THE HONEYWELL DIFFERENCE

We have more than 65 years of experience developing auxiliary power units and have produced more than 100,000 APUs for all kinds of aircraft. We were the first to combine auxiliary power and cooling functions in a single, high-efficiency PTMS for the landmark F-35 Joint Strike Fighter.

Honeywell has unique System of Systems integration experience over a large perimeter, as demonstrated successfully on F-35 and A350. This makes Honeywell a valuable partner for leveraging tighter systems integration to optimize your future aircraft.

In hundreds of thousands of flight hours, the PTMS has reliably provided its operators with main engine starting, cooling, ground maintenance and even emergency power, when needed.



Honeywell Aerospace

1944 East Sky Harbor Circle
Phoenix, AZ 85034
aerospace.honeywell.com

N61-2473-000-000 | 04/20
© 2020 Honeywell International Inc.

**THE
FUTURE
IS
WHAT
WE
MAKE IT**

Honeywell