

Application story

Druck wins through product excellence

A major global aircraft manufacturer was experiencing challenges within their Environmental Control System (ECS), which required close control of the balanced low pressures within the system.



Industry supplied
Aerospace



Application
Improving in flight performance of the Environmental Control System (ECS)



Product/service
Bespoke low pressure (bi-differential) sensor



Customer type
Major global aircraft manufacturer

Commercial jets are designed to carry passengers safely and comfortably from one point to another. During flight, external conditions can reach temperatures as low as -70°F at a height of 36,000 ft, with atmospheric pressure equal to 3.3 PSI (Pounds per Square Inch). For aircraft to transport passengers in these environmental extremities safely and comfortably, they are fitted with Environmental Control Systems (ECSs) which provide an environment akin to conditions inside a road vehicle.

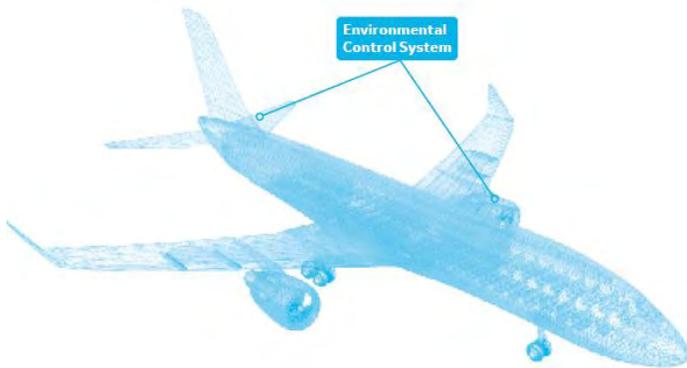
The Environmental Control System (ECS), installed within commercial jet airframes, provides a constant flow of clean air, thermal control and stable cabin pressure for the crew and passengers. For these reasons the reliability of the ECS is paramount in order to guarantee safety and comfort of flight occupants whilst ensuring the normal operation of the aircraft's electronic equipment on board.



Druck's customer's challenge

Druck's customer was experiencing challenges with their ECS, which required close control of the balanced low pressure within their system. The comparator system used to drive the ECS needed to achieve a PSI reading close to zero from two pressure sources. The bi-directional differential sensor needed to operate within a ± 4 PSI range balanced around zero. Any deviation from zero would result in a voltage output, providing a signal to the control system to either increase or decrease the flow around the ducting within the aircraft.

Having a reliable pressure sensor that could provide this level of control was proving to be challenging for the customer. Failures within this application could cause AOG (Aircraft On Ground) conditions, resulting in rising costs for the customer and a potential loss of overall airframe credibility.



Druck's solution and added value

Following a full review of the ECS requirements and several face to face discussions, Druck agreed to develop a bespoke pressure sensing solution that would fulfill the customer's needs. Based on Druck's existing Aerospace pressure sensor 3000 series platform, the solution offered was a low risk analogue product that met the tight accuracy requirements currently being served with a digitally corrected device. Since there were no requirements for flight qualified software, the Druck team were able to complete the project within an 18-month cycle – a very short time frame compared to many Aerospace related projects involving the integration of new components into flight applications.

Benefits from Druck's bespoke sensing solution included:

- Reliable solution – the rigorous process involved in conditioning the silicon which is used as the basis for Druck's pressure sensors.

- Sensor reliability – this prevents AOG condition of the aircraft, which causes unscheduled maintenance time, associated costs and the potential loss of airline and airframe credibility and reputation.
- Savings in time for the customer to complete the product qualification.
- Competitive pricing point offered by Druck – no high development costs for the customer.

As a result of the successful program, Druck are now selling this product directly to a new major customer in the Aerospace segment and have seen the previously qualified product now being used on another aircraft platform within the same customer.

Next time you adjust your air vent above your seat remind the person next to you it could well be being facilitated by a pressure sensor supplied by the Druck Aerospace team!

Find out more about Druck's flight qualified Aerospace pressure sensors here: <https://www.bakerhughesds.com/flight-qualified-aerospacepressure-sensors>

View the 3000 Series datasheet here: https://www.bakerhughesds.com/sites/g/files/cozyhq596/files/2020-02/ptxmp_3000_series_datasheet.pdf

Find out more information about Druck on LinkedIn here: <https://www.linkedin.com/company/druckcompany/?viewAsMember=true>