We provide the industry’s leading solutions to internal and external aircraft surveillance and situational awareness.

We integrate cameras, radar, mechanical trigger systems and GSM-based reporting so owner-operators can monitor the status of their aircraft via smart phone in real-time, wherever they are in the world.

Our specialist cameras aid aircraft ground manoeuvres and avoid wingtip collision avoidance and prevent alien intrusion of cockpit cabins.

And we deploy our wireless technology for critical systems in emergency cabin lighting systems, reducing weight by eliminating the need for complicated wiring looms and enabling easy reconfiguration should interior redesign require it.
MONITORING AIRCRAFT STATUS

When you’ve just flown a $30 million executive jet carrying senior executives and sensitive corporate documents into a distant airport, you want to be able to relax and get a good night’s sleep rather than worry about whether the aircraft and its contents will be the way you left them when you arrive on the apron the following morning.

One of the major advantages of business jets is that they can get into smaller airfields that airlines don’t serve. The downside of that convenience? A potentially lower level of security than at larger airports—especially in less-developed parts of the world.

Even when no evil intent is involved, security systems can be vitally important. They can detect when an access panel has been opened but improperly closed, for example—something that could be catastrophic if pressurisation forced open that panel at 40,000 feet.

Meggitt’s specialised ground security systems for aircraft mean that wherever in the world an aircraft is—in a hotel next to an airfield or at your home base on another continent—owner operators can keep a watchful eye on their property.

Our integrated system enables the status of an aircraft to be monitored wherever it is located, emitting warnings if someone has tampered with it. It encompasses internal and external sensors and can record any attempt at interference. We have installed more than 1,200 systems. Our largest customer is business jet manufacturer, Gulfstream.

External security

On leaving the aircraft, the crew sets the alarm. This monitors access points, such as doors, airframe panels and wheel wells.

For doors and panels, magnetic reed systems are fitted, which trigger an alarm if opened.

For wheel wells—which can provide an access point for intruders to tamper with an aircraft or attempt sabotage—a Range Controlled Radar (RCR) system is installed. This is extremely short-range radar whose operating distance is set by the aircraft operator. It sets up a localised electronic field that is triggered if anything enters it. It also detects any objects left behind by the intruder—or tools accidentally left behind by a mechanic.

This radar-based system gives a far higher resistance to false alarms than previous-generation infra-red systems, which worked well but which could be falsely triggered by rain or dust.

Our systems have large memories. This enables them to record such details as which airframe panel was opened, when and for how long.

Alarms

A siren can be fitted as part of the system and activated when an intruder is detected. Some aircraft operators, however, prefer to have a silent option that does not alert intruders to the presence of a security system.

Video surveillance

Optional cameras can be installed to provide a visual record of the exterior or interior of the aircraft.

Alerts

Through GSM reporting, our systems will call owner operators on their cell phones if they detect an anomaly or an attempt to compromise aircraft security. Similarly, an owner or operator can call up the aircraft’s system remotely through a smart phone to check that all is well or to watch via the system’s onboard cameras if a problem is detected.

Next generation systems

We are now delivering remote real-time surveillance to one of the world’s premier providers of business and commercial aviation aircraft. This is the first system to enable operators to view the perimeter of their aircraft remotely through cell phones rather than downloaded videos from on-board recorders.

• Powered by a safety-enhanced lightweight lithium battery which reduces weight, our suite of high definition cameras, video streaming and system interrogation features is integrated with the aircraft’s management system.

• Operators can connect to a user-friendly full-colour graphical interface control panel through smart phones and internet-enabled devices and assess aircraft condition remotely by streaming images from the security system to an internet-capable device via a standard GSM (Global Systems for Mobile Communications) interface.

• The system’s wheel well intrusion detectors can now be programmed to provide taxiway incident detection while the aircraft is in motion.
COCKPIT DOOR MONITORING

After the events of 9/11, we rapidly developed a passenger security camera system. A small, monochrome camera unit with an integrated near-IR illuminator for zero lux operation was installed and flying on Delta Airlines by the end of October 2001. It was later optimised for use across the industry, gaining a reputation for reliability and ease of installation.

Meggitt continues to lead the way in cockpit door surveillance.

- Our carefully selected system components mean that the ability to properly and consistently identify entrants in all cabin conditions is never compromised.
- Cameras compensate over the full light-intensity range with integral infra-red illumination and raw video enhancement.
- Output video interfaces to cockpit displays in both analogue and digital formats.
- Our controller allows for up to six cameras whose output can be processed simultaneously.

SITUATIONAL AWARENESS

Wing-tip collision avoidance
Ground collisions between airliners are more common than you might suppose. Busy airports, manoeuvring aircraft, darkness and miscommunications between pilots and ramp control can all play a role in such incidents. Recently, a stationary US regional jet at New York JFK airport was whipped through 90 degrees after its fin was struck by the wingtip of a passing Airbus A380. Collisions with ground vehicles and airport structures also occur.

Ultimate responsibility for ensuring clearance for an aircraft’s wingspan lies with its crew but this can be easier said than done. The wingtips of some types are out of sight of the cockpit and a crew need only stray a few feet from a taxiway centreline for an impact to occur.

To help avoid this, we are developing wing-tip cameras for the new Gulfstream G450 and G650 business jets. Images from the cameras are beamed to a screen on the flight deck. An electronic line is superimposed on to the screen and the crew know that, as long as they stay on the green side of this indicator, they are clear of obstructions.

Ground manoeuvring cameras
These are installed in the nose and horizontal stabiliser of the Boeing 777 and act as aids in taxiing. Pilots can pull up colour imagery from both cameras simultaneously on a split screen in the cockpit and gauge the position of the aircraft’s undercarriage in relation to the edges of taxiways.

The cameras are packaged to fit the contours of the airframe and have heated windows to prevent misting.

IFE cameras
In many instances, our security cameras do dual duty. Tied into an aircraft’s in-flight entertainment (IFE) system, they provide a view of the outside world on cabin screens, an option that is particularly popular on executive jets.

EMERGENCY LIGHTING

Boeing’s 787 deploys our wireless emergency lighting system. It can be triggered by either pilots or flight attendants in emergencies—or completely automatically if the system detects a total power loss in the aircraft. This first ever wireless system to be installed in an aircraft cabin has been confidently implemented by Boeing following our pioneering work in wireless technology for an earlier critical system.

This development opportunity arose when an FAA mandate required rapid improvements to the monitoring of aircraft cargo holds for smoke and fires—we enabled operators to retrofit wireless smoke detectors overnight, without having to withdraw aircraft for lengthy implementation of invasive wired solutions.

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AIRCRAFT SECURITY AND SAFETY
Just one of the Meggitt capabilities covered in Meggitt in a Minute, the group’s e-tour.