

Monitoring gate and mobile aviation equipment

A quiet revolution is taking place in airports around the world. Increasingly, airports and airlines are choosing to connect, monitor and diagnose the status of their equipment remotely. **JBT** is part of this transformation: for more than a decade, it has provided monitoring and reporting services for fixed and mobile aviation equipment using its iOPS telematics technology.

Innovations in communications hardware and video streaming are making JBT's iOPS telematics technology more powerful than ever. Putting aviation managers in the know and in control, iOPS allows management to monitor airport, gate equipment and ground support equipment operations and brings customised, critical information to your computer or mobile device for on-site and remote ramp and gate surveillance. IOPS gives management and technical support personnel the information needed to improve efficiency and aircraft turn times, reduce fuel consumption, maximise asset utilisation and enhance passenger experience.

Nothing less than perfection

Optimal utilisation of gate equipment and peak performance from personnel are vital to achieving a 'perfect' aircraft turn. Passengers expect on-time service, minimal wait time at the gate and inside the parked aircraft, and a stress-free transition between the terminal and the aircraft.

To achieve this, airport and airline personnel need to know the status of each gate, the equipment supporting gate operations, and the readiness and performance of gate personnel. IOPS helps collect, organise and transmit this critical information. It offers real-time updates on the boarding bridge, pre-conditioned air, ground power units and other key gate equipment, so managers know the availability and status of this equipment before the aircraft arrives. This reduces the chance of gate delays and changes, which are often a headache for travellers.



iOPS data is available remotely on mobile devices, saving time and reducing the need for interpersonal contact.

With iOPS, gate equipment can be monitored for availability, faults, operator errors and usage data, and then transmitted to selected users and made available on mobile devices or PCs. Long-term performance data is collected and can be used to identify training needs and progress towards performance objectives, as well as to monitor the equipment and evaluate whether it needs repairing or replacing.

IOPS provides status and diagnostic information down to the component level for some equipment, which facilitates the faster repair of malfunctioning parts:

- **History:** performance and availability data can be tracked and maintained over years of operations. As equipment ages, this information is used to evaluate the cost benefit of further repairs to a piece of equipment or its replacement. Troublesome repeat failures can also be identified and root causes addressed.

- **Training needs:** many equipment faults are, in reality, operator errors. IOPS helps identify those errors and track them. This has both short-term and long-term benefits. In the short term, maintenance technicians can see the fault, in real-time, on their phone, tablet or PC and often identify it as an operator error (for example, exceeding an operational limit). This allows them to immediately contact the operator and fix the error, bringing the equipment back into service during the turn. In the longer term, performance trends can be monitored and consistent issues of operator error identified and rectified through specific training.

- **Performance:** iOPS monitors every aspect of an aircraft turn. Some users may have timed goals for elements of the gate operation, such as docking the boarding bridge, activating preconditioned air units or plugging in the ground power. ▶



iOPS gives airport staff the information needed to improve efficiency and reduce the chance of delays.

These events are critical as they save fuel by shutting down the aircraft auxiliary power unit (APU) faster and improve turn times. Each of these tasks can be tracked to ensure business goals are met.

■ **Incidents and accidents:** iOPS can be integrated with video monitoring of gate activity. Cameras are often mounted inside the cab of the boarding bridge to observe operator and passenger activities, or on the underside of the bridge to monitor the actual hook-up and push-back of the aircraft. These video streams are incorporated into the iOPS data stream. If something does go wrong, operators have the facts to effectively address the situation.

■ **Diagnostics:** equipment does fail from time to time. When it happens, getting the unit back into service is vitally important. This is where iOPS can help – by being able to monitor equipment at the input/output and component level, maintenance personnel are armed with more information prior to heading out across the tarmac to start repairs. They have a good idea of the parts, tools and expertise needed before they leave the maintenance shop. Time and money are saved, uptime of equipment improved and operational efficiencies enhanced.

On the ground

iOPS has important implications for mobile ground support equipment (GSE), just

as it does for gate equipment. iOPS monitors data such as fuel levels, engine temperature, drive speed, impacts and other performance parameters. It can signal when maintenance – for example, oil changes – is needed, control access to equipment and monitor its physical location at the airport:

■ **GSE status:** users need to know how the GSE is functioning. iOPS can monitor battery charge levels for electric equipment, fuel levels, engine temperatures and more. Proper maintenance of these items can prevent expensive and time-consuming equipment failures. Airlines can improve operational efficiencies and prevent expensive repairs by letting iOPS keep track of essential engine data.

■ **Speed controls and collisions:** using iOPS, the drive speed of GSE can be monitored and managed. Accelerometers and other sensors can identify an impact or erratic driving, so that corrective actions can be taken.

■ **Maintenance triggers:** iOPS can monitor engine hours or elapsed time and signal when standard preventive maintenance work is due.

■ **Geo-fencing and geo-location:** with GPS devices and iOPS mounted on the GSE, managers and operators know where their equipment is located, can ensure it is properly staged for operations and can prevent equipment

from being driven to unauthorised areas of the airport.

■ **Security and access control:** GSE units can be equipped with access control devices and monitored so that only authorised individuals operate the equipment.

At the touch of a button

iOPS data is available remotely via PCs, tablets or other mobile devices, giving it a number of advantages in the current Covid-19 pandemic.

■ **Social distancing:** technicians can diagnose faults and anticipate repairs remotely using their laptops and mobile devices. This can be done before they ever travel to the site, resulting in fewer trips across the tarmac, fewer nuisance calls and faster repairs. Technicians can find out what the problem is likely to be, and the tools, staff and parts needed to repair it, without excessive interpersonal interaction – saving time and reducing health risks.

■ **Effective training:** daily operations can be monitored and measured – and even captured – on video. Skilled workers can oversee a larger fleet of equipment and remotely assist others with maintenance and repairs. Access control limits operators to working with only the equipment for which they have authorisation. The result is this – fewer nuisance calls, improved operations, controlled access and technical expertise applied more broadly across the fleet and personnel.

■ **Environmental responsibility:** fully functioning GSE and gate equipment reduces APU burn time and minimises aircraft turn times at the gate, saving time and fuel while also improving operations for staff and enhancing the customer experience.

JBT's iOPS telematics and monitoring technology is an ideal solution to meet the increasingly complex demands of modern airports – and its remote systems are especially relevant in a global pandemic. iOPS saves time, fuel, money and unnecessary interpersonal contact. ●

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