

Solution for Mitsubishi Heavy Industries, Ltd. Orlando International Airport APM

IT-ATP (CBTC) signalling system compatible with unattended operation



The Orlando International Airport in Florida, U.S.A. has witnessed a substantial increase in the number of business travelers as well as tourists visiting theme parks in the surrounding area. In order to accommodate the influx of passengers, a project has been executed to expand and modernize airport facilities and connect interurban railway services to the intermodal transit complex (South Airport Complex). Our company has delivered the IT-ATP (CBTC) signalling system that supports unattended operation for APM (Automated People Mover) at approximately 2.3km railway line constructed between the existing airport terminal and new South Airport Complex.

Signalling System Overview

The Signalling system of APM for Orlando International Airport consists of IT-ATP (Information Technology – Automatic Train Protection), which is Kyosan’s CBTC (Communications-Based Train Control) system product.

IT-ATP is a train control system that detects train’s location using on-board equipment, and allows bidirectional continuous radio communications between the train and ground. IT-ATP offers train protections such as train location detection, train interval control, overturning prevention, overspeed protection, train separation protection, zero speed detection, etc. In addition, since the system is designed for unattended operation, the Automatic Train Operation (ATO) function enables the train to stop at a station with an accuracy of $\pm 150\text{mm}$.

Furthermore, the system has a function to stop the train immediately in case of emergency such as a fire on station and when the doors leading to the evacuation passage along the railway line are open. In the central control room, the system enables centralized monitoring of operating conditions, equipment conditions, train conditions, etc.

Signalling System Features

■ Safety

Safety is secured for train location detection, train interval control, route control, point control, platform door control, train door control, etc., through the use of equipment compliant with SIL4.

■ Space and energy saving

Compared to the train control based on continuous loop coil method, the number of devices has been substantially reduced to achieve space & energy saving as well as enhanced maintainability.

■ Stable radio communication

2.4 GHz band radio is used for bidirectional communication between the ground and train, which does not require a radio station license. In addition, the use of LCX (Leaky Coaxial cable) allows stable communication resistant to radio interference.

