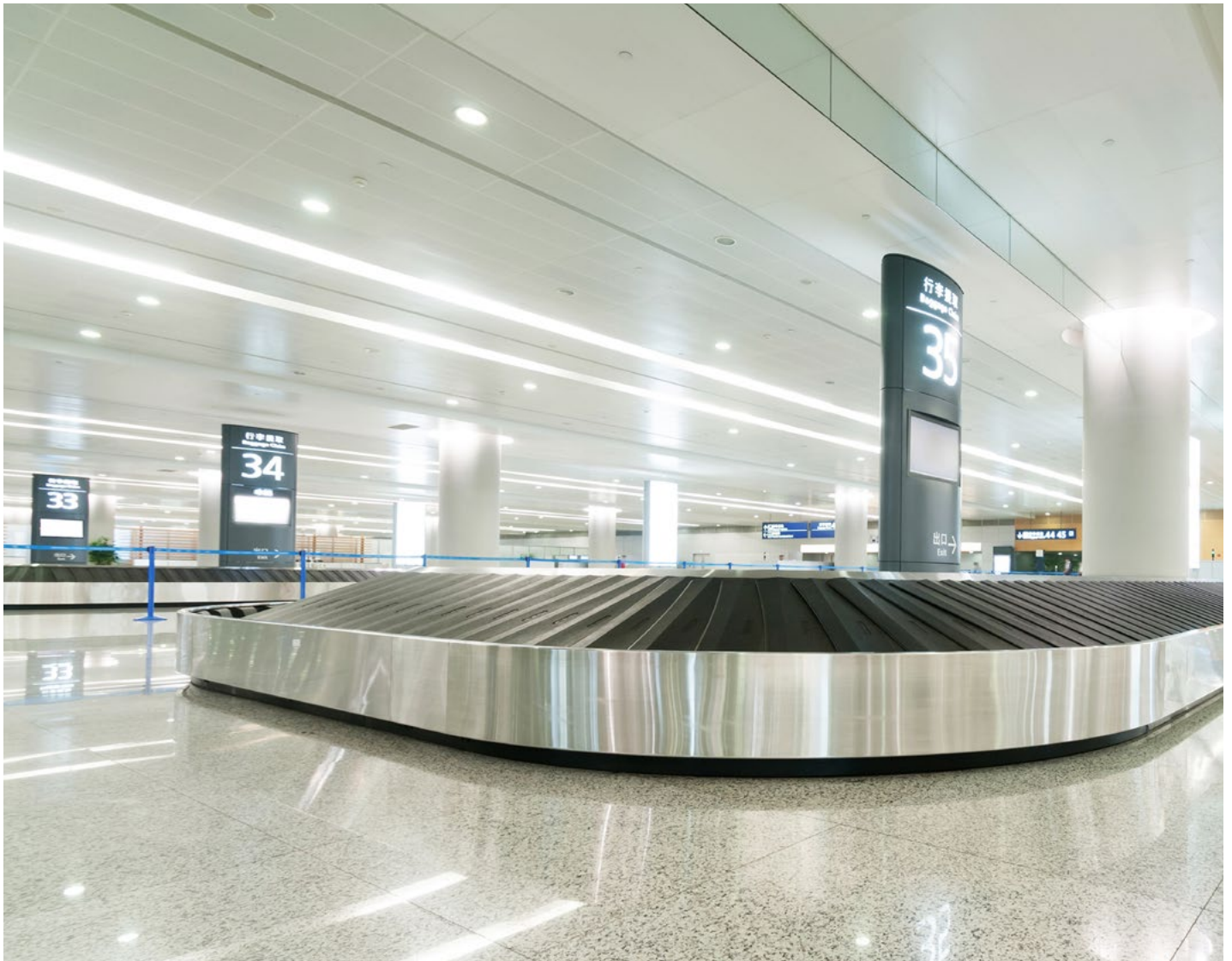


# Automating Material Handling Systems for Airports with AS-Interface

AS-Interface Efficiently Links Sensors and Actuators

## Application

Baggage handling systems in international airports can span up to 30 km or more in length. Hundreds of actuators and thousands of sensors are installed along the route to detect, identify, check, and guide luggage from the check-in desk to the departure gate. Function-based system expansions often need to be made while the airport is open for business. What's more, the specific control systems and fieldbus systems used for such large-scale installations differ from continent to continent. In these kinds of applications, AS-Interface excels as a form of installation technology. The connection technology itself is relatively simple; there are no restrictions in terms of topology or network cable length. Safety and standard (non-secure) signals, as well as power, are transmitted along the same flat cable. What's more, there is no need to route redundant lines – a fact that results in significant potential for savings in large-scale installations.





## Goal

The goal here is to link the sensors and actuators installed along material handling systems and on baggage chutes using a flexible and cost-effective solution. The solution also has to offer the ability to easily integrate new modules. The systems can be accessed to some extent during operation. For this reason, safety components such as emergency stop buttons must be available. The ultimate goal is for safety signals of this type, as well as power and non-secure signals, to be transmitted in a network without the need for discrete wiring.

## Solution

Double gateways from Pepperl+Fuchs are used as the solution, with an integrated safety monitor depending on the function and installation in question. The AS-Interface flat cable largely runs in the mounting rail on the material handling system. Modules are connected either directly on the flat cable or using AS-Interface junction blocks. At the specific request of an equipment manufacturer, Pepperl+Fuchs developed the G11 sensor/actuator module for AS-Interface. This module can be connected either via flat cable or using an M12 connector plug to AS-Interface, offering a high level of flexibility and reducing the number of AS-Interface components required within a single installation. A standardized process is in place for mounting the solution; this process is the same for a 4I input module as it is for a 4I/4O input/output module. The G10 terminator with multiple impedance effectively extends the AS-Interface segment to 200 m, offering a cost-effective solution.

## Benefits

Just a few components are required to easily produce a wide range of conveyor systems and adapt them on site. The mechanism for transmitting signals from safety components forms an integral part of the system. In most cases, the safety signals are simply transmitted via AS-Interface and evaluated in a central safety control system. In this way, AS-Interface significantly speeds up the process for setting up extensive material handling systems and complex system structures. This, in turn, increases the productivity of the baggage handling systems, while at the same time making significant savings in terms of wiring.

### At a Glance:

- Efficient wiring with integration of secure signals
- Decentralized, flexible solution for large networks
- Open system solution that can be connected to all common fieldbus systems in use around the world
- Simple to install due to free topology
- Cost-effective installation