AIRPORT BAGGAGE HANDLING SOLUTIONS GUIDE

POWER UP YOUR OPERATIONS

annolution
MACHINE VISION

COGNEX

THE GLOBAL LEADER

IN MACHINE VISION AND INDUSTRIAL BARCODE READING

Cognex,® the leading supplier of machine vision and industrial barcode reading solutions.

With over 3.5 million systems installed in facilities around the world and over 41 years of experience, Cognex is focused on industrial machine vision and image-based barcode reading technology. Deployed by the world's top manufacturers, suppliers, and machine builders, Cognex products ensure that manufactured items meet the stringent quality requirements of each industry.

Cognex solutions help customers improve manufacturing quality and performance by eliminating defects, verifying assembly, and tracking information at every stage of the production process. Smarter automation using Cognex vision and barcode reading systems means fewer production errors, which equates to lower manufacturing costs and higher customer satisfaction. With the widest range of solutions and largest network of global vision experts, Cognex is the best choice to help you **Build Your Vision.™**

$1.04 BILLION
2021 REVENUE

OVER 41
YEARS IN THE BUSINESS

500+
CHANNEL PARTNERS

GLOBAL OFFICES IN
20+ COUNTRIES

3,500,000+
SYSTEMS SHIPPED

AIRPORT BAGGAGE HANDLING SOLUTIONS
POWER UP YOUR OPERATIONS

The International Air Transport Association (IATA) forecasts nearly 50% growth in air travel by 2035. The air transport industry faces the challenge of increasing passenger numbers, along with the need to reduce baggage handling error rates, lower costs, and improve customer satisfaction.

Bags travel long distances through airports and between planes. Even with the best bag handling, tags naturally suffer damage and degradation. Failure to read a bag tag sends that bag through a manual encoding station which can result in higher labor costs and missed bag fees.

Cognex's airport baggage handling solutions use the power of image-based barcode readers to improve the speed and accuracy of luggage processing. Image-based barcode reading systems offer several advantages over traditional laser scanners, including:

- High read rates for efficient baggage handling

- Performance feedback for tracking and security

- No moving parts that can wear out or fail

CHECK IN
AUTOMATED BAGGAGE DROP-OFF

PROBLEM:

Automated systems move and monitor bags from the check-in area to the departure gate using a printed tag. Luggage tags need to be read quickly, simultaneously, and from various angles. Oversized or "out of gauge" baggage also needs to be detected quickly at this stage to keep luggage moving.

SOLUTION:

Cognex image-based barcode readers can be easily integrated into kiosks and are essential for decoding data and ensuring that bags are properly sorted. At this step in the process, high read rates maximize productivity levels and ensure bags move from point to point as quickly as possible. The Cognex Baggage Measurement Array (BMA) generates baggage volume information in record time to asses the ability for the system to handle each bag.

CHARLES DE GAULLE AIRPORT

CHALLENGES:
CDG Airport needed a solution that would outperform their laser-based system, improving efficiency, throughput, and read rates.

RECOMMENDED SOLUTIONS:
Cognex BMA
DataMan 280 Series
DataMan 470 Series

BENEFITS:
Cognex image-based barcode readers helped to create one of the world's most efficient airport baggage handling systems, processing 900 bags per hour with 99.3% read rates.

99%+
READ RATES

900 BAGS
PER HOUR

0523791623
Interleaved 2 of 5, 1.33 PPM
WASHED OUT TAG

TRACKING AND SECURITY
QUALITY BAGGAGE HANDLING

PROBLEM:

The International Air Transport Association (IATA) Resolution 753 requires all member airlines to demonstrate the acquisition and delivery of baggage at key points in a bag's journey. Each time a bag is handled from check-in, TSA, transfer, to arrival, the quality and readability of the tag is compromised due to smearing, scratching, wrinkling, and weather conditions. Systems must also provide bag dimensioning information as bags enter security screening.

SOLUTION:

Cognex image-based barcode readers can help system operators meet ever-changing industry standards. Unlike laser scanners traditionally used by airports and airlines, Cognex barcode readers read damaged tags quickly and accurately. High read rates improve tracking and security capabilities while also increasing total customer satisfaction by helping to deliver luggage to its final destination on time.

The Cognex BMA produces bag dimensioning information for TSA. An optional image capture feature is also available to acquire color photos of each bag. This enables users and handlers to visually analyze the cause of unread codes as bags are processed through the system. A bag tag number can be matched with a distinct color photo of a bag for security, as well as quality assurance and training purposes.

RECOMMENDED SOLUTIONS:

Cognex BMA
DataMan 280 Series
DataMan 470 Series
DataMan 8700 Series

DEPARTURE
AUTOMATIC SORTATION

PROBLEM:

Bags travel long distances on conveyors before departure. Even with the best baggage handling, tags suffer damage and degradation. Failure to read a tag sends that bag through a manual encoding station which requires additional processing time, labor, and valuable real estate on the conveyor system.

SOLUTION:

Cognex redundant and non-redundant 360° Automatic Tag Reader (ATR) solutions improve the speed and accuracy of luggage processing. Regardless of the barcode quality or orientation on the belt, Cognex image-based barcode readers can locate, read, and decode any barcode. Fewer unread codes means fewer bags miss their flights, which increases total baggage handling system efficiency, reduces manual encoding operations, and improves customer satisfaction.

CUSTOMER SUCESS STORY

PHOENIX SKY HARBOR AIRPORT

CHALLENGES:

Phoenix Airport needed a solution to outperform their laser-based system which had trouble reading poorly printed, distorted, and damaged 1D barcodes. The combination of nearby ambient lights and highly reflective surfaces also created hotspots laser scanners could not handle.
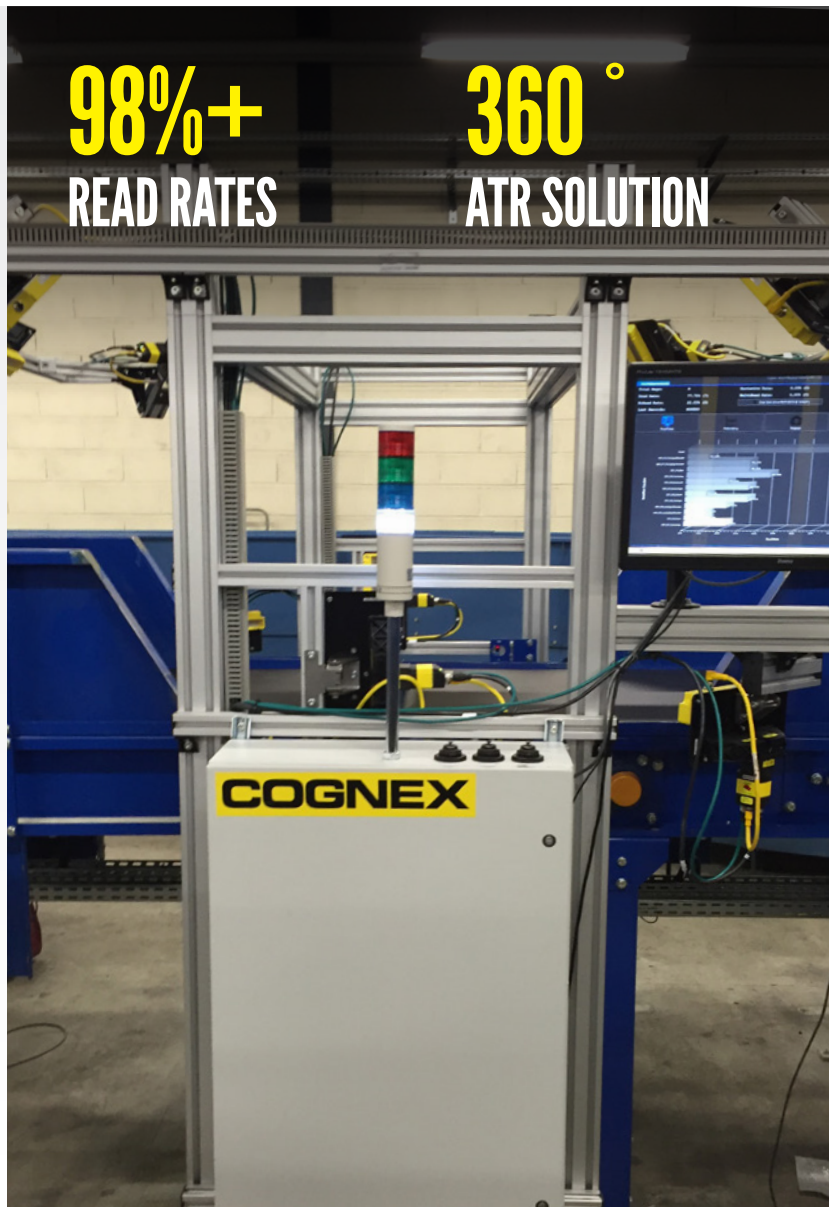
RECOMMENDED SOLUTIONS:

DataMan 280 Series
DataMan 470 Series

BENEFITS:

Cognex 360° ATR solutions achieved a 98.79% read rate, nearly 3% higher than the previous laser-based solution, resulting in improved efficiency and productivity.

98%+ READ RATES

360° ATR SOLUTION

LOAD AND TRANSFER
BELOW THE WING SCANNING

PROBLEM:

Identifying baggage tags during aircraft loading and unloading operations presents several challenges. In addition to the need for quick handling, sometimes bags will reach handling staff with tags that are hard to access or defaced, thereby making identification operations harder to do. IATA also requires that bags are tracked at this stage.

RECOMMENDED SOLUTIONS:

DataMan 8700 Series

SOLUTION:

Cognex mobile and handheld barcode readers provide the portability to remotely track bags through any step of the process. They help speed up baggage processing times, reading codes reliably from up to 1.5 meters away on a standard bag tag. They can also capture high resolution color pictures of luggage for tracking and security purposes. RFID solutions can be implemented to improve the traceability of luggage as it moves through its journey.

# ARRIVAL
LANDING AT THE RIGHT DESTINATION

PROBLEM:

Like in the transfer area, identifying bags on inbound lines is often made harder not only by the long distance already traveled but also by bags arriving with tags that are hard to access or damaged. Under these conditions, it is difficult to process baggage as fast as passengers traveling to baggage claim.

SOLUTION:

Unlike laser scanners, Cognex barcode readers offer the exceptional ability to read damaged tags quickly and accurately to land luggage at its final destination on time. Cognex solutions:

- Achieve high read rates, regardless of barcode quality or orientation

- Provide real-time performance feedback to improve tracking and security

- Perform with an average 30-year reader mean time between failures (MTBF) rate
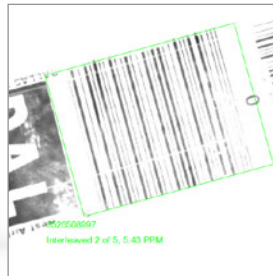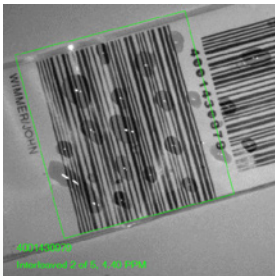
RECOMMENDED SOLUTIONS:
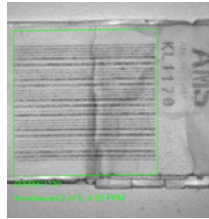DataMan 280 Series
DataMan 470 Series
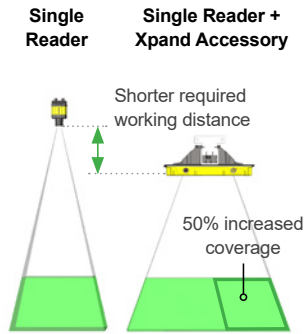
TECHNOLOGY
OPTIMAL PERFORMANCE AND TRACEABILITY

1DMAX WITH HOTBARS

A 1D barcode algorithm and technology optimized for omnidirectional barcode reading, decoding up to 10x the speed of a conventional barcode reader.

XPAND

Increases the field-of-view coverage of a single barcode reader by over 50%. This enables wider belt coverage using fewer readers, simplifying setup and installation, and reducing overall cost.

Single Reader

Single Reader + Xpand Accessory

Shorter required working distance

50% increased coverage

HIGH DYNAMIC RANGE (HDR)

HDR imaging uses the latest CMOS image sensor technology, which is 16x more detailed than conventional sensors, to globally enhance image quality and contrast.

HDR+ further increases localized contrast changes automatically. This creates a more uniformed image in a single acquisition allowing greater depth-of-field, faster line speeds, and improved handling of difficult codes.

Target Source

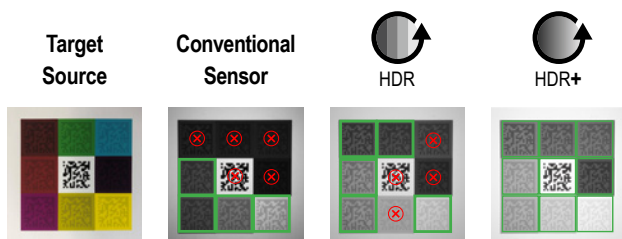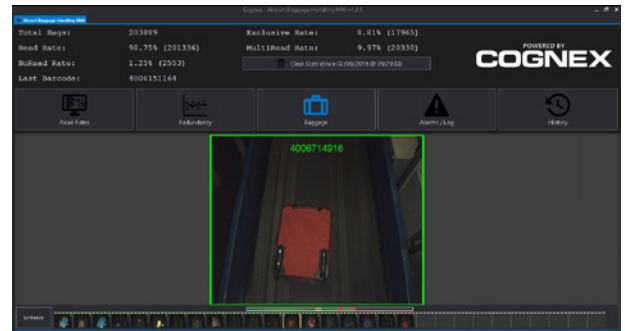**Conventional Sensor**

HDR

HDR+

IMAGE-CAPTURE

An optional image-capture feature acquires color photographs of each bag, allowing operators to visually analyze the cause of unread codes. These images can be used for baggage tracking, security, quality assurance, and handler training.

PERFORMANCE FEEDBACK

Laser scanning systems cannot detect label quality issues or provide real-time performance data. This leaves airport authorities lacking relevant information to make decisions about operational improvements.

Cognex Real Time Monitoring (RTM) technology offers airport authorities the ability to monitor the performance of their installations and take corrective actions to achieve optimal read rates and productivity levels.

VIEW HEATMAPS **SAVE NO-READS**

COGNEX PRODUCTS

READ ALL YOUR TOUGHEST CODES

Cognex image-based barcode readers are optimized with patented algorithms to achieve industry-leading read rates. Cognex airport baggage handling solutions are system agnostic, making it easy to replace outdated or under-performing systems.
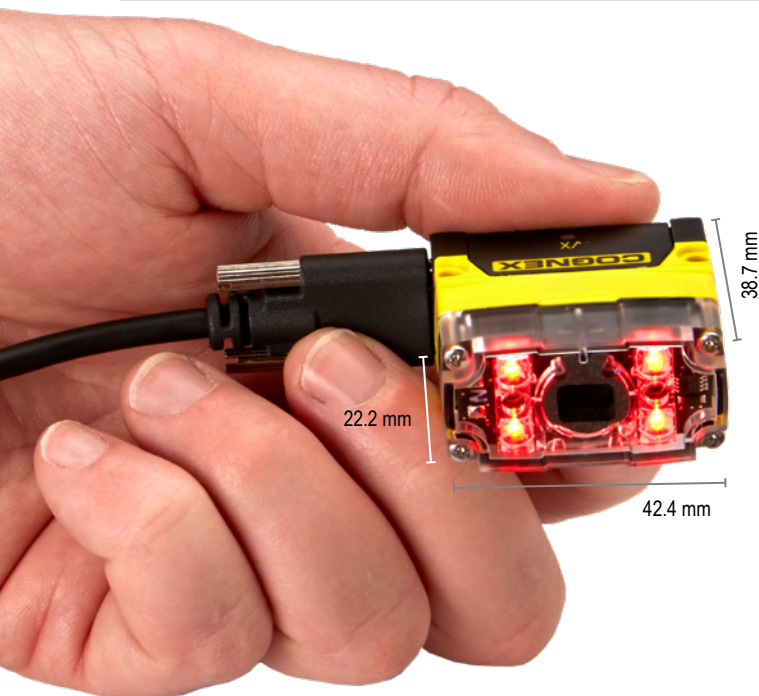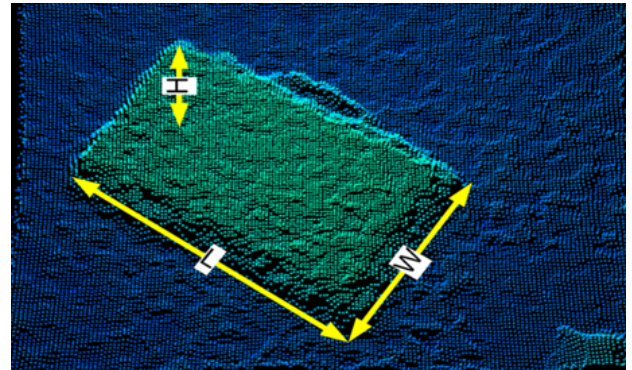
AUTOMATIC TAG READER

ATR redundant and non-redundant 360° solutions improve the speed and accuracy of luggage processing.

BAGGAGE MEASUREMENT ARRAY

BMA solutions provide luggage dimensioning and positional information at baggage drop-off and security checkpoints.

DATAMAN 70 SERIES

Compact solution ideal for kiosks built into the stations used at check-in.

DATAMAN 280/370/470 SERIES

Fixed-mount readers designed for ATR solutions with high speeds and a lot of variability.

DATAMAN 8700 SERIES

Rugged handheld reader for reliably scanning DPM and label-based codes from extended ranges, as well as manual scanning at check-in or boarding.
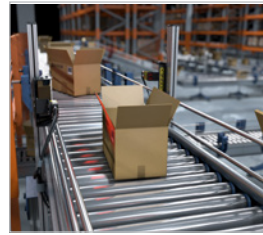
COGNEX LOGISTICS SOLUTIONS
POWER UP YOUR OPERATIONS

Maximize deliverability and minimize manual handling with advanced barcode reading solutions from Cognex.

AIRPORTS

Airport baggage handling systems depend on Cognex's barcode reading solutions to speed up luggage processing times.

PARCEL & POSTAL

Parcel and postal organizations rely on Cognex barcode readers to reliably decode multiple 1D and 2D codes on various types of packages.

PHARMACEUTICAL DISTRIBUTION

Pharmaceutical groups solve tough automated sorting challenges with Cognex image-based barcode readers.

RETAIL DISTRIBUTION

The world's leading retailers use Cognex barcode readers to quickly scan and track goods through their distribution centers.

Ecommerce

Ecommerce businesses rely on image-based barcode readers to scan and sort goods quickly and accurately.

Grocery

Grocery retailers use Cognex's image-based barcode readers to ensure maximum pallet receiving and routing efficiencies.

Apparel

Fashion and apparel companies use image-based barcode readers to help manage changes in volume and SKUs and minimize manual handling.