



10:00	HELSINKI	BOARDING	AIR CHINA
10:05	SINGAPORE	BOARDING	AIR CHINA
10:10	BEIJING	BOARDING	SHANGHAI
10:15	BANGKOK		AIR CHINA
10:20	CAIRO		EMIRATI
10:20	TAIPEI		EVA AIRLINE
10:25	HONG KONG		CHINA EAST
10:25	PARIS		AIR FRANCE
10:30	FRANKFURT		LUFTHANSA
10:35	MOSCOW		KLM AIRLINE
10:40	DUBAI		GULF AIR
10:45	LONDON		GULF AIR
10:50	NEW YORK		DELTA AIR
11:00	MILAN		AIR FRANCE
11:05	SEOUL		CHINA SO
11:10	SYDNEY		AIR CHINA

THE BAGGAGE CONNECTION

LASER, CAMERA AND RFID TECHNOLOGY
FOR BAGGAGE TRACKING

Airport

SICK
Sensor Intelligence.

SICK UNITES PEOPLE AND TECHNOLOGY

Many aspects interact during the end-to-end tracking of baggage. On the one hand, it depends on reliable technology and functioning hardware and software. On the other hand, it relies on people who work with this technology or benefit from it. These are first of all the airline passengers; it is essential that as few bags as possible are lost. But it is also those who, in making decisions, ensure that IATA Resolution 753 is implemented. SICK has the right technical and cooperative answers in the bag in this case.

According to the SITA "Baggage Report", 2.1 billion USD were spent due to delayed, lost or damaged flight baggage (mishandled baggage) in 2016 alone. In order to minimize these costs and increase customer satisfaction, IATA adopted Resolution 753. With this resolution, the airlines are committing to ensuring continuous tracking of baggage from the start of a trip to the end. The involved parties - airlines, airport operators and groundhandlers - require solutions which are exactly tailored to their needs and will be effective in the long run in order to implement the resolution. SICK has the right sensors and the right knowledge for these requirements and offers consultation worldwide on questions regarding successful flight baggage track and trace processes.



www.sick.com/baggage-tracking





Solutions from SICK accompany the flight baggage on the entire trip - from automatic baggage drop to transport and sorting processes to baggage reclaim.

RELAY RACE VICTORY IN BAGGAGE TRACKING

If the baton pass doesn't happen during a relay race, the race is lost. Handling baggage is quite similar. And there are also lots of losers in this case: In the worst case scenario, the passenger loses his or her baggage, the airlines loses a lot of money and damages its reputation in the long run.

Just like a relay race, handling flight baggage is a challenging process in which the performance of all involved parties counts. While the baton changes from one hand to the other when the runners are moving, the responsibility for a piece of baggage shifts when it is handed over. Only perfect cooperation and

maximum coordination during these hand-over processes result in success. Only those who do everything right are ahead at the end and the baggage reaches the finish line unscathed.

On its path from the hand of the passenger at the time of bag drop to pick-up at the destination, a bag passes through several transfer points between airlines, airport operators and ground-handlers. The paths of the baggage, often several kilometers long, always have to remain in view during transport on the ground.



CLOSING GAPS AND ESTABLISHING CONNECTIONS

Resolution 753 first and foremost describes the task of closing existing gaps in tracking. This is where SICK comes in. Sensors support the transport of flight baggage from start to finish, from bag drop to return to the passenger. Three important technologies are used here: Laser, camera, RFID - or a combination of these three. SICK, the world's leading manufacturer of intelligent sensor solutions for reading flight baggage labels, offers the whole spectrum from a single source. The expert knowledge from SICK ensures capable consultation spanning different technologies and results in a customized solution.

SICK has developed concepts for already existing systems in order to adapt them to current technical requirements. The modular design of SICK systems makes it possible to exchange individual components and run upgrades. This allows for the continuous development of already-existing solutions. For example, a laser system can be expanded into a hybrid system with laser and camera technology, or allows the integration of OCR and video coding - i.e. technologies which can capture and process more information than conventional baggage label systems. A small quantum leap - SICK is also closing this gap.

PEOPLE CONNECTION

SICK provides its customers with more than just the suitable products and system solutions. To stick to the relay race metaphor: In addition to its role as the installer for the best equipment, SICK also fulfills the function of the professional consultant; in sports terms, SICK is the coach or the mentor. The customer therefore not only profits from the three defining technologies for baggage identification, but also from the knowledge of many experienced SICK employees. They put the interest of the customers at center stage and help them find optimal solutions worldwide. And, due to their flexibility with the newest technical developments, SICK systems keep up with cutting edge technology.

However, the teamwork between the customers and SICK does not end with installation and commissioning. SICK sees after sales care as an important component of service. SICK employees ensure smooth operation of baggage handling systems worldwide - this is proof of how important personal customer relationships are and how much value SICK places on achieving long system life cycles.

THE RIGHT ANSWERS IN BAGGAGE

SICK has professional answers for continuous baggage tracing, no matter how challenging the customer request may be. However and wherever the questions are posed, SICK is there. Be it new installations or upgrades of existing systems, or an automated bag drop system, a redundant identification system in the sorting process or an arrival reading gate - with SICK sensors, everything runs perfectly.

The ALIS system from SICK reliably identifies and detects baggage.





STEADY CUSTOMER SATISFACTION: IATA RESOLUTION 753

IATA Resolution 753 aims to ensure end-to-end baggage tracking from bag drop to baggage reclaim by the passengers. The International Air Transport Association (IATA) is therefore requiring its members – of the airlines in the organization – to ensure suitable track and trace systems are used by mid-2018. Very important: The transfer points between the individual involved parties of the entire baggage transport systems should be equipped with compatible technology by then. This is because the flow of information must be improved many times over especially at these critical transfer points. The existing gaps can only really be closed if this is done. By implementing and complying with Resolution 753, IATA would like to increase customer satisfaction as well as reduce costs which arise due to delayed, lost or damaged baggage as well as contain fraud attempts and theft.



MODULAR DESIGN OF FLIGHT BAGGAGE READING GATES

SICK developed the ALIS (Airport Luggage Identification System) track and trace system specially for baggage handling at airports. It is constructed as a reading gate and reliably reads 1D bar codes and RFID tags located on flight baggage labels for labeling and clear assignment of flight baggage and does this in accordance with the standards of the International Air Transport Association (IATA). ALIS achieves maximum reading performance, even if baggage labels are damaged, contaminated or printed in poor quality. With this system, SICK is contributing to the ability of your baggage handling system to handle an increasing volume of baggage, shorter transfer times - and all with the least possible amount of manual work. From the electronic components to the diagnosis and visualization software and commissioning and worldwide 24/7 service support, SICK offers a modular concept that can be adapted to your individual requirements.

RAPID AND RELIABLE FLIGHT BAGGAGE HANDLING WITH ALIS

ALIS – identification with laser technology



ALIS with laser technology has been available on the market since 1990. With the continuous optimization of ALIS, the SICK application specialists can fall back on their many years of experience using the systems in airports around the world. This has made this version of ALIS the most reliable solution for the dependable identification and routing of flight baggage labeled with a 1D bar code. Position and rotation of bar codes do not play a role during this process. Optionally, a camera can be integrated into the system to deliver a color image of the bag, together with the bar code, to the baggage handling system controller. This makes it easy to prove that a bag was already damaged before handling, for example. The most important components of the system are laser-based bar code scanners of the CLV series.

Your benefits:

- Proven and rugged technology which satisfies the highest industry requirements
- With SMART code reconstruction, even contaminated, damaged or poorly printed bar codes can be read reliably
- Simple commissioning and maintenance
- Single host interface
- 100% redundant design
- Integration into the SICK software and visualization platform and extensive diagnostic options facilitate proactive maintenance and help prevent failures

ALIS – identification with camera technology



The most important components of the system are image-based code readers of the Lector® series for image recording and for omni-directional reading of 1D codes. Beyond the identification of bar codes, the ALIS supplies images with camera technology for further processing of label information (e.g. the flight number) by means of optical character recognition (OCR) and/or video coding. This enables immediate transport of the flight baggage within the baggage handling system even in situations in which the baggage source message (BSM) is not available. This can greatly reduce the costly effort needed at the manual encoding stations (MES).

Another variant of ALIS with camera technology combines the Lector65x image-based code readers with laser-based bar code scanners of the CLV series. For already-existing SICK laser systems in particular, there is the option of increasing the performance by upgrading to a hybrid system.

Your benefits:

- Complete and high-resolution image recording, also from underneath as an option
- Improved read results, even for damaged, contaminated or poorly printed labels
- Capable of optical character recognition (OCR) and/or video coding
- Simple commissioning and maintenance
- Single host interface
- Integration into the SICK software and visualization platform and extensive diagnostic options facilitate proactive maintenance and help prevent failures

ALIS – identification with RFID technology



In this solution for identifying flight baggage, the ALIS is based on RFID technology (radio frequency identification). The big advantage: When identifying IATA transponders attached to baggage, no direct visual contact to the transponder is necessary. This facilitates reliable tracing of flight baggage. The most important components of the system are read/write devices of the RFU product family for reading and writing RFID tags. ALIS with RFID technology fulfills the specifications of the global IATA standards and its transmission characteristics are specified for the UHF bandwidths approved for Europe, the USA and other countries.

Your benefits:

- Reliable assignment of the labels for the bag guarantees a fault-free sorting process, even if baggage throughput is high
- Larger scanning ranges due to UHF technology
- Simple commissioning and maintenance
- Single host interface
- 100% redundant design
- Integration into the SICK software and visualization platform and extensive diagnostic options facilitate proactive maintenance and help prevent failures

MANUAL AND AUTOMATED BAGGAGE DROP



Manually reading the baggage label

The check-in agent reads the bar code with the IDM16x or IDM26x hand-held scanner on the baggage label that the agent or the passenger has attached to the baggage themselves. The wireless variants of the hand-held scanner, such as Bluetooth or WLAN, guarantee flexibility and mobility.

- IDM16x or IDM26x hand-held scanners



→ www.sick.com/IDM16x
→ www.sick.com/IDM26x



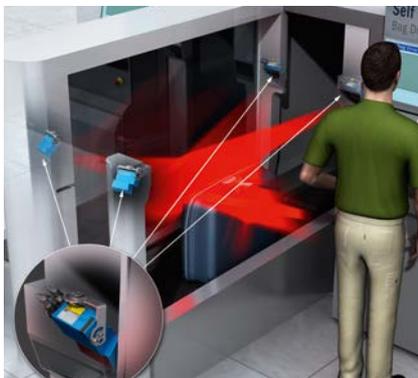
Automatic reading of the baggage label with RFID technology

The compact RFID RFU63x read/write device reads and writes permanent and hybrid baggage labels. The latter consist of a printed bar code and an RFID tag. Up to three external antennas can be connected to the RFU63x.

- RFU63x RFID read/write device



→ www.sick.com/RFU63x



Automatic reading of the baggage label with laser technology

CLV65x bar code scanners reliably identify the bar code on the baggage label during automated baggage check-in, regardless of where the label is attached on the bag. The CLV65x with auto focus and high depth of field combines high levels of reading performance with a reading algorithm that can also precisely detect and read poorly printed or partly concealed bar codes. It ensures the highest possible reading rates when integrated into an automated bag drop system.

- CLV65x bar code scanner



→ www.sick.com/CLV65x

TRANSPORTING AND SORTING



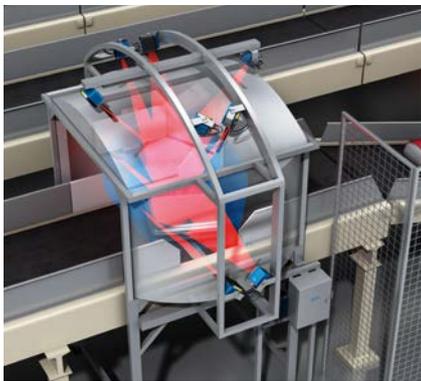
Automatic reading of the baggage label with camera technology

The Lector65x image-based code reader features high resolution and an extensive depth of field. Integrated into the ALIS Vision system, it enables the very highest reading performance even when bar codes are damaged and dirty, and allows images to be used for vision tasks. In the event that the baggage source message is missing, the data that is relevant to sorting can be read on the baggage label in conjunction with video coding or optical character recognition (OCR). This increases the sorting rate and optimizes the transfer time.

- ALIS Vision track and trace system



→ www.sick.com/ALIS



Automatic reading of the baggage label with laser and RFID technology

The ALIS Hybrid system, consisting of bar code scanners and RFID reading devices, is the logical answer to the introduction of RFID technology into the world of flight baggage transport. Since most airlines worldwide still use baggage labels without RFID tags, the identification solution must provide both technologies in many points of the baggage handling systems. ALIS Hybrid from SICK unites these two technologies in one system, enabling the highest level of reading performance.

- ALIS Hybrid track and trace system



→ www.sick.com/ALIS

FLIGHT MAKE-UP



Manually reading the baggage label

When loading a ULD or the baggage cart, the IDM16x hand-held scanner reads the bar code on the baggage label. The bar code information makes it possible to match passengers and baggage data (reconciliation). If a passenger does not appear for departure, the corresponding must be removed from the aircraft.

- IDM16x hand-held scanner



→ www.sick.com/IDM16x

BAGGAGE RECLAIM



Automatic reading of the baggage label with RFID technology

ALIS RFID is used for track and trace tasks in the areas of the baggage handling system in which only bags are transported whose labels contain RFID tags. To close the gaps in the identification process corresponding to IATA Resolution 753, reading the baggage label in the arrival area is of great importance. Even basic RFID systems show the advantages of this technologies and provide reliable reading results.

- ALIS RFID track and trace system



→ www.sick.com/ALIS



Automatic reading of the baggage label with laser technology

ALIS Laser is used in arrival areas used by one or several airlines and in which it cannot be ensured that only baggage with RFID tags are delivered. The sophisticated SICK laser technology has proven itself over many years and is a guarantee for the highest performance and reliability.

- ALIS Laser track and trace system



→ www.sick.com/ALIS



ALIS – At a glance

- 100% redundant design (optional)
- Suitable for belt conveyors and container-type sorters
- Very high read rates
- Suitable for IATA bar codes and RFID tags

- Focus on bags and code reading in real time
- Tried-and-tested high-performance sensors

Your benefits

- Even capable of reading soiled and partially covered bar codes and RFID tagged labels to reduce the need for manual bag processing downstream
- Individual sensors can be replaced quickly thanks to quick-clamp devices

- and parameters which can be stored in the sensor connection and cloning plug
- High operational safety
- Low maintenance and easy to operate

→ www.sick.com/ALIS

For more information, simply enter the link or scan the QR code and get direct access to technical data, CAD design models, operating instructions, software, application examples, and much more.



CLV65x – At a glance

- Huge depth of field due to auto focus
- Integrated function buttons, e. g., for starting auto setup or reading quality evaluation
- CAN, Ethernet TCP/IP, PROFINET, and EtherNet/IP on board. No additional Ethernet gateway required (for “Ethernet” connection type)
- Enhanced SMART code reconstruction technology

- Flexible sorting, filtering, and logical functions
- Integrated web server for diagnostic data and network monitoring
- Advanced, easy-to-use SOPAS configuration software
- Integrated LED bar graph

Your benefits

- Cost-effective, as auto focus means no variants or additional light barriers are required for focus adjustment
- Intelligent auto setup and multi-function pushbuttons save time during commissioning
- Easily execute firmware updates using the microSD memory card: no need for a PC
- Enhanced SMART technology reads damaged and partially obscured codes, increasing read rates

- Increased scanner intelligence enables sophisticated configuration of logical operations, reducing the control system programming effort. Data is then delivered in the desired format
- Integrated web server provides remote diagnostics and monitoring; no additional software is required

→ www.sick.com/CLV65x

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CLV69x – At a glance

- Advanced SMART+ code reconstruction technology
- New and flexible cloning plug technology
- CAN, Ethernet and serial communications available on board (dependent on cloning plug variant)
- Large depth of field due to real-time auto focus
- Consistent, user-friendly “SOPAS ET” software
- Built-in tracking without the use of an additional system controller
- Flexible sorting, filtering, and logical functions
- Integrated LED bar graph with push-buttons

Your benefits

- Higher reading rate on damaged, heavily contaminated and partially damaged bar codes using the SMART+ algorithm
- Increased processing allows for faster and more accurate performance on demanding applications
- Fewer costs since no additional Ethernet gateway is required when using the Ethernet clone plug
- Time savings during commissioning thanks to integrated buttons and bar graph
- Increased scanner intelligence enables sophisticated configuration of logical operations, reducing the control system programming effort. Data is delivered in the desired format
- Cost savings since standard applications can be implemented without an additional system controller due to integrated tracking

→ www.sick.com/CLV69x

For more information, simply enter the link or scan the QR code and get direct access to technical data, CAD design models, operating instructions, software, application examples, and much more.



Lector65x – At a glance

- 2/4 megapixel resolution; high frame repetition rate of 40 Hz
- Dynamic focus adjustment from object to object
- Integrated high-power LED illumination
- Function buttons, aiming laser, optical and acoustic feedback signal
- Intelligent, rapid decoding algorithms

Your benefits

- Highly flexible code position, object height, and transport speed due to a large field of view and dynamic focus
- Cost-effective, straightforward, modular integration of multiple devices adapted to the width of the conveyor belt
- Minimum training and installation work due to intuitive device equipment that includes function buttons, auto setup, integrated illumination, an aiming laser, an acoustic feedback signal, and a green feedback LED
- Intelligent decoding algorithms ensure maximum reading performance and high package throughput, even with codes that are difficult to read
- SICK 4Dpro platform facilitates quick and easy integration into numerous industrial networks

→ www.sick.com/Lector65x

For more information, simply enter the link or scan the QR code and get direct access to technical data, CAD design models, operating instructions, software, application examples, and much more.





RFU65x – At a glance

- Compact UHF RFID read/write device in accordance with ISO/IEC 18000-63
- Positioning and angle detection by RFID transponders
- Integrated algorithms deduce the direction of entry and movement based on numerous measured values
- Supports data and fieldbus interfaces that are typically used in the industry

Your benefits

- UHF RFID transponders demonstrate outstanding reading reliability thanks to correct transponder assignment, including integrated entry detection plus direction output.
- Space-saving, compact device that does not require any additional antennae
- Easy to integrate into industrial fieldbuses with 4Dpro connectivity
- Fulfills the requirements of the IP67 enclosure rating (“outdoor”) and is rugged and durable
- Compatible with other SICK RFID read/write devices, making it highly flexible
- Additional software functions for the device can be programmed in the SICK software environment and integrated into the device

→ www.sick.com/RFU65x

For more information, simply enter the link or scan the QR code and get direct access to technical data, CAD design models, operating instructions, software, application examples, and much more.



RFU63x – At a glance

- UHF RFID read/write unit for industrial applications
- With or without integrated antenna, depending on the type (up to four external antennas can be connected)
- Standard-compliant transponder interface (ISO/IEC 18000-6C/EPC G2C1)
- Supports common industrial data interfaces and fieldbuses
- MicroSD memory card for device parameter cloning
- Several diagnostic and service options available

Your benefits

- Intelligent technology allows stand-alone usage
- Highest reading/writing performance
- Flexible integration in common industrial fieldbuses via 4Dpro compatibility
- Less maintenance time due to an integrated cloning back-up system using microSD memory card
- Easily adapts to application requirements via SOPAS parameter setting tool
- Free usable feedback LED quickly provides read results and diagnostic information directly to the user

→ www.sick.com/RFU63x

For more information, simply enter the link or scan the QR code and get direct access to technical data, CAD design models, operating instructions, software, application examples, and much more.





IDM16x – At a glance

- Identification of all popular 1D codes, with PDF version also stacked codes
- Compact housing with up to IP 65 withstanding 50 drops from 2 m on concrete
- Good read feedback via LED, beeper and vibrator
- Supports all popular corded and cordless interfaces as well as industrial fieldbuses via SICK connectivity
- Tool-free exchange of cable and battery
- Corded and cordless versions available

Your benefits

- Increased productivity and throughput thanks to fast and reliable identification
- Reduced costs thanks to 2-in-1 scan engine: covering standard and high-density codes with a single device
- High reliability thanks to industrial grade and rugged housing
- Intuitive good read feedback for noisy industrial environment via vibration, beeper and LED
- Higher user comfort through ergonomic housing design, well balanced and light weight
- High flexibility and operator mobility with corded and cordless versions
- Quick integration in most corded and cordless PC or industrial networks

→ www.sick.com/IDM16x

For more information, simply enter the link or scan the QR code and get direct access to technical data, CAD design models, operating instructions, software, application examples, and much more.



IDM26x – At a glance

- Identification of all current 1D, stacked, and 2D codes
- Reliable, secure, and fast code reading
- Rugged, stable housing with IP 65 enclosure rating
- Supports all common corded and cordless interfaces as well as industrial fieldbuses via SICK connectivity
- Good read feedback via LED, beeper, and vibration
- Decoding algorithms ideal for direct part marked codes (depending on type)

Your benefits

- Only one device for a wide range of different code types
- Fast and accurate identification without manual data entry
- Highly reliable thanks to industrial enclosure rating and rugged housing
- Simple and flexible integration in industrial fieldbus networks using SICK connectors
- Simple, intuitive operation thanks to multiple read confirmation
- Direct expert advice all over the world from the SICK sales and service network
- Low contrast or highly reflective DPM codes are identified reliably

→ www.sick.com/IDM26x

For more information, simply enter the link or scan the QR code and get direct access to technical data, CAD design models, operating instructions, software, application examples, and much more.



SICK AT A GLANCE

SICK is a leading manufacturer of intelligent sensors and sensor solutions for industrial applications. With more than 8,000 employees and over 50 subsidiaries and equity investments as well as numerous agencies worldwide, we are always close to our customers. A unique range of products and services creates the perfect basis for controlling processes securely and efficiently, protecting individuals from accidents and preventing damage to the environment.

We have extensive experience in various industries and understand their processes and requirements. With intelligent sensors, we can deliver exactly what our customers need. In application centers in Europe, Asia and North America, system solutions are tested and optimized in accordance with customer specifications. All this makes us a reliable supplier and development partner.

Comprehensive services round out our offering: SICK LifeTime Services provide support throughout the machine life cycle and ensure safety and productivity.

For us, that is “Sensor Intelligence.”

Worldwide presence:

Australia, Austria, Belgium, Brazil, Canada, Chile, China, Czech Republic, Denmark, Finland, France, Germany, Great Britain, Hungary, Hong Kong, India, Israel, Italy, Japan, Malaysia, Mexico, Netherlands, New Zealand, Norway, Poland, Romania, Russia, Singapore, Slovakia, Slovenia, South Africa, South Korea, Spain, Sweden, Switzerland, Taiwan, Thailand, Turkey, United Arab Emirates, USA, Vietnam.

Detailed addresses and further locations → www.sick.com