Let your
apron operations take off

Safedock A-VDGS
and SafeControl
Apron Management

ADB SAFEGATE

Safe and efficient docking

Safety on the ground is a top priority for airports and airlines. More than 27,000 ramp incidents and accidents happen each year according to IATA, but did you know that many of these could be prevented?

Safety is not the only challenge facing airports and airlines. By 2035, passenger traffic is expected to nearly double, creating capacity issues that airports need to address now.

Optimizing gate operations with safer, faster and more predictable aircraft turns

Docking aircraft manually, particularly in bad weather, increases delays and the risk of accidents. ADB SAFEGATE offers solutions to optimize gate operations. Our Safedock Advanced Visual Docking Guidance System (A-VDGS) provides an automated approach to parking aircraft that speeds up the docking process and improves safety by reducing the opportunity for error. Integration with other systems serving the apron area makes it possible to share critical data in support of airport collaborative decision making (A-CDM). Operators can manage in real-time to mitigate disruption and ensure a safe and efficient gate operation.

Safedock A-VDGS makes every docking the safest, smoothest and fastest possible. It has become the global standard, enabling the world's busiest airports to handle more aircraft while maintaining a high level of safety.

Safedock A-VDGS uses an infrared laser and patented 3D scanning technique to provide active guidance to pilots to support safe, efficient and precise aircraft parking without marshallers.

Our latest generation A-VDGS, the Safedock X, adds an advanced radar sensor to detect and dock aircraft in any weather condition, bringing safe, fully-automated docking closer to reality. Docking with Safedock saves time and fuel, reduces CO_2 emissions and lets ground crew focus on turning aircraft. The automated system improves safety by ensuring aircraft/gate compatibility, verifying the position of the passenger boarding bridge (PBB) and scanning the apron for vehicles or other obstacles.

Together with SafeControl Apron Management, the Safedock A-VDGS is also used as a Ramp Information Display System (RIDS) to track the progress of the aircraft turn and share valuable information with flight and ground crews, further streamlining and shortening the turnaround.

A mobile operator panel acts like a turn manager, by tracking all activities of the aircraft turn and placing operational capacities and progress updates in the hands of operating staff.

Safedock A-VDGS and SafeControl Apron Management are part of ADB SAFEGATE's complete range of solutions for the gate, airfield and tower areas, designed to help airports and airlines secure performance today, and prepare for the traffic demands of tomorrow.

As an aircraft approaches the gate, Safedock A-VDGS and SafeControl Apron Management can perform the following safety and efficiency enhancing procedures:

1 Safedock is automatically prepared for expected aircraft
SafeControl Apron Management provides up-to-date flight information from AODB.

2 Gate preparation
The system checks compatibility of the assigned aircraft with the gate and adjacent gates and ensures the boarding bridge is in a safe position.

3 Checking GSE availability
SafeControl Apron Management can check whether integrated equipment (PBB, GPU, PCA etc.) is ready for use and indicate if they are not.

4 Automatic initiation of docking procedure
Docking procedure is initiated automatically via SafeControl Apron Management or can be manually activated, either locally via the operator panel or remotely via the HMI.

5 Apron scan*
Safedock A-VDGS scans the apron, making sure there are no vehicles or objects in the way.

6 Verify position of PBB
Safedock A-VDGS verifies the position of the PBB.

7 Aircraft type check
Safedock A-VDGS uses our patented 3D laser scanning technique to measure the arriving aircraft to verify gate compatibility and ensure safe docking.

8 Parking
Safedock A-VDGS guides an aircraft to its correct position by providing the pilot with intuitive signals, via a high-intensity LED display.

9 Stop position
Allows for a wide range of aircraft stop positions, providing greater flexibility and future-proofing for new aircraft types.

10 Capturing on-block time
Safedock A-VDGS captures the moment the aircraft stops. Block times are tracked for all flights and can be reported back to AODB.

Available with Safedock X and T1 models.

Enhance turnaround efficiency
with SafeControl Apron Management

By connecting Safedock A-VDGS to SafeControl Apron Management, you will maximize safety and efficiency through integration, data sharing and customized control and monitoring of the systems, equipment and processes on the apron. SafeControl Apron Management uses Safedock A-VDGS as intelligent sensors to collect and distribute real-time gate intelligence between airport, airline and air traffic control systems. Vital information is shared in support of A-CDM, increasing situational awareness and allowing the right decisions or corrective actions to be taken to ensure smooth and safe operations.

Real-time control and monitoring

SafeControl Apron Management is a web-based and mobile-friendly system that offers centralized management with user-based views. The system is used to configure adjacent gate rules to ensure aircraft/gate compatibility and to automatically initiate the A-VDGS process. SafeControl Apron Management provides constant monitoring of the A-VDGS and connected systems, allowing ground personnel to know the precise status of gate equipment. Ground staff also receive alerts to potential issues before an aircraft arrives so that delays can be avoided.

- Ensure safety at the gate
- Update flight database with the latest flight information
- Automatically send actual block IN & OUT times to flight database
- Share flight information with ground and flight crews
- Warn operators of weather events
- Track and report use of ground support systems
- Track position of in/outbound aircraft within range of A-VDGS
- Produce valuable data, such as turnaround times and GSE usage, that can be used for performance improvement by changing workflow or gate assignment

Ramp Information Display System (RIDS)

When a Safedock A-VDGS is not actively docking an aircraft, it can receive information from SafeControl Apron Management and display critical arrival or departure information for pilots and ground crew. Information is sent to the Safedock display via an automatic feed from a connected system or as free text entered from a SafeControl Apron Management workstation. It is also possible to show the status of connected GSE on the RIDS display.

Digital Apron

ADB SAFEGATE´s Digital Apron builds on our experience as the market leader in aircraft docking and apron management solutions, our landside systems such as AODB, FIDS, baggage handling and resource management, as well as our vast experience in the airfield ground lighting and tower domains. These domains and their systems will be perceived as one on the Digital Apron, and the system itself or autonomous equipment will perform many turnaround tasks. Stakeholder systems will work together to drive efficiency through:

- Awareness
- Predictability
- Decision support
- Decision automation

We see a future in which the Internet of Things (IoT) and a higher software maturity create smarter, automated and tightly integrated airport processes and systems. A future where operational efficiency helps eliminate congestion and flight delays to deliver a better passenger experience.
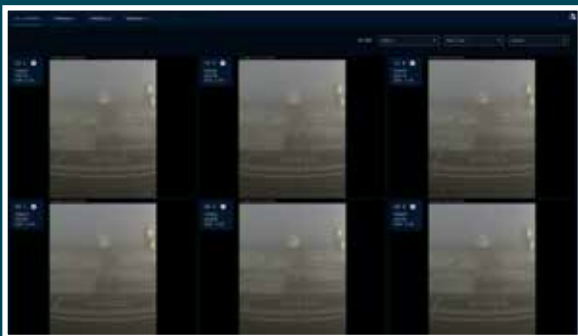
The Digital Apron

SafeControl Apron Management supports your digitalization strategy from approach to departure.

The extensive number of data points available aids modern airports and airlines in measuring and tracking **Key Performance Indicators**.

Decision automation and machine learning are made possible by analysis of **Artificial Intelligence** gained from the digital apron.

Advanced Analytics deliver real-time situational awareness, mobile resource allocation and performance monitoring and reporting.

The Digital Apron is an important part of the **Total Airport Management** concept.

1 Arrival RIDS
Display countdown to AIBT for apron personnel to help ensure correct resources and equipment are on location and ready.

2 Apron scan
Safedock A-VDGS scans the apron, making sure there are no vehicles or objects in the way.

3 Just-in-time docking
Track inbound aircraft to the gate, enabling accurate AIBT and automatic activation of the A-VDGS, to avoid unauthorized planes entering the stand and save on resources and assets.

4 A-SMGCS sensor
Improve A-SMGCS surveillance and ATC situational awareness of aircraft approaching/departing the stand by eliminating black spots close to the terminal.

5 Tail clearance
Inform ATC in real time as inbound aircraft clear the taxiway, enabling better use of taxiways and preventing tail accidents.

6 Video surveillance
Monitor and archive video feed of aprons to enable video analytics of performance, facilitate incident investigations and enhance situational awareness.

7 AIBT
Inform stakeholders of accurate blocks on, enabling automatic billing of stand utilization and providing a valuable data point for on-time performance analytics.

8 SEQ management
Manage status, utilization and billing of gate equipment. Increase operability and automation to avoid operational disruptions.

9 Turn management
Provide turn progress updates to stakeholders to **manage the critical path of the turnaround process** and avoid delays.

10 Turnaround RIDS
Display real-time and predictive information to ground personnel to help meet and deliver on-time departures and arrivals.

11 Departure RIDS
Provide visual clarification of flight information to pilots, such as the planned departure route and runway, to improve situational awareness and reduce frequency congestion.

12 Pushback clearance
Provide visual clarification of departure clearance to pilots to reduce frequency congestion.

13 AOBT
Inform stakeholders of accurate blocks off, enabling automatic billing of stand utilization and providing a valuable data point for on-time performance analytics.

14 Pushback in process
Improve A-SMGCS coverage at the gate by providing aircraft positional data to ATC during the pushback procedure. Detect and alert unauthorized pushbacks.

15 Pushback protection
Protect pushing aircraft from taxiway and serivce road traffic and prevent adjacent pushbacks in A-SMGCS.

16 Gate clear
Automatically inform stakeholders when the gate has been cleared to enable better use of assets.

A Safedock A-VDGS
for every airport

Our next generation Safedock X is packed with innovation to transform apron operations and open your gate to the future

▶ Integrated radar sensor supports safe docking independent of the weather or the characteristics of an object.

▶ Approach monitor ensures aircraft enter at the correct alignment to maintain clearances.

▶ Advanced Ramp Information Display System (RIDS) and mobile operator panel presents more information than ever before in support of turn management and A-CDM.

▶ Advanced A-SMGCS integration allows just-in-time docking, provides aircraft position data and sends tail clearance and pushback alerts.

Safedock X

T1

T2

	Safedock X	T1	T2
Modular design with option for mutiple displays	•		
Turn management display support	•		
Radar sensor for enhanced low visibility/weather performance	•		
Full IR absorbing aircraft (black nose) support	•		
Mobile operator panel	•	•	
Approach monitoring	•	•	
Improved docking in severe weather	•	•	
A-SMGCS integration (GAP filler, just-in-time docking)	advanced	basic	
Apron scan	advanced	basic	
Stop position 2-65 meters	•	•	
Stop position 8-50 meters	expanded	expanded	•
Multiple centerlines	expanded	expanded	•
Ramp Information Display System (RIDS)	advanced	expanded	basic
Extended readability	•	•	•
High resolution surveillance camera	•	•	•
Departure/arrival information	•	•	•
Stand equipment communication	•	•	•
Connection to lead-in lights	•	•	•
Aircraft verification/safety check (3D scan)	•	•	•
Automatic start of docking	•	•	•
Parking accuracy of 10 cm	•	•	•
LED display	•	•	•
Distance to go indicator	•	•	•
Closer clearance distance	•	•	•
Blocks on/off	•	•	•
Storage of configuration files	•	•	•
Real-time information	•	•	•
Auto-controlled apron lights	•	•	•
ICAO compliance (includes recommendations)	•	•	•
PBB interlock	•	•	•
All aircraft types with one system	•	•	•
PBB scan	•	•	•
Active azimuth guidance	•	•	•
Low visibility mode	•	•	•
Operator panel with emergency stop	•	•	•

Infinity gate services
It's all about passenger experience

Airports operate around the clock, with multiple stakeholders managing all the activities associated with the complex rhythms of landings and take-offs. With aircraft, vehicles and passengers on the go - every second, from landing to departure, counts.

How to make the most of every second?

How can airports and airlines make the most of every second, while maintaining the highest safety standards, to avoid unnecessary downtime which could result in flight delays and unhappy passengers?

Installing world-class systems such as ADB SAFEGATE's Safedock Advanced Visual Docking Guidance Systems (A-VDGS) and SafeControl Apron Management (SAM) is only the first step to creating a safer and smoother gate operation.

Airports and airlines must also take steps to ensure 24/7 system availability. With lean maintenance principles being core to our service philosophy, we help our airport and airline customers implement the right degree of preventive/predictive maintenance to keep costs low and corrective maintenance at a minimum.

Our Infinity gate service programs assure world-class support that protects your investment and guarantees the highest level of system availability. We offer more than 40+ years of gate expertise and a complete spectrum of services that include - audit, consulting, design, maintenance, upgrades, spares management and training.

With our support your airport is operational 24x7, systems are at their highest availability, time to gate is shorter, and your operation benefits from huge improvements in performance, predictability and safety. Infinity can make every second count, from landing to take-off.

ADB SAFEGATE has delivered more than 10,000 Safedock systems, making it the most widely used and trusted A-VDGS at airports around the world. Every two seconds, or 18 million times each year, an aircraft is safely docked with the Safedock system. With proven reliability and vast experience, ADB SAFEGATE is at the forefront of innovative and world-leading technology within this field. A trusted supplier of the world's largest airports, ADB SAFEGATE has the necessary knowledge for successful implementations.

ADB SAFEGATE's apron management solutions are used at 300 of the world's busiest airports, including

Bangkok International Airport has 159 gates equipped with Safedock

Istanbul Airport relies on Safedock A-VDGS and SAM for safe, automated docking in all weather conditions

Groupe ADP has deployed 352 Safedock A-VDGS and SAM at Charles de Gaulle and Orly airports in support of A-CDM

Dallas/Ft. Worth International Airport has equipped all its 185 gates with Safedock A-VDGS and SAM

Dubai International Airport is a long-time user of the Safedock T1 and is the first airport to install Safedock X

Heathrow Airport has invested in 255 Safedock systems and SAM

AMS	HKG	MNL
ATL	HND	MUC
BCN	IAH	NRT
BKK	ICN	ORD
BOM	IST	PEK
CAN	JFK	PER
CDG	KMG	PVG
CGK	KUL	SEA
CLT	LAS	SFO
DEL	LAX	SHA
DFW	LGW	SIN
DXB	LHR	SYD
FCO	MAD	SZX
FRA	MCO	YYZ
GRU	MIA	

Ensure ground control safety

Safety

According to the Flight Safety Foundation, 80% of airport accidents occur at the gate and apron area. These are busy, confined areas where aircraft, vehicles and people are in constant motion in all types of weather conditions.

Safedock A-VDGS safely and smoothly guides an aircraft to its correct position by providing the pilot with intuitive signals. With Safedock A-VDGS and SafeControl Apron Management you can reduce congestion and the number of personnel on the ramp, thereby increasing safety for both passengers and staff.

Increase airport efficiency and capacity

Efficiency

Safedock A-VDGS and SafeControl Apron Management link all gates via a local or wide area network and integrate with airport and airline information systems to provide real-time gate status and shared flight data. This results in the fastest time from touchdown to gate and a more efficient ramp operation that is scalable for the future.

Safedock A-VDGS and SafeControl Apron Management let ground staff know at a glance which gates are occupied or available, ensuring aircraft are parked quickly and smoothly in the correct configuration and allowing last minute gate changes and tight time schedules to be met. Safedock A-VDGS and SafeControl Apron Management eliminate reporting delays by automatically capturing and reporting actual in-and-out times for tracking gate utilization and accurate billing. A more efficient airport can defer costly expansion, which means a faster return on your investment.

Let the environment benefit

Sustainability

By shortening the time from touchdown to gate, Safedock A-VDGS and SafeControl Apron Management help keep fuel and power consumption to a minimum.

Gate and apron solutions from ADB SAFEGATE mitigate time spent waiting for gates or ground crew and track the status and utilization of ground power units which results in a significant reduction of fuel burn.

When aircraft are parked faster and gates turned around more efficiently, CO_2 emissions are reduced. With ADB SAFEGATE you bring air travel a little closer to nature.

"Airports can handle far greater traffic volumes and improve performance if they can reduce turnaround times by even just a few minutes. Our ultimate goal is to fully automate and connect nearly every task in the aircraft turnaround process to create the Digital Apron. With the latest improvements to the Safedock family and the SafeControl Apron Management platform, airports and airlines will benefit substantially."

Christian Onselaere CEO, ADB SAFEGATE

ADB SAFEGATE provides integrated solutions that raise efficiency, improve safety, boost environmental sustainability and reduce operational costs for airports, airlines and ANSPs. The company works with airports and airlines to solve operational bottlenecks from approach to departure. Solutions encompass airfield lighting, tower-based traffic control systems, intelligent docking automation and services, as well as applying advanced IT and analytics to deliver industry-leading Total Airport Management.

With more than 1,200 employees, ADB SAFEGATE serves more than 2,500 airports in more than 175 countries, from the largest like Atlanta, Dubai, Heathrow, Frankfurt, Istanbul and Changi to fast-growing airports across Asia and Africa.

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