Let your apron operations take off

Safedock A-VDGS and
SafeControl Apron Management

09
N53° 37' 42.51"
E10° 0' 8.31"

SQ217
TOBT 10:35
-22

Chock   On
GPU   On
PBB   Off
PCA   Off

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. Flexible gate solutions that offer operational elasticity have emerged as the need for today and tomorrow, to maintain high performance while successfully managing changes in demand.

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.

Safedock A-VDGS and SafeControl Apron Management are part of ADB SAFEGATE's complete range of flexible gate solutions designed to enable operational elasticity to help airports and airlines quickly and easily scale up or down to meet changing demand.

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

1 **Safedock is automatically prepared for expected aircraft**

SAM provides up-to-date flight information from AODB. Safedock prepares ground crew with approach RIDS.

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. SAM checks for stand availability and sends "stand occupied alert" upon landing.

3 **Checking GSE availability**

SAM can check 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 SAM or can be manually activated, either locally/remotely 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 **Flight verification check**

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

7 **Parking**

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

8 **Approach monitoring**

This ensures aircraft enter at the correct alignment to maintain clearances.

9 **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 Safedock FleX*

ENHANCE TURNAROUND EFFICIENCY

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
- 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
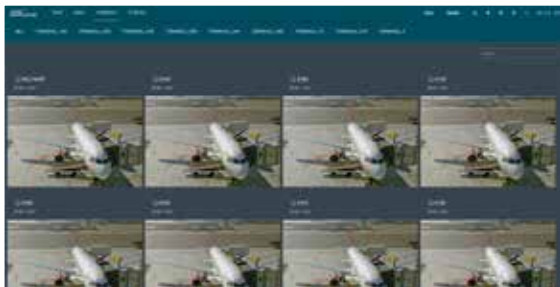
Ramp Information Display System (RIDS)

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 Safe-Control 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
- Stand 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

ADB SAFEGATE applies the latest automation, integration and digitalization technology to manage your most complex operational challenges.

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

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

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

The Digital Apron delivers **automated**, **predictive** and **prescriptive** operations.

1 Stand Preparations

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 and alerts any obstacles to the central SAM operator.

3 Approach Monitoring

Patented feature monitors the trajectory of the approaching aircraft to ensure envelope and wingtip margins are not compromised.

4 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.

5 A-SMGCS sensor

Increase A-SMGCS surveillance and ATC situational awareness of aircraft approaching/departing the stand by eliminating black spots close to the terminal. Improve A-SMGCS coverage at the gate by providing aircraft positional data. Early indication of pushback in A-SMGCS (not transponder based).

6 Tail clearance

Inform ATC in real time as inbound aircraft clear the taxiway, enabling better use of taxiways and preventing interruptions to apron traffic and avoiding accidents.

7 Video surveillance

Monitor and archive video feed of apron to enable video analytics of performance, facilitate incident investigations and enhance situational awareness.

8 AIBT

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

9 SEQ management

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

10 Turn management

Provide turn progress updates to stakeholders and offer central dispatch management to **manage the critical path of the turnaround process**.

11 Turnaround RIDS

Display real-time progress and predictive information to ground personnel to help deliver consistent on-time departures. Allows early mitigation efforts to ensure timely departures.

12 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.

13 Pushback clearance

Provide visual clarification of departure clearance to pilots to reduce frequency congestion. Enhances apron safety by tracking the aircraft on stands to avoid unauthorized pushbacks. Protects pushing aircraft from taxiway and service road traffic and prevents adjacent pushbacks in A-SMGCS.

14 AOBT

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

15 Gate clear

Automatically inform stakeholders when the gate has been cleared to enable better use of assets. AOCC situational awareness view shares real-time information from stands to AOCC.

A SAFEDOCK A-VDGS FOR EVERY AIRPORT

Our new generation A-VDGS Safedock X and Safedock FleX are packed with innovation and modularity to transform apron operations and open your gate to the future.

▶ The Safedock X integrated radar sensor supports safe docking independent of the weather or the characteristics of an object.

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

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

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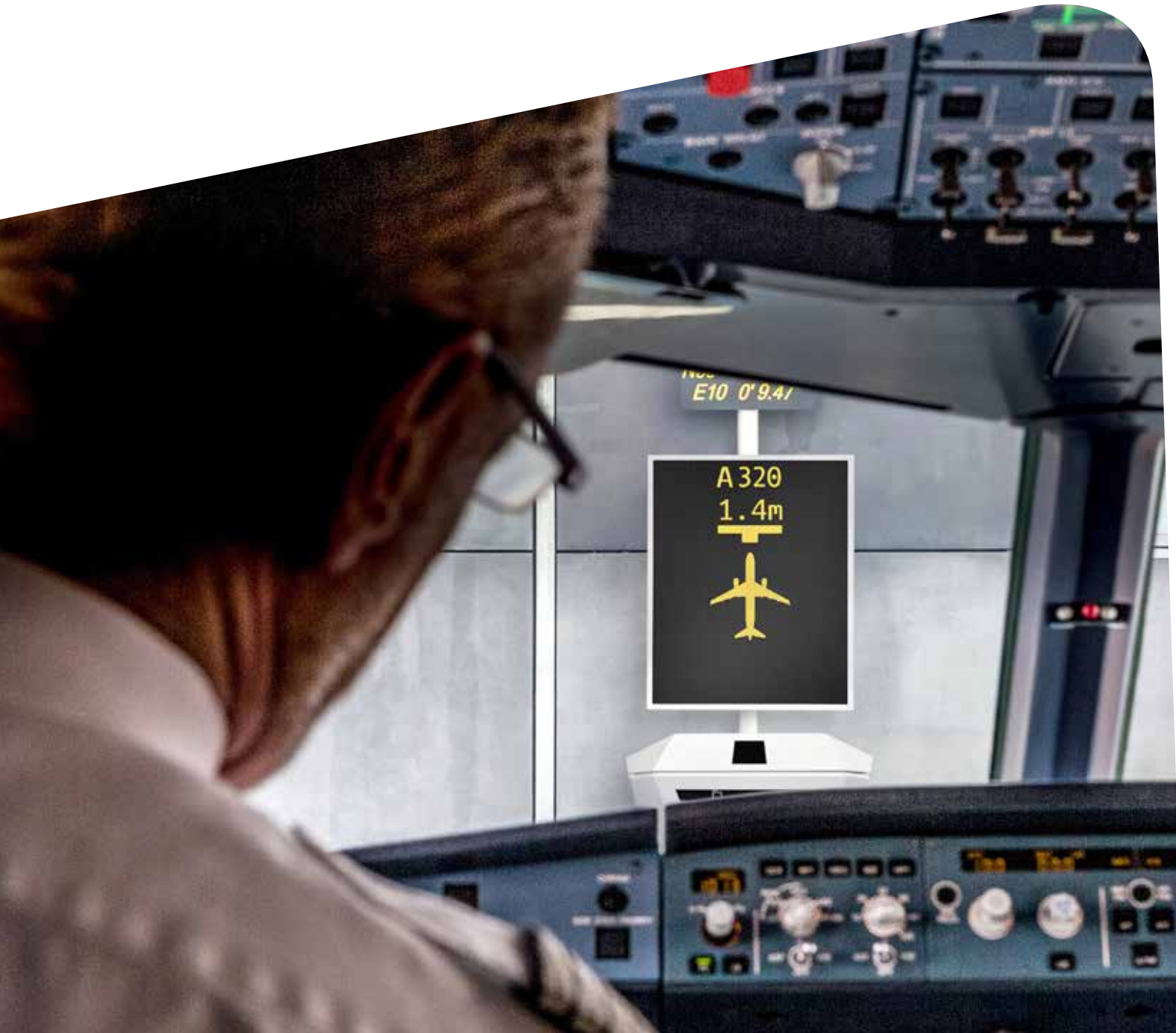
Overview of features

	Safedock X	Safedock FleX
Standard		
Active azimuth guidance (A-VDGS)	•	•
Aircraft ID verification	•	•
Low visibility mode	•	•
Ip camera	•	•
Stop position range 8-50m	•[1]	•
Stop position range 2-65m	•[1]	•
PBB interlock dry contacts	•	•
Touch screen operator panel FOP-L	•	•
Touch screen operator panel FOP with enhanced situational awareness capacities	•[1]	•
Advanced		
Multiple centerlines	•	•
SEQ modbus interface	•	•
Approach monitoring	•	•
Supervised mode	•	•[3]
Ramp Information Display System	•	•
A-SMGCS integration (GAP filler features)	•	•
Apron scan	•	•
Apron scan light	•[1]	•
Full color pilot display	•[1]	•
All weather support	•[2]	•
Radar	?	?
3D laser technology	?	?

[1] Available as option
[2] SDK FleX offers option to upgrade display capacity to SDK X type of Display
[3] Automated thanks to Radar

Safedock X

Safedock FleX

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 takeoffs. With aircraft, vehicles and passengers always on the go - every second counts.

How to make the most of every second?

Installing world-class systems such as ADB SAFEGATE's Safedock A-VDGS and SafeControl Apron Management system 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 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. Make every second count, from landing to takeoff.

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

ADB SAFEGATE has delivered more than 12,000 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.

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

Bangkok International Airport has 159 gates equipped with Safedock.

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

Hamad International Airport in Doha, has installed 50 Safedock X.

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

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

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

Heathrow Airport has invested in 255 Safedock systems and SAM.

"As airports and airlines chart their recovery from the current crisis, they must consider the possibility of another disruption. 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 can meet sudden changes in demand, while maintaining a high level of safety, performance and cost effectiveness."

Thorben Burghardt,
VP GATE

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 and monitoring the aircraft approach to ensure safety margins are met. 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. Ground staff know at a glance which gates are occupied or available, ensuring aircraft are parked quickly and allowing last minute gate changes and tight time schedules to be met. This results in the fastest time from touchdown to gate and a more efficient apron operation that is scalable for the future.

The system automatically captures and reports actual in-and-out times for better tracking of gate utilization and accurate billing. Approach monitor capabilities allow tighter parameters for gate areas to accommodate new and wider aircraft without redesigning apron layouts or compromising safety. 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.

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, power and control systems, smart airport and tower software solutions, intelligent docking automation and aftermarket services.

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.

adbsafegate.com

ADB SAFEGATE