

GATE

Safedock X A-VDGS

Advanced Visual Docking Guidance System



Intelligent Apron Management for Safe, Fast and Predictable Aircraft Turns

ADB SAFEGATE's Safedock X is a new generation of Advanced Visual Docking Guidance System (A-VDGS), designed with safety and availability in mind.

The Safedock X pairs ADB SAFEGATE's infrared laser and 3D scanning technology with an advanced radar sensor to manage any weather condition.

The 3D technology ensures precise parking for a wide range of parking distances and offers flexibility to accommodate curved approaches, large aircraft, tight parking spaces, and complex gate layouts. The enhanced apron scan feature adds a layer of safety to standard operating procedures by scanning the gate area for obstacles before the aircraft enters the stand.

With access via ADB SAFEGATE's SafeControl Apron Management system (SAM), the Safedock X A-VDGS act as sensors for the airport's Airport Operational Data Base (AODB) and Advanced Surface Movement Guidance and Control System (A-SMGCS), sending updates on stand status and positional data on aircraft while in the apron area. Integration with the AODB, A-SMGCS and other systems allows dynamic parking rules to be maintained and operators to manage the aircraft turn process in real-time.

Safedock X is also used as a Ramp Information Display System (RIDS) in support of Airport Collaborative Decision Making (A-CDM) to communicate critical information to crews during the aircraft turn process.

ADB SAFEGATE's Safedock X adds predictability and situational awareness contributing to a more seamless operation and increased Airport Performance.

Features and Benefits

- 3D laser scanning technique tracks the lateral and longitudinal position of an approaching aircraft.
- 3D laser scan verifies that the approaching aircraft is compatible with gate and adjacent gate rules.
- Integrated radar sensor supports safe docking independent of the weather or the characteristics of an object.
- Approach monitoring capacities ensures aircraft entering the stand correctly aligned in order to maintain clearances.
- One system is capable of handling all aircraft types at a single gate.
- Full-color high-resolution LED display provides docking guidance and advanced RIDS/A-CDM capabilities to improve turn awareness.
- Modular design allows for optimal placement of laser and display.

- Intuitive active guidance is provided to both pilots based on the position of the aircraft.
- The Safedock X can handle up to three centerlines within $\pm 15^\circ$ from the center of the scanner unit.
- Passenger Boarding Bridge (PBB) interface capability enhances ramp safety.
- Integrated IP camera records every docking and can be used for ramp surveillance.
- Apron scan that enhances safety procedures with detection of objects down to $30 \times 30 \times 30$ cm ($12 \times 12 \times 12$ in) and the ability to configure multiple scanning areas within the envelope.
- Safedock X always comes in a split assembly, adapted to operate an additional display.
- Direct interface with airport and airline systems and ground support equipment for real-time gate and apron intelligence via SAM.
- Advanced A-SMGCS integration allows just-in-time fully automated docking, provides aircraft position data within the gate area and send pushback alerts.
- Fixed Operator Panel (FOP) is used to manage the A-VDGS from the apron and includes an emergency stop function.
- FOP is IP65 certified, dust and waterproof design for harsh weather conditions.
- Easy to maintain and update, high reliability and low cost of ownership.
- Improved climate specifications, $-40^\circ\text{C} - 60^\circ\text{C}$.

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Technical Specifications

Sensor technology	<ul style="list-style-type: none"> Infrared laser with 3D-scan Solid State 3D radar
Apron scan	<ul style="list-style-type: none"> Distance 0 – 70 m (0–70 ft), object size 30 × 30 × 30 cm (12 × 12 × 12 in) Distance 70 – 100 m (230–328 ft), object size 50 × 50 × 50 cm (20 × 20 × 20 in)
Stop position accuracy	10 cm (4 in)
Stop position distance	2–65 m (6.5–213 ft)
Azimuth accuracy	10 cm (4 in)
Azimuth distance	Up to 120 m (394 ft), depending on configuration
Horizontal scanning angle	±30°
Maximum separation between centerlines	±15°
Laser classification	Class 1 eye safe/digital
Radar classification	Frequency-Modulated Continuous-Wave Radar (FMCW)
Data interface	Ethernet
Power supply	100–115/100–240 VAC ±10% fluctuation, 50/60 Hz
Wind load	Up to 44 m/s (144 ft/s)
Snow load	Up to 1000 N/m ² (92 N/ft)
IP classification	IP54

Dimensions and Weight

Table 1: Dimensions

Pilot display (H × W × D)	1300 × 1030 × 200 mm (51.8 × 40.6 × 7.9 in)
Scanner unit (H × W × D)	810 × 1150 × 670 mm (31.9 45.3 × 26.4 in)

Table 2: Weight

Pilot display	70 kg (154.3 lb)
Scanner unit	60 kg (132.3 lb)
Safedock X unit	130 kg (286.6 lb)

Display

LED configuration	20 LED modules
LED resolution	160 × 200 p
LED color	RGB
Visibility angle	140°
Readability distance	200 m (656.2 ft)
Number of RIDS characters	50 static alphanumeric, can alternate and scroll text on any line

Operating Conditions

Operating temperature	–40°C – 60°C (–40°F – 140°F)
Storage temperature	–20°C – 60°C (–4°F – 140°F)
Relative humidity – operational	95% with a maximum temperature of 35°C (95°F) 60% with a maximum temperature above 35°C (95°F)
Relative humidity – storage	75% with a maximum temperature of 60°C (140°F)