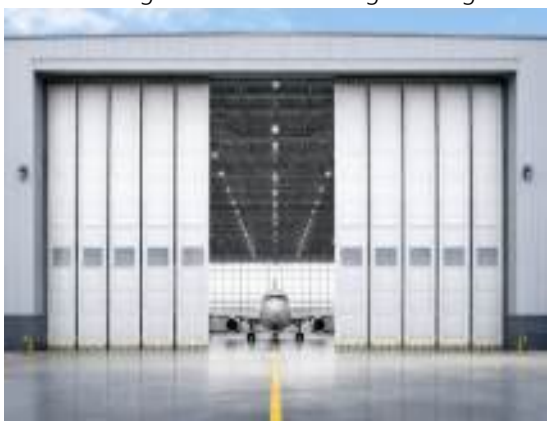
Smart Position Control for Aircraft Hangar Doors

Industries: Transport
Application type: Positioning / Monitoring

Description

Aircraft hangar doors are among the largest and most complex industrial door systems, often consisting of multiple sliding or folding leaves that operate independently. Precise positioning of each door leaf is critical to ensure smooth, safe operation, prevent collisions, and allow timely access for aircraft and ground vehicles. In several installations, **Dimetix DEH-30-500 Laser Distance Sensors** have been successfully deployed to monitor and control each door leaf in multi-leaf hangar doors.



Hangar door overview

Each **DEH-30-500** sensor is mounted on the moving door leaf and measures the distance to a fixed reference or reflective target. This setup provides **continuous, absolute position feedback** over the full travel range without mechanical contact, eliminating the need for limit switches, encoders, or cable-based measurement systems. The distance data is transmitted in real time to the door controller or PLC, enabling precise control of individual leaves, synchronized movement across all doors, sequential opening or closing, and dynamic speed adjustment to correct any deviations.

Using Dimetix Laser Distance Sensors **improves safety and operational reliability**. The system continuously monitors the position of each leaf, detects abnormal movements or obstructions, and triggers immediate stops or reversals when necessary. End positions are reliably detected, reducing the risk of collisions or mechanical stress. Additionally, position data can be integrated into the customer's control system, providing real-time information on the door status and enabling operational interlocks to prevent aircraft or vehicle movement until all doors are fully open.

Door leaf detail

The DEH-30-500 has proven its reliability in harsh environments, including exposure to wind, dust, temperature extremes, and moisture. Its **long-range**, **high-accuracy measurements** also support condition-based maintenance, allowing potential issues such as increased travel time or misalignment to be detected before they cause operational problems. Overall, the use of **DEH-30-500** Laser Distance Sensors ensures **wear-free, precise, and safe operation** of hangar doors, while **reducing maintenance effort** and increasing availability compared to traditional mechanical feedback systems.

Customer Benefits:

- **Precise absolute positioning** of every single door leaf over the full travel range
- **Independent control of each leaf**, enabling flexible opening widths depending on aircraft size

- **Higher operational safety**, with continuous monitoring and immediate stop/reverse on abnormal movement
- **No mechanical wear,** reduced maintenance
- **Condition-based maintenance enabled**, detecting misalignment or increased travel time early

Dimetix Sensors – the solution for applications with high precision requirements

Thanks to the clearly arranged product portfolio the evaluation of a suitable Dimetix Laser Distance Sensor is simple and uncomplicated.

Dimetix sensors offer numerous features, which are integrated in each and every device as standard, including, among others, various interfaces like SSI, RS-422/485, RS-232 and 2 digital outputs.
Optionally, the Industrial Ethernet interfaces PROFINET, EtherNET/IP and EtherCAT are also available. Furthermore, all devices are IP65-protected and impress with a weight of less than 500 grams!

Particularly noteworthy, however, is the accurate measurement of 1 millimeter over distances of up to 500 meters, even under the most extreme conditions. This is possible with the sensors of the types DPE, DEN and DEH.

No less interesting are sensors of types DAE, DAN and DBN. Preferably, they can be used for projects which do not require a range over 500 meters or are cost-sensitive.

	DPE-10-500	**DPE-30-500**	**DEN-10-500**	**DEH-30-500**
PARTNUMBER	500630	500636	500637	500638
SPECIFICATION				
Typical accuracy ≅ ± 2σ	± 1 mm	± 3 mm	± 1 mm	± 3 mm
Mensurierung range on natural surfaces	0.05…~100 m	0.05…~100 m	0.05…~100 m	0.05…~100 m
Measuring range on reflective foil	~0.5…500 m	~0.5…500 m	~0.5…500 m	~0.5…500 m
Max. measuring rate	250 Hz	250 Hz	100 Hz	100 Hz
Operating temperature	-40…+60°C	-40…+60°C	-10…+50°C	-10… +60°C

	DAE-10-050	**DAN-10-150**	**DAN-30-150**	**DBN-50-050**
PARTNUMBER	500633	500632	500634	500635
SPECIFICATION				
Typical accuracy ≅ ± 2σ	± 1 mm	± 1 mm	± 3 mm	± 5 mm
Mensurierung range on natural surfaces	0.05…~50 m	0.05…~100 m	0.05…~100 m	0.05…~50m
Measuring range on reflective foil	~40…50 m	~40…150 m	~40…150 m	
Max. measuring rate	100 Hz	100 Hz	100 Hz	10 Hz
Operating temperature	-40…+60°C	-10…+50°C	-10…+50°C	-10…+50°C