



AXONEQ
ADAL

Adaptive Airfield Lighting

Reducing risk, emissions, taxi time.

AXON EQ ADAL transforms aircraft surface movement through real-time, dual-colour adaptive lighting integrated with intelligent CORTEX control platforms. Strengthening safety, reducing emissions and increasing throughput.

Problem & Shift

Static Lighting in a Dynamic Environment

Traditional airfield lighting systems were designed for visibility — not real-time decision support.

They rely on:

- Fixed, single-color fixtures
- Manual routing
- Extensive radio communication
- Slow response to operational changes

As traffic grows and sustainability pressure increases, static systems create friction, delay, and risk.



The Shift to Adaptive Intelligence

Today's airports require lighting that responds to live traffic conditions automatically.

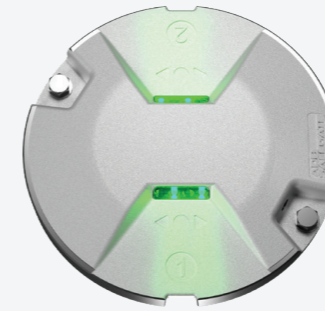
AXON EQ ADAL introduces real-time, color-coded guidance integrated with surveillance and intelligent control systems.

From illumination
to automation.

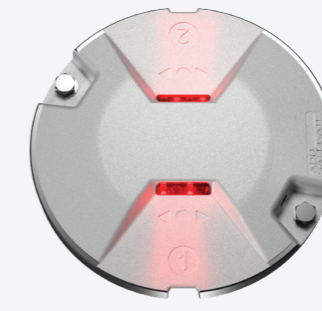
What ADAL Delivers

Dual-Color Adaptive Guidance

Pilots and drivers receive immediate visual instructions:



GREEN
Active route



RED
Stop or restricted



YELLOW
Caution

Clear, intuitive, and unambiguous.

Surveillance-Based Automation

Integrated with CORTEX platforms, ADAL responds instantly to live aircraft and vehicle movement.

- Dynamic Holding Positions
- Automated routing
- Conflict alerts
- Scenario-based guidance

Intelligent Surface Use Cases

From runway intersections to apron operations, ADAL adapts to operational complexity, reducing reliance on manual coordination.



Operational Impact

Safer Surface Movement

Automated visual safety layers reduce the likelihood of runway incursions and apron conflicts.

Real-time guidance minimizes human error.

Increased Efficiency

Optimized taxi routing reduces congestion and improves throughput. Adaptive pushback signals accelerate turnaround cycles.

Sustainability Gains

Reduced taxi and hold times can lower emissions by up to 25%.

Targeted illumination minimizes unnecessary energy consumption. Adaptive lighting supports airport sustainability objectives.

Use Cases



Safer Aircraft Surface Movements

Systems integrated as part of each use case solution

EQ LINC360

AP CORTEX APRON

CX CORTEX ALCMS

TW TOWER ONE CONTROL

EQ

SERVICE ROAD SAFETY LIGHTS

Service roads crossing taxiways are high-risk zones. The Automated Service Road Safety System uses AXON EQ ADAL lights to give instant, automated warnings—switching from YELLOW (caution) to RED (stop) as aircraft approach. This protects personnel, prevents aircraft damage, speeds up docking, reduces manual intervention and fuel waste, and sets a new standard for apron safety and efficiency.

CX

AP

EQ

DYNAMIC HOLDING POSITIONS

Dynamic Holding Position uses AXON EQ ADAL lights to automatically signal pilots to stop (RED) or proceed (GREEN) based on real-time aircraft proximity. This adaptive system delivers clear, changing instructions as ground traffic evolves, reducing miscommunication and enhancing safety and efficiency especially in busy or low-visibility conditions.

CX

AP

EQ

APRON PUSHBACK SUPPORT

Apron operations are complex and high-risk. AXON EQ ADAL lights transform pushback with adaptive, color-coded signals like “Ready for Pushback” and “Pushback Violation,” giving teams instant clarity and minimizing delays and risk. Integrated with tower systems, ADAL can signal “Cleared for Taxi,” streamlining processes, speeding turnaround, reducing fuel burn, and making apron operations safer and more efficient.

CX

AP

TW

EQ

FOLLOW-THE-GREEN

Navigating airport surfaces is challenging, especially in low visibility. Traditional “Follow the Greens” systems only use green lights, which can create uncertainty at complex intersections. With AXON EQ ADAL, Air Traffic Control can now mark active routes in GREEN and restricted paths in RED, giving pilots and drivers clear, adaptive visual guidance. This reduces confusion, improves safety, streamlines taxiing, and supports fast, efficient ground movements even in complex or changing situations.

CX

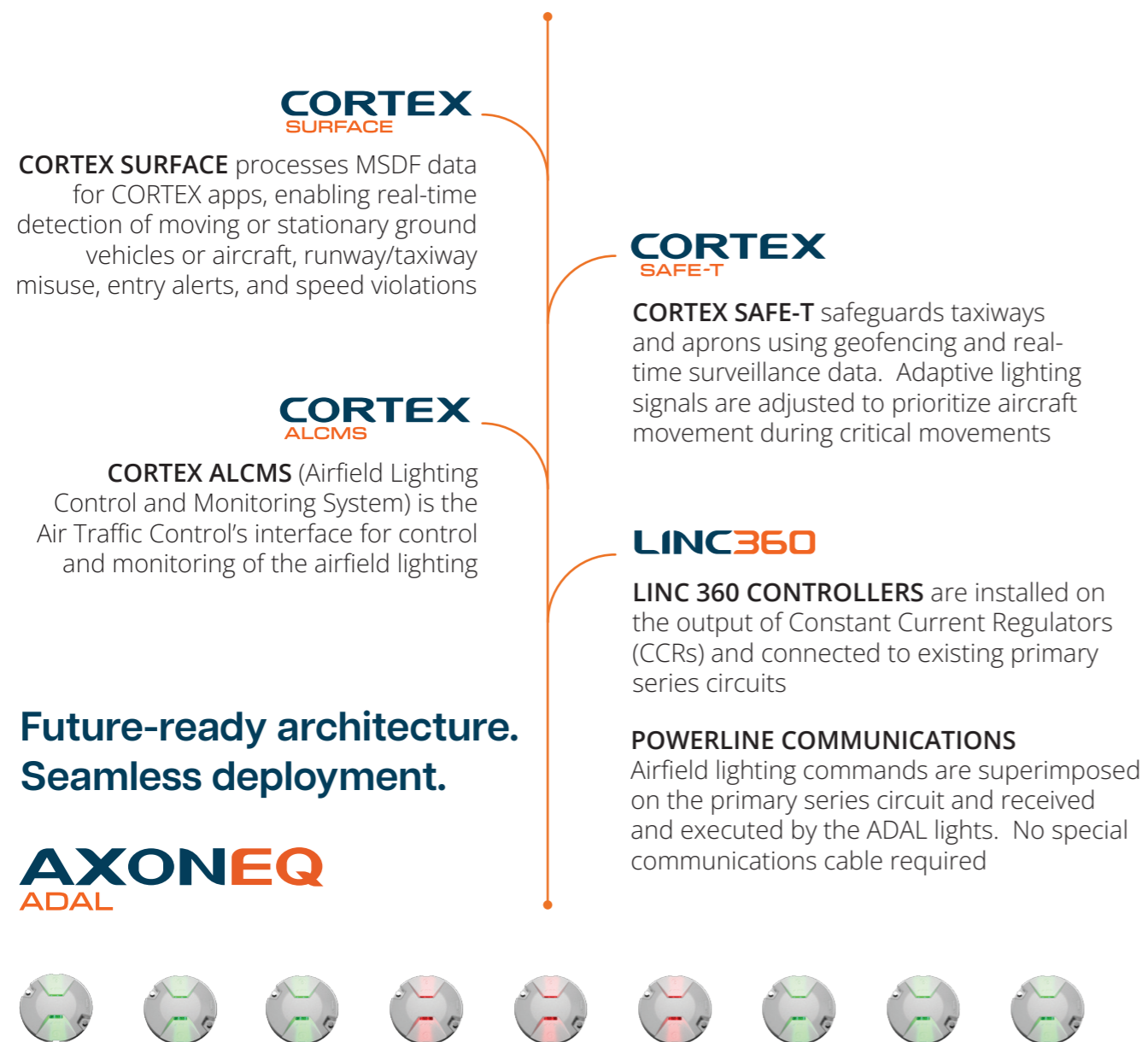
AP

TW

System Architecture

Implementing adaptive lighting requires more than advanced fixtures. It requires **intelligent integration**

ADAL operates on existing series circuits using industry-proven OFDM powerline communications. Integrated with: CORTEX ALCMS, CORTEX SAFE-T, CORTEX SURFACE, and LINC 360 Controllers



Engineering Excellence

Designed for extreme environments and operational resilience



- IP68-rated enclosure
- -55°C to +55°C operating range
- Stainless steel fastenings
- 50,000+ hour lifespan
- 100,000x FAA fatigue load testing
- Optional arctic kit



Sustainability Powered by Adaptive Lighting

- Up to 25% lower emissions with reduced taxi and hold times
- Intelligent energy use for operational savings
- Targeted lighting for greener, smarter airfields

Smart sensors monitor:

- Vibration
- Shock
- Temperature
- Pressure
- Rotation
- Level



Seal the gaps in your safety model

Airports worldwide are redefining ground movement through intelligent safety layers. AXON EQ ADAL, integrated with CORTEX control systems, transforms static lighting into adaptive decision support.

Request a tailored operational impact assessment.

- Book a live demonstration.
- Explore pilot programs.



→ Learn more

The future of aircraft surface guidance is adaptive. **And it is here.**

AXONEQ
ADAL

SMARTER. BETTER. **NOW.**

ADB
SAFEGATE