// Better Quality // Higher-effective Service // Stronger Responsibility // Broader Vision

Airsafe

Advanced Airport Lighting System

Airsafe Airport Equipment Co., Ltd.

Company Profile

Airsafe Airport Equipment Co., Ltd. is a company who is researching, developing and manufacturing of visual aids for navigation, is a Shanghai high-tech enterprise and is also a Shanghai science and technology small giant cultivation enterprise. Its predecessor is Wuhan aviation safety airport complete equipment Co., Ltd. Airsafe was restructured in April 2003, registered in Shanghai in August 2010, and moved to Baoshan new campus in June 2020.

We have provided visual aids for navigation for more than 500 airports in China and worldwidely, and our products enjoy a high reputation in the industry. "To create a worldwide Chinese first-class brand" is the goal which is proposed.

Historical Evolution

Budding Stage (1987 to 2002)

- Wuhan aviation safety airport complete equipment Co., Ltd set up.
- Provide lighting products and services to more than 100 airports across China.
- The first company in China to provide a full set of lights including PAPI and SFL system.

Growth Stage (2003-2007)

- The board has set higher corporate objectives for the company restructuring, and the company has entered a rapid growth stage.
- The whole series of lights have been upgraded and integrated with the international standards.
- Complete the research and development of isolation transformer series and various cable connectors in accordance with international standards.

Strengthen Stage (2008-2017)

- The company officially renamed as Airsafe Airport Equipment Co., Ltd and registered in Shanghai.
- The design of the whole series LED lights has been completed successively, including PAPI, SFL system, etc.
- Passed FAA factory audit, and obtained international certificates such as ICAO, FAA ,IEC and so on.
- The products have been exported to Spain, UK, Germany, France, Italy, Singapore and other countries.

Takeoff Stage (2018-Present)

- In June 2020, the company moved its headquarter to Baoshan District, and the new campus integrated with R&D, manufacturing, marketing and sales.
- Complete the research and development of sine wave CCR, airport lighting control and monitoring system which includ single lamp control and monitoring system.
- Be the first professional manufacturer in China to provide total solutions of airport lighting system for Airports.
- To put forward a safe, green, smart, and accurate all-round Airport total solution of intelligent airport lighting system.

Corporate Culture

Company Aims

"Details determine quality - we focus on every detail of the products" is the DNA engraved in Airsafe, the spirit of our corporate culture, and the source of building our product and service system.

The high-quality products and services will tremendously promote the construction and development of "Safety, Green, Smart, and Humanity Airport".

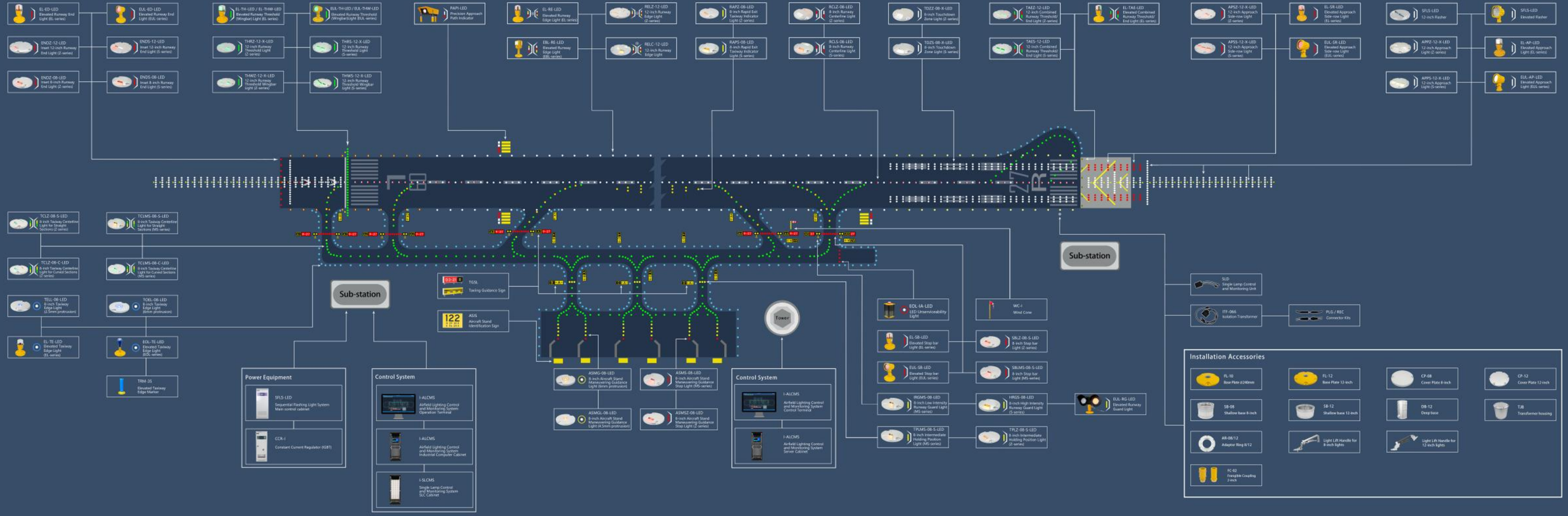
Complete Product Lines

Airsafe is one of the few professional manufacturers that can provide total airport lighting system solution.

As a professional manufacturer of visual aids for navigation, we have nearly 40 years of R&D and production history, We offer complete product lines and all of our products comply with the requirements of CAAC, ICAO, FAA, IEC and other standards, with performance and quality are ranking among the industry's best.

Product Lines

- Full set of halogen inset lights
- Full set of halogen elevated lights
- Full set of LED inset lights (6mm protrusion)
- Full set of LED elevated lights (IP67)
- LED/Halogen precision approach path indicator
- LED/HID sequential flashing lighting system
- Full series of LED signs
- LED wind cone
- Full series of isolation transformers and cable connectors
- Full series of IGBT sine wave CCRs
- Intelligent airport lighting control and monitoring system
- Intelligent single lamp control and monitoring system



LED Inset Lights

- **6mm S type LED 8-inch and 12-inch full series of lights** CLASSIC
- **6mm zero water LED 8-inch and 12-inch full series of lights** NEW

Product Characteristics

- The serialized design of lighting fixtures and modular design of components effectively reduce the inventory of spare parts.
- The upper cover is made of forged aluminum alloy, high strength, good fatigure resistance combining excellent corrosion resistance and heat dissipation properties.
- Prism sealing sleeve with multi-layer waterproof sealing structure design and easy to replace.
- Low energy LED light source, with a comprehensive lifespan of not less than 100,000 hours and light attenuation is less than 30%.
- Strict LED color management ensures a high degree of consistency in the chromaticity output of lighting fixtures.
- The dimming curve complies with the requirements of FAA EB67, and the dimming characteristics of the luminaire are similar to those of traditional halogen light source luminaires.
- The overall degree of protection is IP68, capable of withstanding an internal pressure of 138KPa or the water pressure generated by the impact of aircraft tires on the window.
- Optional fault detection function, which can achieve light fault open circuit in case of light source or drive failure.
- Optional specialized arctic kits.
- The rated light beam output and heating function can be remotely configured through a set of CCR light level encoding instructions.

Zero Water Lights RECOMMEND

Revolutionary non-negative slope structural design ensures that the front surface towards the light emit window is flush with the runway pavement, completely solving the problem of water-accumulating grooves formed by the negative slope structure in traditional lights. By eliminating the sunken water-accumulating area, it effectively avoids light blocking refraction, and scattering caused by rainwater accumulation, significantly improving the stability of light output. Moreover, it maximally solves the issue of light reflection to the opposite direction of the light, ensuring clear and stable light signal output under various severe weather conditions.

This design significantly extends the light maintenance cycle, making it as an ideal solution for modern Airport lighting systems.

Models and parameters of 6mm zero water LED 8-inch inset lights

Application	Light Model	Rated Powe	PF	LED life span
Runway Centerline	RCLZ-08-LED-CR-1P-M	20VA	＞0.90	⩾100,000h
	RCLZ-08-LED-CC-1P-M	25VA	＞0.90	⩾100,000h
Touch Down Zone	TDZZ-08-L-LED-C-M	16VA	＞0.90	⩾100,000h
	TDZZ-08-R-LED-C-M	16VA	＞0.90	⩾100,000h
Runway End	ENDZ-08-LED-R-M	18VA	＞0.90	⩾100,000h
Takeoff Holding	THLRZ-08-LED-R-M	12VA	＞0.90	⩾100,000h
Runway Entrance	RELRZ-08-LED-R-M	10.5VA	＞0.90	⩾100,000h
Rapid Exit Taxiway Indicator	RAPZ-08-LED-Y-M	14VA	＞0.90	⩾100,000h
Taxiway Centerline	TCLZ-08-S-LED-GY-1P-M	13VA	＞0.90	⩾100,000h
	TCLZ-08-S-LED-GG-1P-M	13VA	＞0.90	⩾100,000h
	TCLZ-08-S-LED-YY-1P-M	13VA	＞0.90	⩾100,000h
	TCLZ-08-S-LED-GB-1P-M	10VA	＞0.90	⩾100,000h
	TCLZ-08-S-LED-YB-1P-M	11VA	＞0.90	⩾100,000h
	TCLZ-08-C-LED-GY-1P-M	13VA	＞0.90	⩾100,000h
	TCLZ-08-C-LED-YG-1P-M	13VA	＞0.90	⩾100,000h
	TCLZ-08-C-LED-GG-1P-M	13VA	＞0.90	⩾100,000h
	TCLZ-08-C-LED-YY-1P-M	13VA	＞0.90	⩾100,000h
	TCLZ-08-C-LED-GB-1P-M	10VA	＞0.90	⩾100,000h
	TCLZ-08-C-LED-BG-1P-M	10VA	＞0.90	⩾100,000h
	TCLZ-08-C-LED-YB-1P-M	11VA	＞0.90	⩾100,000h
	TCLZ-08-C-LED-BY-1P-M	11VA	＞0.90	⩾100,000h
Inset Stop Bar	SBLZ-08-LED-R-M	11VA	＞0.90	⩾100,000h
Intermediate hold position	TPLZ-08-LED-Y-M	11VA	＞0.90	⩾100,000h

EL Series Multi-functional Elevated Lights

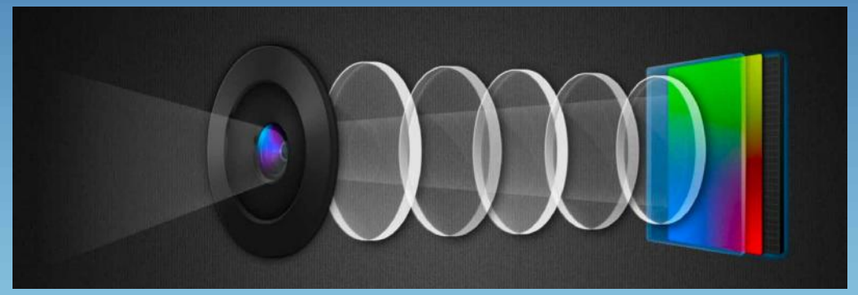
NEW

- The serialized design of lighting fixtures (supporting uni/bi/omni-directional) combined with modular design of components effectively reduce the inventory of spare parts.
- The light comes with preset elevation and toe-in angles, and it is easy to level by adjusting the installation screws.
- It is easy to align with another light fixture by the directional reticle on the upper part of the glass dome.
- Unique self-cleaning dome design effectively prevents dust and organic pollutants from adhering, ensuring stable light output.
- Low energy LED light source, with a comprehensive lifespan of not less than 100,000 hours and light attenuation is less than 30%.
- The dimming curve complies with the requirements of FAA EB67, and the dimming characteristics of the luminaire are similar to those of traditional halogen light source luminaires.
- The overall degree of protection is IP67.
- Optional fault detection function, which can achieve light fault open circuit in case of light source or drive failure.
- Optional specialized arctic kits.
- The rated light beam output and heating function can be remotely configured through a set of CCR light level encoding instructions.

Models and parameters of multi-functional elevated lights

Application	Light Model	Rated Power	PF	LED Life Span
Approach Centerline	EL-AP-LED-C-M	31VA	＞0.90	⩾100,000h
Approach cross bar	EL-APC-LED-L-C-M	31VA	＞0.90	⩾100,000h
	EL-APC-LED-R-C-M	31VA	＞0.90	⩾100,000h
Approach side row	EL-SR-LED-L-R-M	13VA	＞0.90	⩾100,000h
	EL-SR-LED-R-R-M	13VA	＞0.90	⩾100,000h
Runway Threshold	EL-TH-LED-L-G -M	15VA	＞0.90	⩾100,000h
	EL-TH-LED-R-G -M	15VA	＞0.90	⩾100,000h
Runway Threshold Wing bar	EL-THW-LED-L-G-M	28VA	＞0.90	⩾100,000h
	EL-THW-LED-R-G-M	28VA	＞0.90	⩾100,000h
Runway End	EL-ED-LED-R -M	9VA	＞0.90	⩾100,000h
Threshold/End	EL-TAE-LED-L-GR -M	20VA	＞0.90	⩾100,000h
	EL-TAE-LED-R-GR -M	20VA	＞0.90	⩾100,000h
Runway Edge	EL-RE-LED-CC-C -M	33VA	＞0.90	⩾100,000h
	EL-RE-LED-CR -C-M	26VA	＞0.90	⩾100,000h
	EL-RE-LED-RC-C-M	26VA	＞0.90	⩾100,000h
	EL-RE-LED-CY -C-M	27VA	＞0.90	⩾100,000h
	EL-RE-LED-YC -C-M	27VA	＞0.90	⩾100,000h
	EL-RE-LED-RY -C-M	20VA	＞0.90	⩾100,000h
	EL-RE-LED-YR -C-M	20VA	＞0.90	⩾100,000h
Stop Bar	EL-SB-LED-R -M	10VA	＞0.90	⩾100,000h
Taxiway edge	EL-TE-LED-B -M-A	4VA	＞0.90	⩾100,000h

LED Precision Approach Path Indicator



- The main body of the unit is made of corrosion-resistant aluminum alloy with anti-corrosion surface treatment. All fasteners are made of stainless steel, suitable for various harsh environments.
- The frangible aluminum alloy legs are manufactured through precision machining, ensuring stability and reliability.
- Three leg type horizontal support and height adjustment structure, convenient installation and calibration.
- Compact PAPI unit structure with small wind-facing area, and strong wind resistance.
- The excellent optical system design ensures a very narrow red-white beam transition band and a clear straight demarcation line.
- Low energy LED light source, with a comprehensive lifespan of not less than 100,000 hours and light attenuation is less than 30%.
- The overall degree of protection is IP66, which could keep interior from dust and water.
- Built-in separate horizontal and vertical spirit levels effectively facilitate quick-installation and structural stability inspection.
- The no-condensation design integrates front glass heating and electronic dryer module to prevent moisture accumulation.
- The elevation angle and level status, operational mode, and fault codes of the PAPI unit can be observed through the front glass without opening the cover.
- The units are interconnected via the CAN protocol, enabling collaborative operation, automatic acquisition and uploading of each unit's operational status to ALCMS.
- Optional communication module, the data of LED PAPI system can be uploaded to ALCMS directly.

LED Sequential Flashing Linghting System

- The light distribution and chromaticity comply with the standards of FAA-E-2628.
- Low energy LED light source, with a comprehensive lifespan of not less than 50,000 hours and light attenuation is less than 30%.
- Unit control integrated into the light fixture, compact structure, reliable operation.
- Effective lightning protection measures are installed for circuits, power supplies, and communication cables.
- Elevated flasher with a overall degree of protection is IP67, which could keep interior from dust and water.
- The upper cover of inset flasher is made of forged aluminum alloy, high strength, good fatigue resistance combining excellent corrosion resistance and heat dissipation properties.
- Inset flasher with a overall degree of protection is IP68, capable of withstanding an internal pressure of 138KPa or the water pressure generated by the impact of aircraft tires on the window.
- The main control cabinet and each flasher are equipped with independent CPU, which have the ability to operate autonomously and achieve system collaboration through efficient bus communication.
- The main control cabinet is equipped with an LCD panel, which displays and records the system's operating status and statistical data in real time.
- Featuring missed-flash detection with recording and other status detection.
- Unique system design ensures that any single lamp failure does not affect the overall operation of the system.
- Supporting both local operation and remote control with uploading of operational status for easy calibration.

LED Sign

- Aluminum alloy profile frame structure, with frangible poles penetrating the box design, offers robust durability, and excellent wind resistance ability.
- Modular design greatly improves the convenience of maintenance.
- Multiple waterproof structure design, with IP65 degree of protection, effectively keeps interior from dust and water.
- The front door supports tool-free opening/closing and complete detachment, making it easy to maintain.
- The front panel is made of 4.5mm polycarbonate material with a UV resistant film, which has excellent UV and impact resistance performance.
- Low energy LED light strip, with a comprehensive lifespan of more than 100,000 hours and light attenuation is less than 30%.
- Strict LED color management ensures color consistency and purity of signage.
- Internal reflective lighting design ensures that the surface of the signage emits light uniformly without any shadows.
- Power factor not less than 0.9 from CCR brightness level 1 to level 5.
- Driver which has optimized heat dissipation design and and overheating protection function, effectively improves operational reliability in high-temperature environments.
- EMI of the sign complies FAA requirements and has passed FCC Part 15 Class A test.

Isolation Transformer

Conventional full series of isolation transformers

- Rated power range: 10 to 300W
- Rated current: 6.6A/6.6A
- Power factor: not less than 0.95
- Primary leakage current : not more than 0.01 μA

Low leakage inductance full series of isolation transformers

- Rated power range: 10 to 300W
- Rated current: 6.6A/6.6A
- Power factor: not less than 0.95
- Primary leakage current : not more than 0.01 μA

Technical parameters of low leakage inductance isolation transformer

Model	Power (Watt)	Main circuit current (Amp)	Power factor	Efficiency %	Withstand voltage (V)	Full load current of secondary circuit (Amp)	Open circuit voltage of secondary circuit (V)	Leakage inductance μH (1KHz)
ITF-015-066/066-L	10/15	6.6A	⩾ 0.95	⩾ 70	5000	6.53-6.67	⩽8	<15
ITF-025-066/066-L	20/25	6.6A	⩾ 0.95	⩾ 70	5000	6.53-6.67	⩽8	<15
ITF-045-066/066-L	30/45	6.6A	⩾ 0.95	⩾ 85	5000	6.53-6.67	⩽20	<45
ITF-065-066/066-L	65	6.6A	⩾ 0.95	⩾ 85	5000	6.53-6.67	⩽30	<60
ITF-100-066/066-L	100	6.6A	⩾ 0.95	⩾ 85	5000	6.53-6.67	⩽40	<85
ITF-150-066/066-L	150	6.6A	⩾ 0.95	⩾ 90	5000	6.53-6.67	⩽60	<130
ITF-200-066/066-L	200	6.6A	⩾ 0.95	⩾ 90	5000	6.53-6.67	⩽70	<190
ITF-300-066/066-L	300	6.6A	⩾ 0.95	⩾ 90	5000	6.53-6.67	⩽110	<300

PLG13-R/REC14-R NEW
Resin Filled and Attached Primary Cable Connector

PLG13-R/REC14-R resin filled and attached primary cable connector is specially developed to address the long-standing issue of low insulation resistance of airport lighting circuits. It is also suitable for temporary emergency repairs of airport lighting circuits, effectively eliminating potential hazards to airport operation and serving as a reliable solution to fundamentally resolve insulation problems in airport lighting circuits.

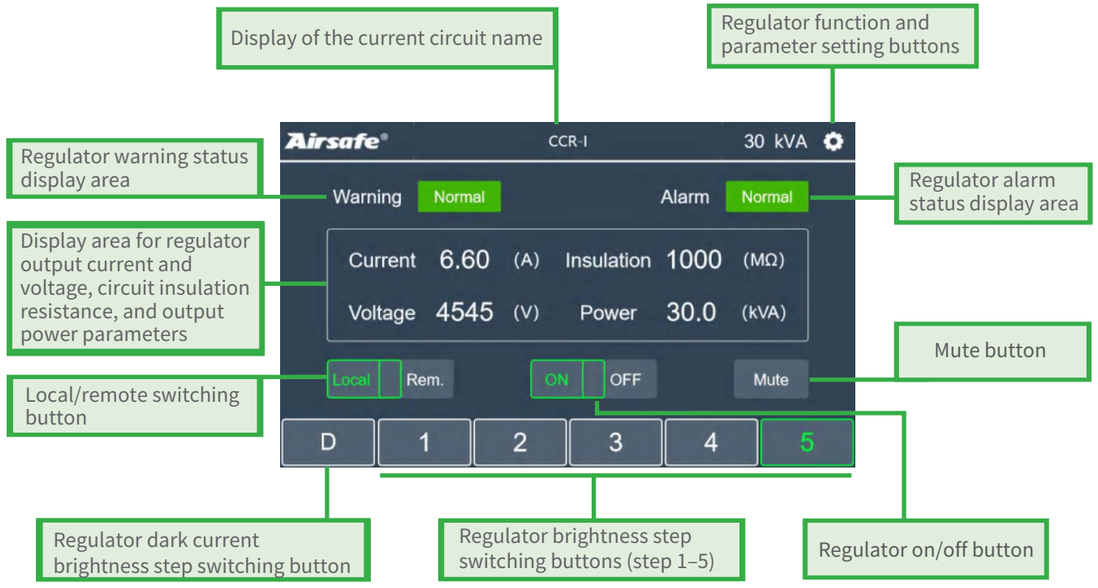
Through extensive research, repeated experiments and multiple rounds of comparative testing, Airsafe successfully developed the innovative product - PLG13-R/REC14-R. The body of male or female connector itself has an IP67 protection rating. Once high-molecular insulation resin is injected into the cavity of the body, it fuses with the shell to form an integrated sealed structure after curing, achieving dual protection of electrical insulation and physical shielding.

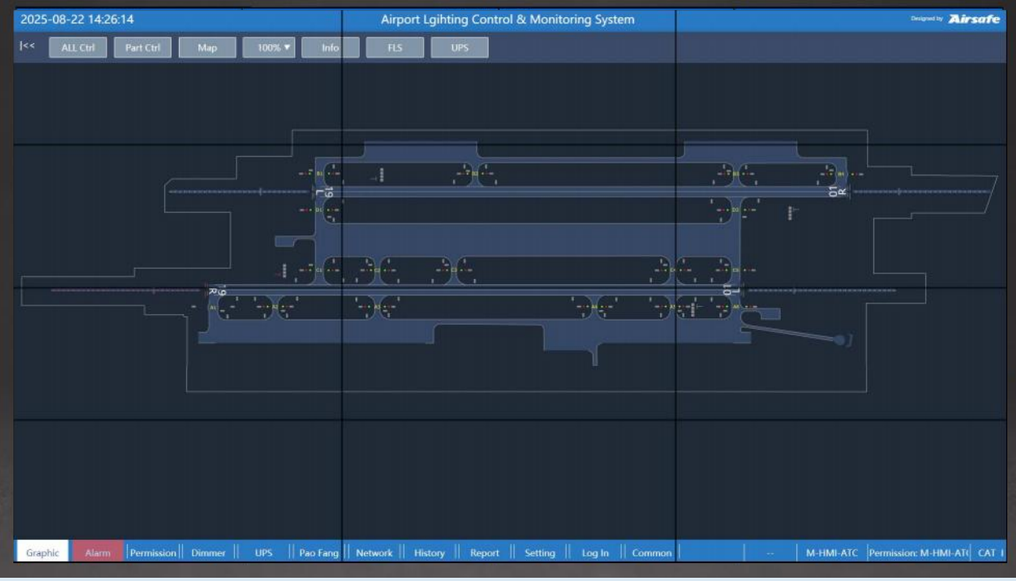
Featuring an external locking design, it effectively prevents accidental disconnection between male and female connectors when the cable is under stress. Compared with traditional primary cable connectors, Airsafe PLG13-R/REC14-R resin filled and attached primary cable connector significantly improves insulation performance and operational stability. It has extremely strong environmental adaptability, don't need external tape wrapping after installation, and can stably operate for a long time in water, steam environments, and other high-humidity places. With exquisite manufacturing and user-friendly design, operators can assemble the connector after short-time training.

CCR-I Sinewave Constant Current Regulator

- Modular design makes installation and maintenance easier and higher reliability.
- Featuring a dual-mode redundant control design that supports both touchscreen and knob operation while enhancing reliability and accommodating different user habits.
- Optimized mechanical structure, combined with efficient composite natural cooling technology, ensures that the equipment maintains optimal thermal balance while significantly reducing operational noise to under 50dB at full load.
- Pure sine wave output design with THD <3%,and being capable of adapting to various types of loads (LED or halogen lamps).
- The core controller equipped with a multi-core microprocessor and integrated high-frequency PWM-IGBT conversion technology, delivers precise regulation and extremely fast dynamic response, significantly enhancing system performance and reliability.
- Featuring multiple redundant protection designs, with a mean time between failures (MTBF) exceeding 100,000 hours.
- The power factor reaches 1 and output efficiency reaches 96% when operating under resistive loads, significantly reducing energy- consumption.
- Being capable of reaching the preset current range within 0.5 seconds when starting up or switching to any brightness step.
- Integrating multiple communication interfaces, such as DIDO signals, 32P remote control connectors, and redundant RS485/CAN/RJ45 interfaces.
- Equipped with an Earth Failure Detection (EFD) unit, supporting precise measurement in the range of 10 KΩ to 5 GΩ.
- Equipped with a Lamp Failure Detection (LFD) unit with a detection accuracy <2%.
- Providing protection functions such as open-circuit, overcurrent, and overvoltage protection to maximally ensure personnel and equipment safety.
- Optional Circuit Selector (CS) for flexible adaptation to different scenarios, supporting free configuration of 2–8 circuits.
- Optional Circuit Cutout, supporting quick and safe switching between operation, maintenance, and inspection modes.

Large-Size Touch Screen





Intelligent Airport Lighting Control and Monitoring System (I-ALCMS)

- The dual-redundancy design provides high availability and reliability to eliminate interruptions caused by single points of failure.
- By adopting a high-speed Ethernet architecture， the system can concurrently monitor all devices, and be compatible with traditional field bus systems, greatly enhancing real-time performance of system.
- The core component—the Local Monitoring Computer (LMC) possesses high anti-interference capability, ensuring stable operation in complex electromagnetic environments and preventing light monitoring signals from being affected by external disturbances.
- Featuring an elegant and intuitive Human-Machine Interface (HMI), and designed to align with user’ s habits, which ensures the operation is user-friendly and easy to learn.
- Switching commands for lights are equipped with foolproof features such as secondary voice confirmation to prevent mis-operation.
- Integrating real-time monitoring and display of PAPI data including angles, temperatures, and alarm status, enhancing the safety of airport operations.
- Featuring intelligent adjustment functions such as de-icing, working with Airsafe's lighting fixture can meet the specific needs of airports.
- Integrating professional-grade monitoring of high- and low-voltage power systems and diesel generators, providing detailed data and synchronizing to the unified database of I-ALCMS.
- Featuring runway lighting calibration function to maximally improve the accuracy and convenience of calibration operations.
- Featuring professional communication interfaces that are compatible with all on-site equipment (single-lamp-systems, circuit systems, and power supply systems), and protocols such as CAN, RS485, RJ45, DODI, enabling real-time monitoring of all monitored equipment.
- Featuring professional communication interfaces for integration with upper-level systems such as the Airport Operational Database (AODB), Advanced Surface Movement Guidance and Control Systems (A-SMGCS), Runway Status Light systems (RWSL), and Tower Operation Management System (TOMS).
- The system can be seamlessly integrated with the Single-Lamp Control and Monitoring System (SLCMS).
- Integrating AI algorithms and machine learning models for self-diagnosis and fault prediction of monitored objects and the system, enabling proactive warnings and alarms.
- Designed in compliance with international safety standards, with enhanced cybersecurity and data encryption to ensure the safety of operators and airport equipment.

Intelligent Single Lamp Control and Monitoring System (I-SLCMS)

The Airsafe Intelligent Single Lamp Control and Monitoring System (I-SLCMS) is not only an essential subsystem of the I-ALCMS but can also be deployed as a standalone system. Its hardware and software design are fully aligned with the I-ALCMS, adopting a distributed architecture, modular design, and redundant hot-standby layout for core components, ensuring high reliability and scalability.

I-SLCMS provides open and authorized standard interfaces, allowing compatibility and integration with airport lighting control and monitoring systems from other brands. It supports upward integration with various airport-level integrated operation and management platforms, ensuring system openness and interoperability.

By deploying I-SLCMS, airports can shift from “passive response” to “proactive awareness”, thereby enhancing the intelligence level of the airport lighting system as well as improving operational and maintenance efficiency.

SLD （Single Lamp Device - Single Control）

SLD （Single Lamp Device - Dual Control）

SLC Rack mount type（Single Lamp Concentrator）

SLC Plug-in type（Single Lamp Concentrator）

- The system adopts the same architectural design as I-ALCMS.
- By adopting a high-speed Ethernet architecture, the system can achieve high-density concurrent transmission of single-lamp commands, improving the real-time performance by tens of times compared to traditional field bus methods.
- The system employs advanced Power Line Carrier (PLC) technology for vault and field communications, eliminating the need for additional communication cabling while being compatible with constant current regulators and isolation transformers of various brands and technologies.
- PLC communication adopts a frequency-division design, supporting concurrent transmission over 11 frequency bands with both real-time performance and strong anti-interference capability.
- The core component-the Single-Lamp Concentrator (SLC)features redundant RJ 45 communication ports and can be integrated into the system via high-speed Ethernet.
- The core component-the Single-Lamp Device (SLD), can integrate with third-party sensing devices such as microwave sensors to obtain real-time aircraft position and dynamic data, providing decision support and operational recommendations for ATC and lighting operation.
- The core component-the Carrier Filter (CF), can be built into the SLC or connected independently into the circuit, effectively suppressing high-order harmonics and other interference to ensure stable system operation in complex electromagnetic environments.
- Real-time collection and analysis of operational status and fault information of on-site lamps reduces maintenance response time and costs while improving the operational reliability of airport lighting.
- The system can be deployed as a runway clearance light system or stop-bar light system to meet mainstream runway incursion prevention requirements and enhance ground operational safety in airside.
- Providing “follow the green” function as a key functional module for building the Advanced-Surface Movement Guidance and Control System (A-SMGCS), supporting visualized taxi route scheduling and intelligent lighting control.
- The system can be integrated with CCR-I and runway status lights as a RWSL Field Lighting system (FLS).
- Supporting rapid upgrades and evolutio to meet emerging requirements of future smart airport development.

	SLC Plug-in type (Single Lamp Concentrator)	SLC Rack mount type type (Single Lamp Concentrator)	SLD (Single Lamp Device)
Operating temperature	-10~ 40°C	-10~ 55°C	-40~ 65°C
Storage temperature	-40~ 75°C	-40~ 75°C	-55~ 85°C
Operating humidity	95% max	95% max	100% max
Degree of protection	IP20	IP20	IP68
Power supply	110~220VAC	110~220VAC	1.8~8.25A
Power	⩽ 25W	⩽ 25W	13W
Isolation transformer	⩾100W	/	10~300W
CCR power	⩽ 30KVA	⩽ 30KVA	⩽ 30KVA
MTBF	＞ 200000h	＞ 200000h	＞ 200000h
MTTR	＜ 60min	＜ 60min	＜ 30min
Lightning protection	10KV/5KA	10KV/5KA	10KV/5KA
DimensionH*W*D	483*132.5*240.5mm	483*88*450mm (Carrier filter included)	146*110*65mm (without lead)
Weight	3kg	14.5kg	2.2kg

Future Development

Looking forward to the future, innovation and development are still the main theme of Airsafe.

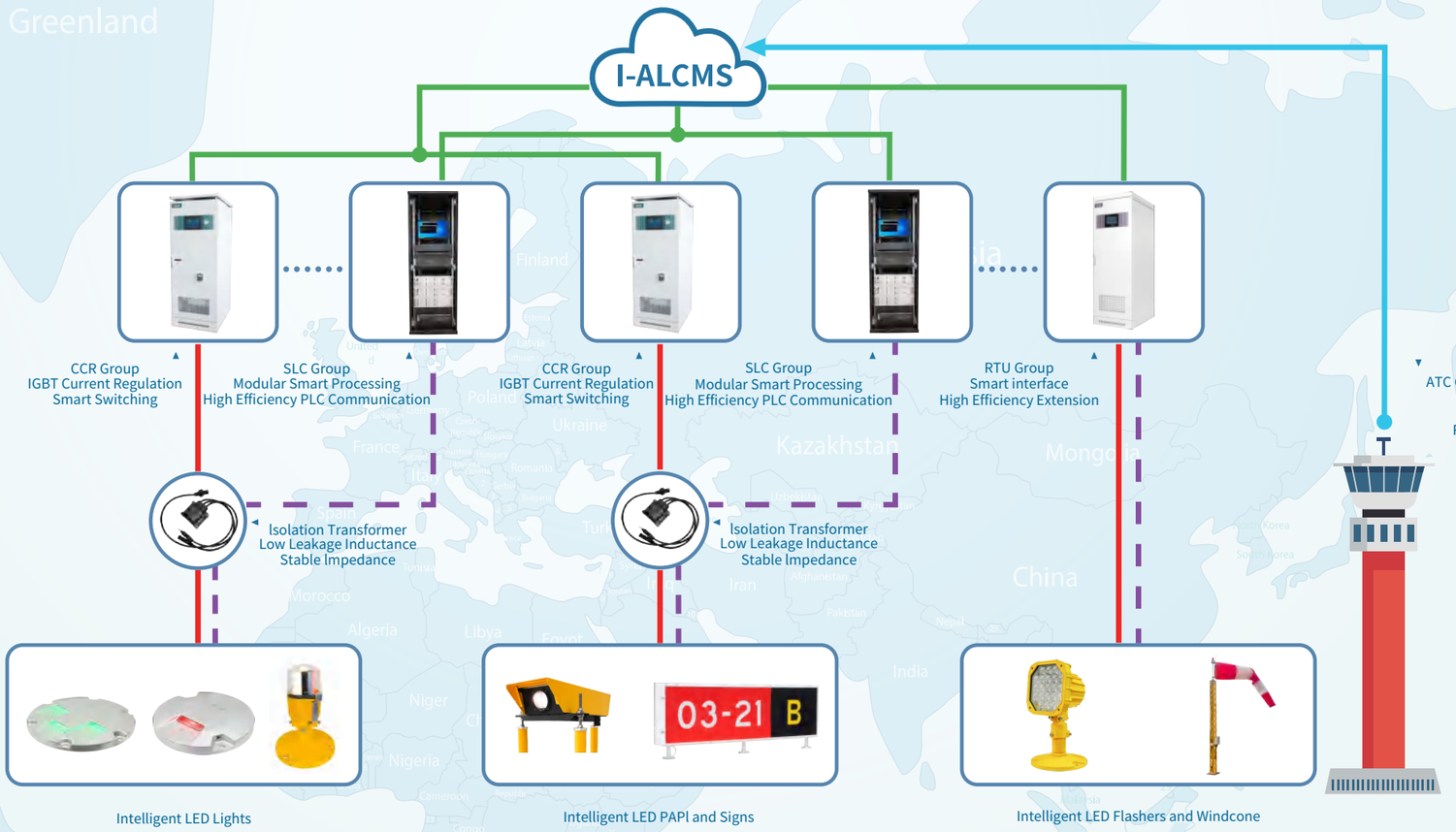
Airsafe will continue to improve and enhance our products, continue to complete the product lines, further improve the reliability and functionality of the products, and provide total airport lighting system solution from the approach to the apron for the construction of four-type airports, including all series of intelligent LED elevated and inset lights, intelligent LED precision approach path indicators, intelligent LED sequential flashing lighting system, intelligent LED sign, intelligent CCR/ intelligent switch cabinet, low leakage inductance isolation transformer, intelligent LED apron flood lighting and advanced visual docking guidance system, etc., to achieve the unified integration and intelligent operation of the whole airport lighting system.

For quite a long time to come, China's airport construction will continue to maintain the momentum of rapid development, especially the construction program of the four-type airports with the core of "safety, green, smart and humanity airport" will greatly improve the requirements for products and services. Safe, reliable, green, energy saving, intelligent, efficient and fine management products and services will vigorously promote the construction and development of the four-type airports in the new era. This has brought great opportunities for the growth of Airsafe, It has also created a better environment for Airsafe to achieving our established objective.

Internationally, Airsafe will continue to improve the distribution system, increase marketing efforts, vigorously expand the international market, and provide our high-quality products and services to airport users around the world.

Airsafe will continue to work hard to improve the brand value of Airsafe and strive for "creating an international first-class brand of Chinese people in the world".

Intelligent Total Airport Lighting System Solution



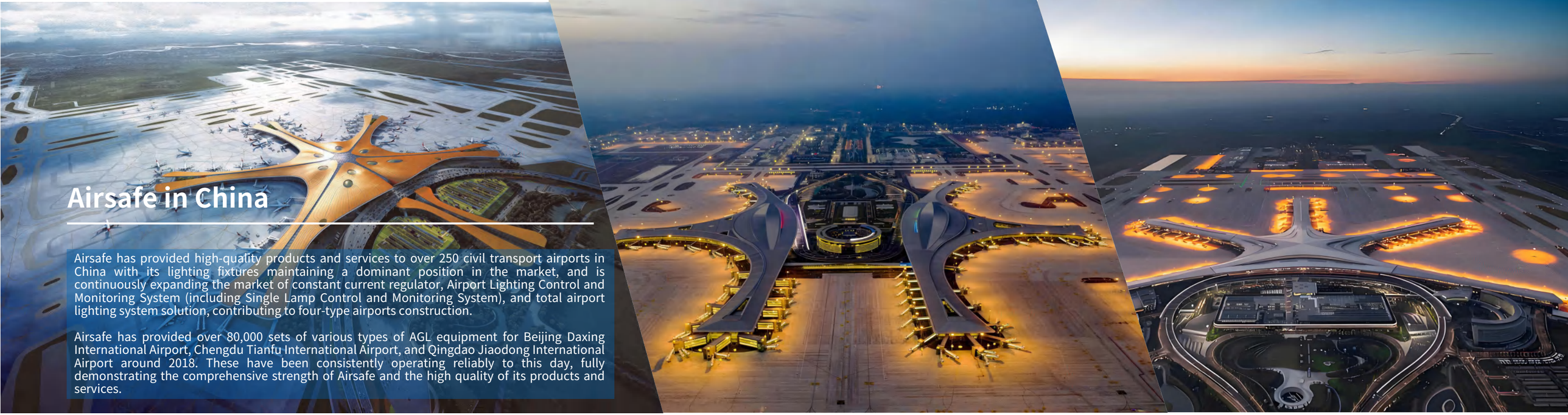
Total Airport Lighting System Solution — Xigaze Dingri Airport (4,316.5m above sea level)

Tingri Airport is located in Meimu Village, Tingri County, Shigatse City, Tibet Autonomous Region, China. As a high plateau airport with 59 kilometers away from Everest, the highest peak in the world, and an altitude of 4316.5 meters, Tingri Airport started construction on April 30, 2021, with a new 4,500-meter-long and 50-meter-wide runway, a full-length Class C smooth taxiway, and 7 vertical intersections. The construction of Tingri Airport was commenced on April 30, 2021, and passed the acceptance inspection at the end of November 2022, lasting for one and a half years.

Airsafe has provided a whole series of navigation aid lighting system solutions for Tingri Airport, including a complete set of airport lighting control and monitoring system, single lamp control and monitoring system, sine wave constant current regulator, a full set of LED airport lighting fixtures and signs, etc.. This is also the first project of Airsafe to provide a complete set of navigation lighting equipment for civil airports, which is a milestone. In the meanwhile, the safe and reliable operation in the high-altitude environment fully proves the excellent performance of Airsafe products, and users have given highly favorable comments.

The list of AGL equipment provided by Airsafe

- 197 units of LED elevated approach lights
- 50 units of LED inset approach lights
- 8 units of LED PAPI
- 35 units of LED sequential flasher
- 320 units of LED runway centerline lights
- 155 units of LED runway edge lights
- 10 units of LED inset runway edge lights
- 59 units of LED runway threshold lights and threshold wingbar lights
- 14 units of LED runway end lights
- 16 units of LED runway guard lights
- 405 units of LED taxiway centerline lights
- 350 units of LED taxiway edge lights
- 10 units of LED inset taxiway edge lights
- 76 units of LED taxiing guidance signs
- 2 units of LED wind cone
- 96 units of LED unserviceability lights
- 7 units of LED aircraft stand identification signs
- 1 unit of Airport lighting control and monitoring system including a single lamp control and monitoring system
- 731 units of Single lamp device
- 24 sets of CCR



Airsafe in China

Airsafe has provided high-quality products and services to over 250 civil transport airports in China with its lighting fixtures maintaining a dominant position in the market, and is continuously expanding the market of constant current regulator, Airport Lighting Control and Monitoring System (including Single Lamp Control and Monitoring System), and total airport lighting system solution, contributing to four-type airports construction.

Airsafe has provided over 80,000 sets of various types of AGL equipment for Beijing Daxing International Airport, Chengdu Tianfu International Airport, and Qingdao Jiaodong International Airport around 2018. These have been consistently operating reliably to this day, fully demonstrating the comprehensive strength of Airsafe and the high quality of its products and services.

Beijing Daxing International Airport（PKX)

As one of the world's largest airports, Beijing Daxing International Airport commenced construction on December 26 Dec 2014 and, named as"Beijing Daxing International Airport" on 14 Sep 2018, and officially started operation on 25 Sep 2019. During its construction phase, Airsafe successfully accomplished the challenging supply mission while four runways were simultaneously constructing.

Airsafe has supplied nearly 35,000 sets of various AGL equipment.

- 7 sets of sequential flash light system, 192 units in total
- 7 sets of PAPI, 28 units in total
- 1,691 units of elevated approach light
- 2,316 units of inset runway light
- 1,008 units of elevated runway light
- 23,815 units of inset LED taxiway light
- 3,354 units of elevated LED taxiway light
- 2,167 units of elevated taxiway edge marker
- 68 units of runway guard light
- 20 units of solar energy LED unserviceability light
- 8 sets of LED wind cone
- 302 units of LED triangle aircraft stand identification sign

Chengdu Tianfu International Airport (TFU)

As a major hub airport in southwest China, Chengdu Tianfu International Airport holds significant strategic importance in the Chinese airport construction. It was the first fully LED lighted runway with utilizing LED PAPI and LED SFL, Airsafe's products have once again shone brightly at the airport. Airsafe also designed deep base with strong waterproof function for Tianfu Airport, employing a dual waterproof structure. Approximately 20,000 deep bases have been used so far with excellent waterproof performance, which earning high praise from airport customers.

Airsafe has supplied nearly 24,000 sets of various AGL equipment.

- 1 set of sequential flash light system, 31 units in total
- 6 sets of PAPI, 24 units in total
- 697 units of LED elevated approach light
- 1,398 units of LED inset runway light
- 644 units of LED elevated runway light
- 17,831 units of LED inset taxiway light
- 2,246 units of LED elevated taxiway light
- 36 units of LED elevated runway guard light
- 216 units of LED solar energy unserviceability light
- 2,299 units of elevated taxiway edge marker
- 4 sets of LED wind cone
- Approximately 20,000 sets of deep base

Qingdao Jiaodong International Airport（TAO)

Qingdao Jiaodong International Airport is positioned as a "gateway airport facing Japan and South Korea" . It is a super project of the ''national civil aviation 12th Five Year Plan ''and ''the overall planning of Qingdao new airport. ''The challenge of Qingdao Jiaodong International Airport project is delivery time. Airsafe cooperated closely with the engineering company and successfully completed the supply.

Airsafe has supplied nearly 14,000 sets of various AGL equipment.

- 4 sets of sequential flash light system, 102 units in total
- 4 sets of PAPI, 16 units in total
- 11,922 units of LED inset taxiway light
- 1,725 units of LED elevated taxiway light
- 23 units of LED elevated runway guard light
- 179 units of LED solar energy unserviceability light
- 176 units of LED triangle aircraft stand identification sign

Airsafe in the World

Airsafe has currently provided AGL equipment for over 250 airport abroad, which are widely used and highly praised, receiving significant recognition. The brand awareness has greatly increased in the industry.

Airsafe's high-quality products and services serve as an outstanding model for Chinese brands to enter international markets.

Singapore Changi Airport (SIN)

Singapore Changi Airport, the most famous hub airport in Asia, has earned its distinguished reputation in the aviation industry for its exceptional service. From 2000 to 2025, Changi Airport has been ranked first in Skytrax's "World's Top 10 Best Airports" award13 times, setting a historic record since the inception of award in 2000. Airsafe's products have received full recognition from Changi Airport, demonstrating the reliable quality and the company's strong capabilities. This achievement serves as powerful testament to Airsafe's potential to expand into the Southeast Asian market and beyond.

Airsafe has supplied nearly 4,700 sets of various AGL equipment.

- LED taxiway light
- LED runway light
- LED elevated/inset taxiway edge light
- LED taxiing guidance sign
- LED aircraft stand identification sign

Adolfo Suarez Madrid–Barajas Airport (MAD)

Adolfo Suarez Madrid–Barajas Airport is the main international airport in Spain and the second largest airport by area in Europe , located 12 kilometers northeast to the city center of Madrid. Adolfo Suarez Madrid–Barajas Airport officially commenced operations in 1931 and is one of Europe’ s four major hub airports. As one of Airsafe's most successful cases in Europe, over 50% of the AGL equipment currently in use at Adolfo Suarez Madrid–Barajas Airport are from Airsafe.

Airsafe has supplied nearly 15,000 sets of various AGL equipment.

- LED runway centerline light
- LED touch down zone light
- LED elevated/inset runway edge light
- LED taxiway centerline light
- LED stop bar light
- LED intermediate holding position light
- LED aircraft stand maneuvering guidance light
- LED taxiing guidance sign

Felipe Angeles International Airport (NLU)

Mexico represents a significant breakthrough for Airsafe in the North American market, with our products obtaining certification issued by the Mexican Federal Civil Aviation Agency (AFAC). Since 2018, Airsafe has supplied AGL equipment to over 20 airports in Mexico. The exceptional performance of Airsafe's products has gained widespread recognition, marking a breakthrough advancement for Chinese manufacturing in North American aviation infrastructure development.

Felipe Angeles International Airport was converted from a military airport and with the new construction of two 3,600-meter commercial runways to alleviate operational pressure on the MEX. For this expansion project, Airsafe has provided all taxiing guidance signs-totaling nearly 600 units.

Project Reference（partial)

Major airports in China (in no particular order)

- PVG Shanghai Pudong International Airport
- CAN Guangzhou Baiyun International Airport
- PEK Beijing Capital International Airport
- SZX Shenzhen Bao'an International Airport
- TFU Chengdu Tianfu International Airport
- PKX Beijing Daxing International Airport
- CKG Chongqing Jiangbei International Airport
- HGH Hangzhou Xiaoshan International Airport
- SHA Shanghai Hongqiao International Airport
- KMG Kunming Changshui International Airport
- XIY Xi'an Xianyang International Airport
- CTU Chengdu Shuangliu International Airport
- WUH Wuhan Tianhe International Airport
- CSX Changsha Huanghua International Airport
- NKG Nanjing Lukou International Airport
- CGO Zhengzhou Xinzheng International Airport
- XMN Xiamen Gaoqi International Airport
- URC Urumqi Tianshan International Airport
- HAK Haikou Meilan International Airport
- TAO Qingdao Jiaodong International Airport
- HRB Harbin Taiping International Airport
- SHE Shenyang Taoxian International Airport
- KWE Guiyang Longdongbao International Airport
- SYX Sanya Phoenix International Airport
- TSN Tianjin Binhai International Airport
- TNA Jinan Yaoqiang International Airport
- DLC Dalian Zhoushuizi International Airport
- CGQ Changchun Longjia International Airport
- LHW Lanzhou Zhongchuan International Airport
- FOC Fuzhou Changle International Airport
- TYN Taiyuan Wusu International Airport
- NNG Nanning Wuxu International Airport
- HET Hohhot Baita International Airport
- ZUH Zhuhai Jinwan Airport
- WNZ Wenzhou Longwan International Airport
- HFE Hefei Xinqiao International Airport
- SJW Shijiazhuang Zhengding International Airport
- KHN Nanchang Changbei International Airport
- WUX Wuxi Shuofang International Airport
- INC Yinchuan Hedong International Airport

Europe

- MAD Adolfo Suarez Madrid–Barajas Airport, Spain
- CDG Paris Charles de Gaulle Airport, France
- FRA Frankfurt Airport, Germany
- MUC Munich Airport, Germany
- LBA Leeds Bradford Airport, UK
- FCO Leonardo da Vinci-Fiumicino Airport, Italy
- OSL Oslo Airport, Norway
- KTW Katowice International Airport, Poland
- AYT Antalya Airport, Turkey

Africa

- JNB O.R. Tambo Int'l Airport, South Africa
- HRG Hurghada Internationl Airport, Egypt
- MRA Misrata lnternatioal Airport, Lybia
- ADD Addis Ababa Bole Int'l Airport, Ethiopia

Oceania

- DRW Darwin International Airport, Australia

Asia

- SIN Changi Airport, Singapore
- KUL Kuala Lumpur International Airport, Malaysia
- MCT Muscat International Airport, Oman
- BKK Suvarnabhumi International Airport, Thailand
- DAC Hazrat Shahjalal International Airport, Bangladesh
- DSY Dara Sakor lnternational Airport，Cambodia
- BTH Hang Nadim lnternational Airport, Indonesia
- TBB Tuy Hoa Dong Tac Airport, Vietnam
- RGN Yangon International Airport, Myanmar

America

- MEX Licenciado Benito Juarez International Airport, Mexico
- GIG Galeao-Antonio Carlos Jobim International Airport, Brazil
- LIM Jorge Chavez International Airport, Peru
- SCL Arturo Merino Benitez International Airport, Chile
- BOG El Dorado International Airport, Colombia
- KIN Norman Manley International Airport, Jamaica

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