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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.

The products of Airsafe company cover all kinds of lighting fixtures for runway and taxiway, sine wave CCRs, and airport lighting control and monitoring systems. We have provided visual aids for navigation for more than several hundred airports in China and worldwidely, and our products have a high reputation in the industry.

Airsafe is one of the few companies in the world that can provide a complete set of visual aids for navigation to the airport. To create a Chinese own international first-class brand in the world is the goal which is proposed by the Airsafe board. All staff of the company will continue to make unremitting efforts around this established goal.

Historical Evolution

Budding Stage (1987 to 2002)
a. Wuhan aviation safety airport complete equipment Co., Ltd set up
b. Provide lighting products and services to more than 100 airports across the country
c. The first company in China to provide a full set of lights including PAPI and SFL system

Growth Stage (2003 to 2007)
a. The board has set higher corporate objectives for the company restructuring, and the company has entered a rapid growth stage
b. The whole series of lights have been upgraded and integrated with the international standards
c. Complete the research and development of isolation transformer series and various cable connectors in accordance with international standards

Strengthen Stage (2008 to 2017)
a. The company officially renamed as Airsafe Airport Equipment Co., Ltd and registered in Shanghai
b. The design of the whole series LED lights, such as PAPI and SFL system, has been completed successively
c. Passed FAA factory audit, and obtained international certificates such as ICAO, FAA and so on
d. The products have been exported to Spain, UK, Germany, France, Italy, Singapore and other countries

Takeoff Stage (2018 to present)
a. In June 2020, the company moved its headquarters to Baoshan District, and the new campus integrated with R&D, manufacturing, marketing and sales
b. Complete the research and development of sine wave CCR, airport lighting control and monitoring system which includes individual lamp control and monitoring system
c. Be the first professional manufacturer in China to provide total solutions of airport lighting system for Airports
d. To put forward a safe, simple, efficient 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 of Airsafe will tremendously promote the construction and development of safe and reliable, green and energy-saving, intelligent and high efficient airports with fine management.

Complete product lines

Airsafe is one of the few international manufacturers that can provide complete solution of airfield ground lighting system for airports. As a professional manufacturer of airfield ground lighting with more than 30 years history of R&D and production, Airsafe has complete product lines.

The product lines of Airsafe consist of a full range of runway, taxiway and approach lights including LED PAPI and LED sequenced flashing lighting system, LED signs, IGBT sine-wave CCR, ALCMS, ILCMS and other equipment. All Airsafe products meet the requirements of ICAO, FAA, IEC and other standards, and their performance and quality are among the best in the industry.

It is an internationally accepted practice to choose the same brand. As the products of the same manufacturer are selected, the tacit cooperation between light fittings, CCRs, control systems and other equipment can be ensured, and the airport operation is in the best state, minimizing the potential safety hazards of equipment operation.

In addition, when problems occur in operation, it can avoid the embarrassing situation that different equipment suppliers may shift blame.

Product Lines

- Full set of halogen inset lights
- Full set of halogen elevated lights
- Full set of LED inset lights
- Full set of LED elevated lights
- LED/halogen precision approach path indicator
- LED/HID sequenced flashing lighting system
- Full series of LED signs
- LED wind cone and light beacon
- 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
- Single lamp device
- LED high mast floodlight
- Base Grout

Full series of inset lights

Four series of inset lights

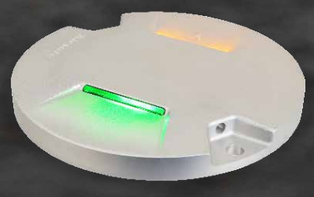
- Traditional halogen 8-inch and 12-inch full series of lights
- 6mm low protrusion LED 8-inch and 12-inch full series of lights (classic) CLASSIC
- 6mm zero water LED 8-inch and 12-inch full series of lights (new) NEW
- 3mm zero water LED 8 inch and 12-inch full series lamps (new) NEW

Types of lights covered

- Approach light series
- Runway light series
- Taxiway light series

Features of inset lights

- Prism is made of self-cleaning glass to avoid the influence on light intensity due to dust on prism surface after long-term use
- Silicon rubber prism gasket structure, with good waterproof effect, and the airfield ground lighting substation staff can replace the prism by themselves
- The upper cover and inner cover of the light fitting are forged with special aluminum alloy, with excellent mechanical performance and strong corrosion resistance
- Outstanding optical design with unique structure of prism and optical reflector to avoid airfield light pollution with high optical efficiency,
- Modular general design of optical and electrical components, applicable to all series of inset lights
- The original super open circuit function module provides the function of LED light source fault open circuit and driver circuit fault open circuit
- Optional special heating device, which can not only melt snow, but also have the functions of fog removal and condensation removal inside the light
- Unique modular lightning protection design scheme, with better lightning protection effect
- It can remotely control the switch of high and low light intensity of taxiway lights and the setting of other functions through CCR coding



Zero Water Lights RECOMMEND

The inclination angle of the front plane of the light outlet window on the top cover of the light fitting is zero, that is, the light outlet surface is equal to and parallel to the runway surface.

The front plane of the window of the traditional light fitting is turned up, which makes it form a sink valley with the prism surface. The water accumulated in the valley in rainy days will block the light and cause refraction, causing light pollution. The zero water light fitting has overcome the problem that the light output is affected by the water and dust on the surface of the light fitting in front of the light outlet window, which has puzzled the airport users for a long time. At the same time, the 3mm zero water light fitting has solved the problem of light reflection in the opposite direction of the light output to the greatest extent.

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

Application	Light Model	Rated Power	PF	LED life span
Runway Centerline	RCLZ-08-LED-CR-1P-M	19VA	＞0.95	⩾100,000h
	RCLZ-08-LED-CC-1P-M	22VA	＞0.95	⩾100,000h
Touch Down Zone	TDZZ-08-L-LED-C-M	15.5VA	＞0.95	⩾100,000h
	TDZZ-08-R-LED-C-M	15.5VA	＞0.95	⩾100,000h
Runway End	ENDZ-08-LED-R-M	15VA	＞0.95	⩾100,000h
Takeoff Holding	THLRZ-08-LED-R-M	9.5VA	＞0.95	⩾100,000h
Runway Entry	RELRZ-08-LED-R-M	8VA	＞0.95	⩾100,000h
RTIL	RAPZ-08-LED-Y-M	12VA	＞0.95	⩾100,000h
Taxiway Centerline	TCLZ-08-S-LED-GY-1P-M	9VA	＞0.95	⩾100,000h
	TCLZ-08-S-LED-GG-1P-M	8.5VA	＞0.95	⩾100,000h
	TCLZ-08-S-LED-YY-1P-M	9.5VA	＞0.95	⩾100,000h
	TCLZ-08-S-LED-GB-1P-M	7.5VA	＞0.95	⩾100,000h
	TCLZ-08-S-LED-YB-1P-M	8VA	＞0.95	⩾100,000h
	TCLZ-08-C-LED-GY-1P-M	9VA	＞0.95	⩾100,000h
	TCLZ-08-C-LED-YG-1P-M	9VA	＞0.95	⩾100,000h
	TCLZ-08-C-LED-GG-1P-M	8.5VA	＞0.95	⩾100,000h
	TCLZ-08-C-LED-YY-1P-M	9.5VA	＞0.95	⩾100,000h
	TCLZ-08-C-LED-GB-1P-M	7.5VA	＞0.95	⩾100,000h
	TCLZ-08-C-LED-BG-1P-M	7.5VA	＞0.95	⩾100,000h
	TCLZ-08-C-LED-YB-1P-M	8VA	＞0.95	⩾100,000h
	TCLZ-08-C-LED-BY-1P-M	8VA	＞0.95	⩾100,000h
Inset Stop Bar	SBLZ-08-LED-R-M	8VA	＞0.95	⩾100,000h
Intermediate hold position	TPLZ-08-LED-Y-M	8VA	＞0.95	⩾100,000h
Inset taxiway edge	TOLL-08-LED-Y	8VA	＞0.95	⩾100,000h

Note: the above parameters may be subject to change without further notice from the manufacturer

EL series multi-functional elevated lights NEW

- When installing the light fixture, no other professional tools are required except the wrench
- All light fixtures shall be installed horizontally, and the built-in angle of light fixture shall meet the elevation angle of inclination angle of all series of elevated light fixtures
- The built-in level gauge of the light fixture can find the level by adjusting the four screws below
- The light fixture has its own directional marking, which can be easily aligned with the front light fixture during installation
- Self-cleaning glass dome is adopted for light fixture to avoid adhesion of dust and organic substances and ensure luminous efficiency
- Built in functions such as demisting, dewaxing and snow melting can be remotely controlled through CCR
- Single lamp fault detection function can simulate open circuit as halogen lamp when LED is damaged or driver fault occurs (optional)
- The light will be on within 0.3 seconds after power on to quickly respond to monitoring needs. Excellent lightning protection effect, power factor of the whole series of lights is not less than 0.95
- Excellent driver circuit and thermal management scheme greatly improve the reliability and life of lights
- Modular designed and universal parts, easy to replace, effectively reduce spare parts inventory

Models and parameters of LED elevated multi-functional lights

Application	Light Model	Rated Power	PF	LED Life Span
Approach Centerline	EL-AP-LED-C-M	36VA	> 0.95	⩾ 100,000h
Approach cross bar	EL-APC-LED-L-C-M	36VA	> 0.95	⩾ 100,000h
	EL-APC-LED-R-C-M	36VA	> 0.95	⩾ 100,000h
Approach side row	EL-SR-LED-L-R-M	15VA	> 0.95	⩾ 100,000h
	EL-SR-LED-L-R-M	15VA	> 0.95	⩾ 100,000h
Runway Threshold	EL-TH-LED-L-G -M	16VA	> 0.95	⩾ 100,000h
	EL-TH-LED-R-G -M	16VA	> 0.95	⩾ 100,000h
Runway Threshold Wingbar	EL-THW-LED-L-G-M	29VA	> 0.95	⩾ 100,000h
	EL-THW-LED-R-G-M	29VA	> 0.95	⩾ 100,000h
Runway End	EL-ED-LED-R -M	9VA	> 0.95	⩾ 100,000h
Combined Runway	EL-TAE-LED-L-GR -M	20VA	> 0.95	⩾ 100,000h
Threshold/End	EL-TAE-LED-R-GR -M	20VA	> 0.95	⩾ 100,000h
Runway Edge	EL-RE-LED-CC -M	34VA	> 0.95	⩾ 100,000h
	EL-RE-LED-CR -M	24VA	> 0.95	⩾ 100,000h
	EL-RE-LED-RC-M	24VA	> 0.95	⩾ 100,000h
	EL-RE-LED-CY -M	26VA	> 0.95	⩾ 100,000h
	EL-RE-LED-YC -M	26VA	> 0.95	⩾ 100,000h
	EL-RE-LED-RY -M	17VA	> 0.95	⩾ 100,000h
	EL-RE-LED-YR -M	17VA	> 0.95	⩾ 100,000h
Stop Bar	EL-SB-LED-R -M	7.5VA	> 0.95	⩾ 100,000h

Note: The above parameters may be subject to change without further notice from the manufacturer

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

The Airsafe intelligent airport lighting control and monitoring system I-ALCMS uses computer technology, network technology and detection technology to conduct real-time operation, control and detection of the working status of airfield ground light fittings such as airport runway, taxiway, apron, low-voltage power supply system, diesel generator set, etc., and to process and record data such as lights, power supply circuits, weather, etc. It is a highly reliable distributed system which can also achieve staff management and provide data basis for future review and maintenance. It is the brain of the whole airport lighting system.

Based on the principles of reliability, maintainability, flexibility and openness, the software and hardware of the I-ALCMS system adopt distributed architecture, modular design, and redundant hot standby layout of core links to further ensure the high scalability and availability of the system.

The I-ALCMS system seamlessly integrates the single lamp control and monitoring function, and can be configured as a standalone I-SLCMS single lamp control and monitoring system. It can monitor the working status and fault information of on-site lights in real time, and achieve the on-off control of single or group lights to reach the taxiing guidance. It is an important part of the A-SMGCS.

Meanwhile, the I-ALCMS system can also upgrade and expand the runway status light control and monitoring function, which is integrated with the constant current regulators and runway status lights and then connected to the runway status light processor.

- PC distributed architecture, modular design, fundamentally eliminate system cascading failures
- Redundant hot standby scheme is adopted for core links to further improve system high availability
- Default optical fiber backbone communication network, with large communication capacity, long and stable transmission distance
- Based on switching network technology, greatly improve the real-time and flexibility of the system
- Humanized human-machine interface design, which can customize interface functions according to customer needs
- Meet the corresponding control and monitoring function requirements of FAA and ICAO
- Meet the control and monitoring function of CAAC main and standby CCRs switching
- Seamless integration of lamp failure detection and stop-bar lighting system control and monitoring functions
- Provide an authorized and open interface to access various airport operation management information
- High scalability to cope with airport expansion and adjustment requirements
- Default last state failure mode, can also preset the control of the target circuit and object according to the operation requirements
- Taxiing guidance function can be upgraded and expanded to connect to A-SMGCS
- The runway status light control and monitoring function can be upgraded and expanded to connect to the runway status light processor

Intelligent single lamp control and monitoring system I-SLCMS

The Airsafe intelligent single lamp control and monitoring system I-SLCMS is a subsystem of I-ALCMS and configured as an independent system. Its basic software and hardware design is completely consistent with I-ALCMS, adopting distributed architecture, modular design and redundant hot standby layout of core links; Provide an authorized and open interface, which can be connected to the upper-level management and control system including the airfield ground lighting control and monitoring system of other brands.

The I-SLCMS system can monitor the working status and fault information of on-site light fittings in real time, reduce the maintenance cost, and achieve the on-off control of single or group lights.

I-SLMCS is an important part of A-SMGCS, which can achieve light taxiing guidance, route planning and other functions, support the control and monitoring of stop-bar lights.

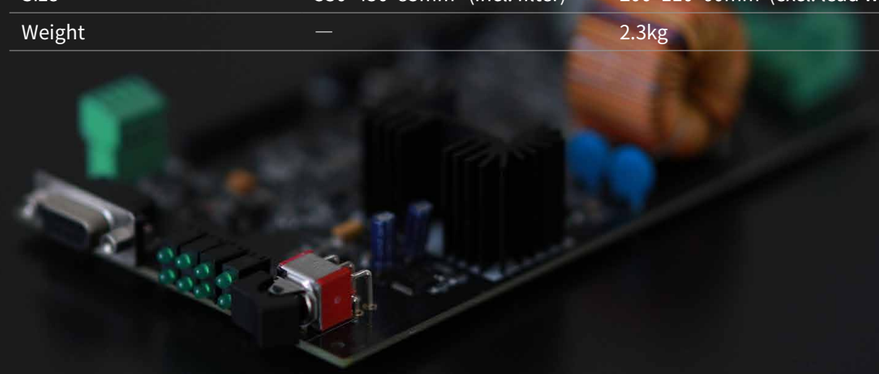
Meanwhile, the I-SLCMS system can also upgrade and expand the runway status light control and monitoring function, which is integrated with the constant current regulators and runway status lights and then connected to the runway status light processor; Support the monitoring of approach lights, runway lights and runway warning lights to achieve CAT II/III monitoring.

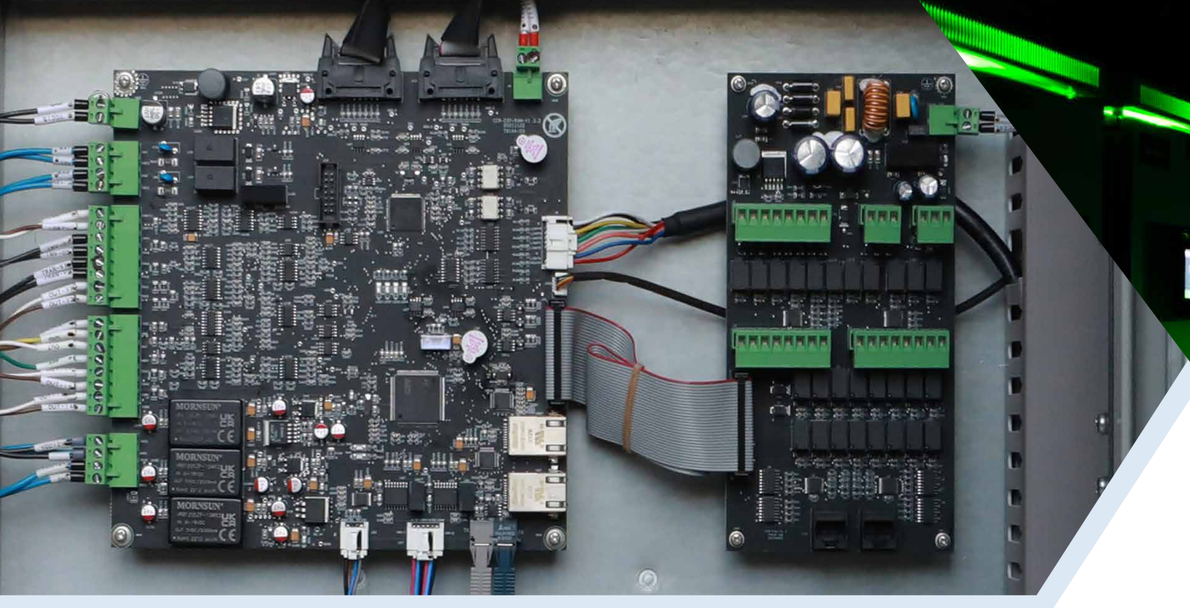
The I-SLCMS system is also compatible with the general microwave sensors on the airport, which can monitor the position of aircraft and other data in real time and give advice to the controller.

The system features are as follows

- Distributed architecture and modular design fundamentally eliminate system cascading failures
- Redundant hot standby scheme is adopted for core links to further improve system high availability
- Provide an authorized and open interface, which can connect to various upper-level management and control systems
- It can access a variety of airport operation management information to realize automatic proceed of stop bar light system
- Multi substation system adopts optical fiber backbone communication network by default, with large communication capacity, long and stable transmission distance
- Advanced power line carrier technology is adopted to ensure stable and reliable transmission without additional laying of field communication lines; Adapt to various brands and technologies of Constant current regulators and isolation transformers. The longest circuit can reach up to 15km, and the maximum number of lamps in the circuit can reach up to 255 pcs
- Single lamp device has single control and dual control options
- After lamp failure, the single lamp device will short the secondary side of the isolation transformer to ensure stable circuit operation
- The default setting is to maintain the last state failure mode once the single lamp device is failed.
- Provide multiple query modes, which can be balanced between speediness and accuracy
- It can simultaneously control the status of multiple groups of lights and reliably feedback data
- Light taxiing guidance function can be upgraded and extended to connect to the A-SMGCS
- The runway status light control and monitoring function can be upgraded and expanded, which can be integrated with the ALCMS, constant current regulators and runway status light and then connected to the runway status light processor

	SLC Single Lamp Concentrator	SLD Single Lamp Device
Operating temperature	-10~40°C	-40~65°C
Storage temperature	-40~75°C	-55~85°C
Operating humidity	95% max	100% max
IP grade	IP20	IP68
Power supply	110~220VAC	2.8~6.6A
Power	⩽ 25W	10W
Isolation transformer	/	10~300W
CCR power	⩽ 30KVA	⩽ 30KVA
MTBF	＞ 200000h	＞ 200000h
MTTR	＜ 60min	＜ 30min
Lightning protection	10KV/5KA	10KV/5KA
Size	530*450*85mm (incl. filter)	200*110*60mm (excl. lead wire)
Weight	—	2.3kg

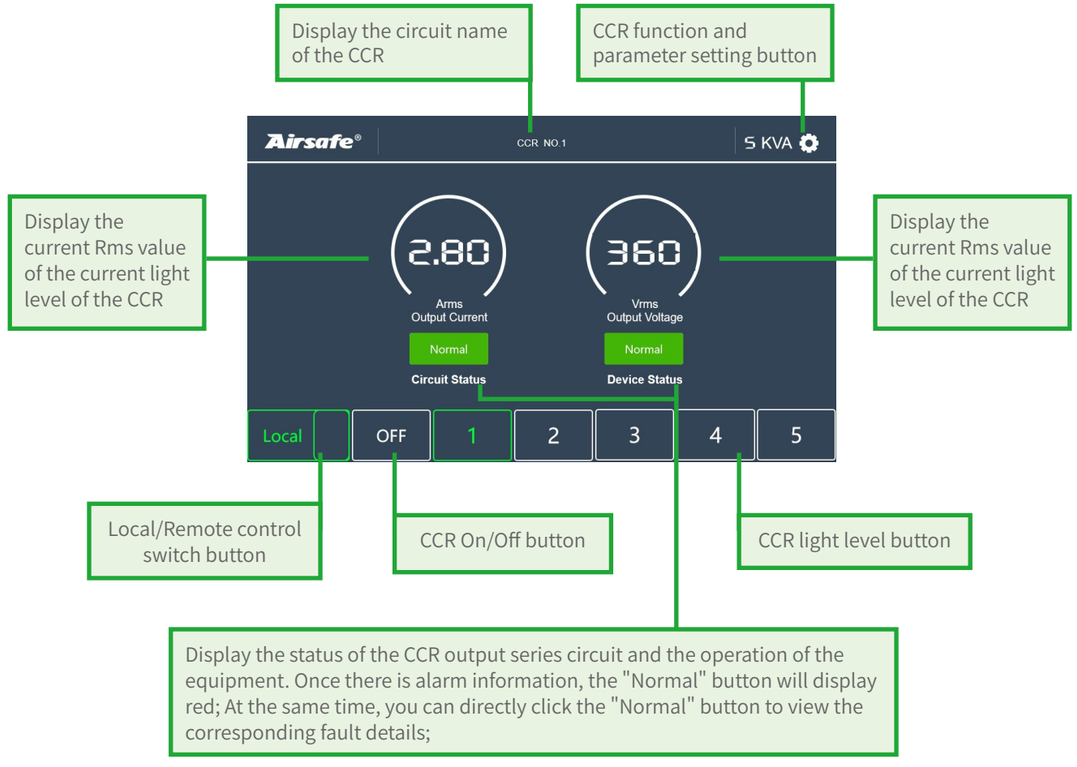




IGBT Sine Wave Constant Current Regulator

- Adopt mature devices and processes, iterate in a strict test environment, and the products show the advantages of backwardness
- The layout is reasonable, and the low-voltage control and high-voltage electrical parts are isolated, so that the operation, maintenance and operation are safer, the temperature rise and heat dissipation of the whole machine are optimized, and the machine can operate continuously for a long time under extreme room temperature conditions
- The voltage stress of key components is increased by one level, effectively protecting the power component IGBT
- Low noise, power factor above 0.97 and output efficiency of 96%
- Meet 2.8A to 6.6A 5 dimming levels, current accuracy not more than ± 0.1 A, non-lighting light level 1.8A optional
- Warning, alarm and abnormal event recording function
- Insulation resistance detection unit accessories are standard, and the detection insulation value range reaches 10 kΩ to 2 GΩ
- Standard light fault detection unit accessories, the detection accuracy of the number of light fault less than 2%
- Standard configuration of redundant dual CAN, dual 485 communication interface and multi wire switching value interface, dual RJ45 interface optional
- The harmonic of output current is lower than the standard index, and the withstand voltage of input voltage is up to 380V+/- 38V
- Fast dynamic response capability, with open circuit, short circuit, overcurrent and other protection functions
- The circuit boards have been treated with three proofing (moisture-proof, mildew proof and salt fog proof), which is suitable for any harsh weather environment
- Form a switching group with the switching cabinet, with fast fault switching action and low surge current of the serial circuit
- Large size touch screen, clear information at a glance, friendly human-machine interface, easy to learn and remember. Built in mechanical switch, easy to operate
- The CCR, switch cabinet and SFL cabinet are designed in a unified way, the machine room is arranged in a consistent and elegant way, and the LED prompts the operation status of the whole machine

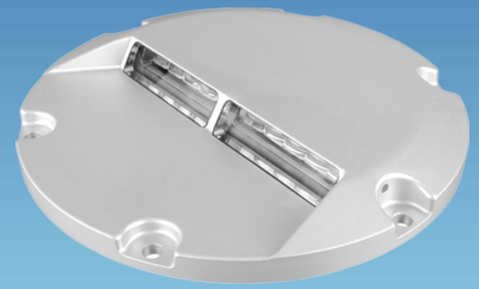
Large size touch screen function



LED PAPI Technical Features

- The external plug of the PAPI is Style 6 double core plug, which conforms to the style required by FAA AC 5345-26 and matches with the output lead of the isolation transformer
- LED shall have a service life of at least 100,000 hours and a light attenuation of no more than 30% in a full load working environment with the maximum light intensity level
- The main body of the PAPI is made of corrosion-resistant aluminum alloy with anti-corrosion treatment on the surface. All fasteners are made of stainless steel, which is suitable for various harsh environments
- The aluminum alloy leg has the function of frangibility, which is precisely machined and meets FAA requirements, with stable and reliable performance
- Three-leg horizontal support and height adjustment structure, convenient and accurate on-site PAPI installation and adjustment
- Intelligent electrical control system, PAPI system can automatically turn off the light in case of abnormal conditions
- Each PAPI unit is equipped with a 4-bit LED digital tube to display the elevation angle of the light in real time and with high accuracy
- Light distribution and chromaticity of PAPI meet the requirements of ICAO Annex 14 and FAA AC 5345-28
- Unique optical system design, PAPI red/white transition performance is superior and the transition line is straight
- The overall protection level of PAPI can reach IP66, and the sealing design can prevent the invasion of rain and dust
- Optional communication module enables direct upload of PAPI system data to ALCMS
- The overall structure of PAPI is compact, the shape is beautiful, the windward area is small, and the wind resistance is strong
- PAPI unit is equipped with independent gradients in both horizontal and vertical directions for easy installation and maintenance
- The control panel is set with "operation mode" and "flight calibration mode" for more convenient use
- Non condensation design to ensure no abnormal light output of the lamps on the windshield in wet weather
- Display the slight change of elevation angle through LED indicator
- The unit controller realizes one key operation, which is easy to operate and master
- LED light source is adopted, and the maximum energy consumption is less than 72W under low temperature
- The maximum windward area of the PAPI unit is 0.48m²

LED SFL technical features



- The overall protection level of elevated flasher reaches IP67; The overall protection grade of the insert flasher shall reach IP68, and it can withstand the internal pressure of 138KPa or the water pressure formed by the aircraft impact window
- The upper cover of inset flasher adopts equal strength design and forging process, with good mechanical performance, bearing capacity and impact resistance
- The main control cabinet and each flasher fitting are equipped with their own CPU, which operates independently and cooperatively through bus communication
- The main body of the flasher fitting is made of aluminum alloy, and the fasteners are made of stainless steel, which is suitable for various harsh environments of the airport
- The light distribution and color of flasher meets the requirements of FAA-E-2628 and CAAC advisory notice
- Long life, energy saving and maintenance free of LED bring great economic benefits to customers
- The circuit, power supply and communication cables are provided with lightning protection measures, and the lightning protection level complies with FAA standards
- Elevated flasher fittings can be connected with 1-inch or 2-inch frangible couplings, which are easy to install, firm and reliable
- Forged easy to break parts are precision machined and meet FAA requirements, with stable and reliable performance
- The monitoring system can realize remote control and upload of operation status, as well as local control
- The prisms of inset flasher fittings are made of tempered glass. Surface resistance to wind and sand erosion
- Unique system reliability design, any lamp failure will not cause system failure
- Compared with traditional xenon flasher, LED flasher has low power consumption and high power factor
- The unit control is integrated in the flasher fitting, with compact structure and more reliable operation
- LCD panel of the main control cabinet displays, counts and records the operation status of the system
- High voltage integrated constant current drive circuit to ensure stable current output
- The system has leak flash detection, frequency statistics, online detection, etc
- The cable arrangement inside the flasher fitting is orderly and clear, and the structure is compact

LED Sign

- Character setting, brightness, evenness and chromaticity on the board comply with ICAO Annex 14
- Internal reflective lighting mode, the surface of the signboard emits more evenly without shadow
- The front panel can be opened and closed freely or even removed, realizing tool free maintenance and cleaning
- Multiple waterproof structure design, high protection level, effectively prevent rain and dust intrusion
- Aluminum alloy profile frame structure, with pillars penetrating through the box, solid and durable, strong wind resistance
- The panel is made of 4.5mm polycarbonate with UV resistant layer, with excellent UV resistance and impact resistance
- International top brand LED chips are adopted, with a service life of more than 50,000 hours and a light attenuation of no more than 30%
- Strict LED color management to ensure the color consistency and purity of the signboard
- Optimize heat dissipation design and overheat protection function, and work reliably in high temperature environment
- All optical power consumption per unit less than 50VA, modular design is adopted for all functions, and maintenance is convenient
- All optical power factor not less than 0.9, reducing energy loss and not interfering with airport power grid system
- CCR 1 to 5 current level changes, the brightness of the signboard remains unchanged, and the real constant light emission is achieved
- EMI meets FAA requirements and passes FCC Part15 Class A standard test
- Reliable insulation, high lightning protection level, insulation resistance more than 50 M Ohms at 500V
- Optional power line communication module, remote monitoring signboard, providing light source fault information

Reference of Various Signs

- China Shanghai Pudong Int'l Airport 756 units TGSL
- China Kunming Changshui Int'l Airport 500 units TGSL
- China Wuhan Tianhe Int'l Airport 450 units TGSL
- China Zhenzhou Xinzhen Int'l Airport 400 units TGSL
- China Tianjin Binghai Int'l Airport 380 units TGSL
- China Nanning Wuxu Int'l Airport 310 units TGSL
- China Guangzhou Baiyun Int'l Airport 280 units TGSL
- China Guiyang Longdongbao Int'l Airport 220 units TGSL
- China Shenzhen Bao'an Int'l Airport 170 units TGSL
- China Weihai Dashui Int'l Airport 70 units TGSL
- Mexico Felipe Ángeles Int'l Airport 552 units TGSL
- Italy Rome Leonardo Da Vinci Fiumicino Int'l Airport 107 units TGSL
- Indonesia Hang Nadim Intl Airport 68 units TGSL
- Singapore Changi Airport 52 units TGSL
- Spain Barcelona El Prat Airport 78 units TGSL
- Spain Madrid–Barajas Int'l Airport 275 units TGSL

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	⩾ 80	5000	6.53-6.67	<25	<45
ITF-050-066/066-L	50	6.6A	⩾ 0.95	⩾ 80	5000	6.53-6.67	<25	<45
ITF-065-066/066-L	65	6.6A	⩾ 0.95	⩾ 80	5000	6.53-6.67	<30	<60
ITF-100-066/066-L	100	6.6A	⩾ 0.95	⩾ 85	5000	6.53-6.67	<70	<85
ITF-150-066/066-L	150	6.6A	⩾ 0.95	⩾ 90	5000	6.53-6.67	<85	<130
ITF-200-066/066-L	200	6.6A	⩾ 0.95	⩾ 90	5000	6.53-6.67	<100	<190
ITF-300-066/066-L	300	6.6A	⩾ 0.95	⩾ 90	5000	6.53-6.67	<135	<300

Note: The above parameters may be subject to change without further notice from the manufacturer

PLG3-R / REC10-R new primary cable connector kits

NEW

The new primary cable connector is a solution to the low isolation resistance of the airfield ground lighting circuit. The new primary cable connector can also be used for the temporary emergency repair of the airfield ground lighting circuit.

The low insulation resistance of the lighting circuit is a problem that has plagued the airport for a long time and is a hidden danger for the safe operation of the airport. Airsafe has done a lot of research, repeated tests and a lot of comparative tests, and finally designed a unique primary cable connector - gel filled primary cable connector. Compared with the traditional primary cable connector, the Airsafe PLG13-R / REC14-R resin filled primary cable connector has better insulation performance and more stable performance. After connection, the external part does not need to be wrapped with adhesive tape, and it can be soaked in water or steam and wet environment for a long time.

On the premise that the sealing grade of the cavity of the male sleeve and female sleeve of the new primary cable connector is above IP67, polymer insulation glue is added to the cavity to make the entire cable connector form a whole and achieve dual protection.

The new primary cable connector consists of a male and a female sealed cavity, which is the same as the traditional connector, and has a plug core, a plug spring and a shielding layer grounding wire connected with the primary cable. The external locking device prevents the male and female connector from falling off each other when the cable is pulled.

The operating method of the new primary cable is simple: after the primary cable is cut layer by layer according to the requirements of the scale, the cold pressed plug core and the plug spring are crimped, and are respectively installed into the male and female sealing cavities. The polymer insulation adhesive is filled into the sealing cavity by injection, and the excellent insulation sealing effect can be achieved after curing. The overall production time is significantly shorter than that of traditional cable connectors. At the same time, the production method is simple and easy to learn, and ordinary workers can enter the field after a short training.

Ordering Information

PLG13 - R - E

PLG 13

PLG13 = assembled primary cable connector style 13, type I, type B plug

R = Resin Potted

E =With earth wire

PLG14 - R - E

PLG 14

PLG14 = assembled primary cable connector style 14, type I, type B plug

R = Resin Potted

E = With earth wire

* If there are special needs, please provide detailed description.

Future development

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

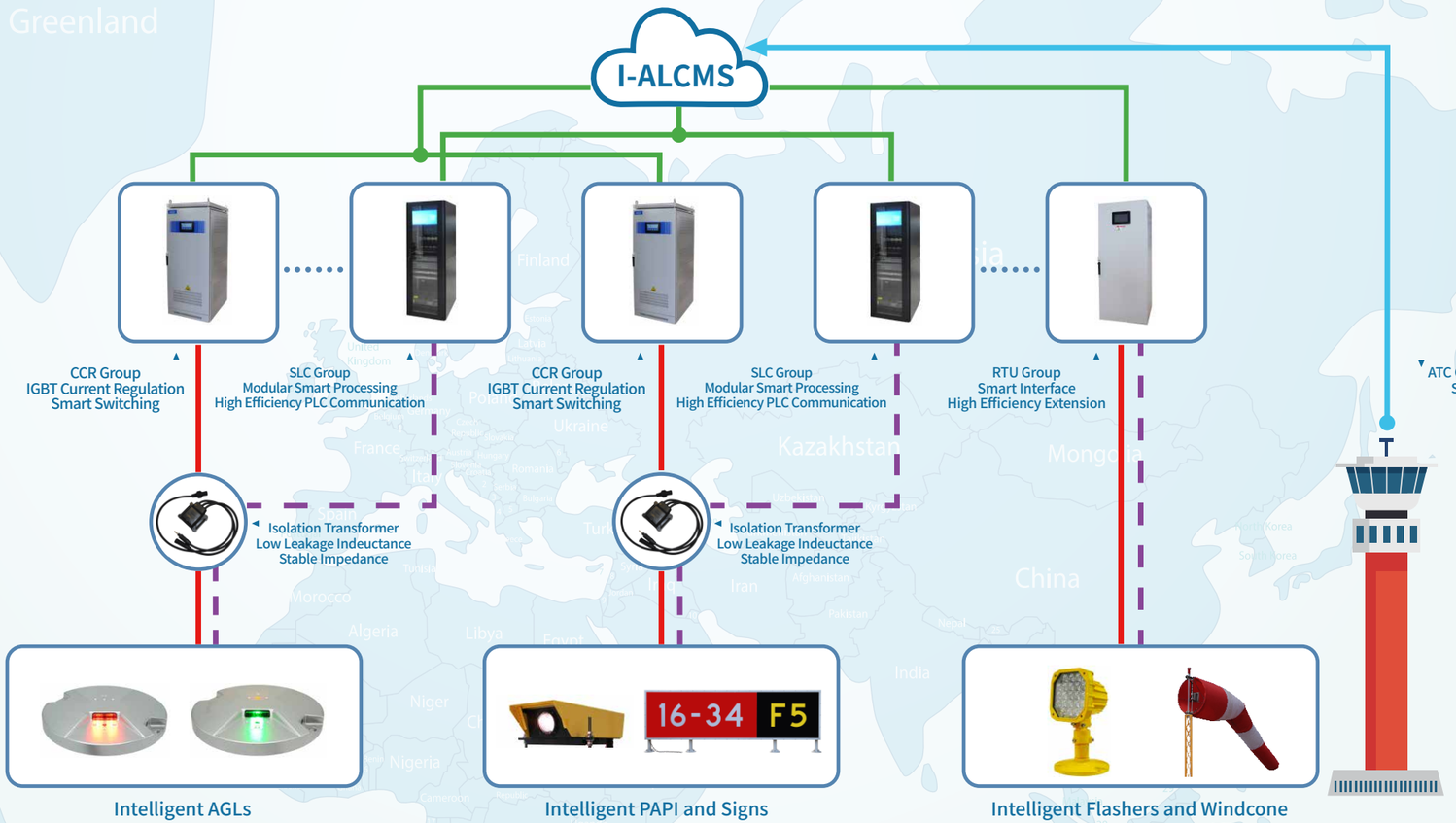
Airsafe will continue to improve and enhance our products, continue to complete the product lines, further improve the reliability and functionality of the products, and provide a package of integrated solutions of intelligent airport lighting system from the approach to the apron for the construction of four characteristic airports, including all series of intelligent LED elevated and inset lights, intelligent LED precision approach path indicators, intelligent LED sequenced flashing lighting system, intelligent LED sign, sine-wave CCR/intelligent switch cabinet, low leakage inductance isolation transformer, intelligent LED apron flood lighting and advanced visual docking guidance system, etc., to achieve the integrated 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 characteristic airports with the core of "safety, green, wisdom and humanity" 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 characteristic airports in the new era. This has brought great opportunities for the development and growth of Airsafe, and also made it possible for Airsafe to achieve its own set goals.

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 Airport Lighting System Total Solution



Intelligent AGLs | Intelligent PAPI and Signs | Intelligent Flashers and Windcone

Overall solution

Shigatse Tingri Airport (4316.5m 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 total number of airport lighting equipment provided by Airsafe is 1,800 sets

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

Construction of three major airports in Beijing Daxing, Chengdu Tianfu and Qingdao Jiaodong

Since entering the new century, with the rapid growth of China's economy, China's airport construction has also entered the fast lane.
Among them, the landmark airports are Beijing Daxing International Airport, Chengdu Tianfu International Airport and Qingdao Jiaodong International Airport.
Airsafe participated in the construction of these projects and provided about 74,000 LED light fittings for these three projects.
The participation of the three newly-built airports has comprehensively enhanced the company's popularity, and the high quality of Airsafe products has also brought reputation to the company.

Beijing Daxing International Airport

2015 to 2019

As a super large international aviation integrated transportation hub, Beijing Daxing International Airport is designed to build seven runways and a terminal building with an area of 1.4 million square meters based on the passenger throughput of 100 million person times, aircraft takeoff and landing capacity of 800,000 sorties. The reserved control land for the airport is reserved according to the size of terminal passenger throughput of 120 million person times, aircraft takeoff and landing capacity of 1 million sorties, and the size of nine runways.

A total of 35,000 sets of AGL equipment are provided by Airsafe.

- 7 sets of sequential flash lamps, 192 units in total
- 7 sets of PAPI, 28 units in total
- 1,691 units of elevated approach lights (incl. 367 LED lights)
- 2,316 units of inset runway lights (incl. 466 LED lights)
- 1,008 units of elevated runway lights (incl.117 LED lights)
- 23,815 units of inset LED taxiway lights
- 3,354 units of elevated LED taxiway lights
- 2,167 units of taxiway reflectors
- 68 units of runway guard lights
- 20 units of solar energy LED unserviceability lights
- 8 sets of LED wind cone
- 302 units of LED aircraft stand identification signs and corridor bridge triangle stand signs

Chengdu Tianfu International Airport

2016 to 2021

Chengdu Tianfu International Airport is a 4F international airport, an international aviation hub, and the main hub of Chengdu International Aviation Hub.

The airport has three runways, which are 4,000 meters long, 60 meters wide, 3,800 meters long, 45 meters wide, 3,200 meters long and 45 meters wide, the annual passenger throughput of 60 million person times and cargo throughput of 1.3 million tons can be met. The civil aviation apron has 210 stands, including 113 Class C stands, 7 Class D stands, 82 Class E stands and 8 Class F stands; The airport has two terminal buildings with a total floor area of 719,600 square meters.

The total number of various AGL equipment provided by Airsafe is 25,000 sets.

- 25,829 sets of deep bases
- 1 set of LED sequential flashing system, 31 units in total
- 6 sets of PAPI lights, 24 units in total (incl. 1 set of LED PAPI)
- 697 units of LED elevated approach lights
- 1,398 units of LED inset runway lights
- 644 units of LED elevated runway lights
- 17,831 units of LED inset taxiway lights
- 2,246 units of LED elevated taxiway lights
- 36 units of LED elevated runway guard lights
- 216 units of LED solar energy unserviceability lights
- 2,299 units of taxiway reflectors
- 4 sets of LED wind cone

Qingdao Jiaodong International Airport

2015 to 2021

Qingdao Jiaodong International Airport is a 4F international airport, a regional hub airport and a gateway airport facing Japan and South Korea. There are two long-distance runways, both 3,600 meters long and 45 meters wide respectively. It can meet the demand of passenger throughput of 35 million person times, cargo throughput of 500,000 tons and aircraft takeoff and landing of 298,000 sorties in 2025. The terminal covers an area of 540,000 square meters, with 97 boarding bridges; there are 173 aircraft stands in the civil aviation apron, including 5 Class F stands;

A total of 14,000 units of AGL equipment are provided by Airsafe.

- 4 sets of sequential flashing system, 102 units in total
- 4 sets of PAPI, 16 units in total
- 11,922 units of LED inset taxiway lamps
- 1,725 units of LED elevated taxiway lamps
- 23 units of LED elevated runway guard lights
- 179 units of LED solar energy unserviceability lights
- 176 units of LED aircraft stand identification signs and corridor bridge triangle stand signs
- 4 sets of LED wind cone

Airsafe in the world

After years of rapid development, Airsafe's brand has been recognized by the industry, and its products are widely used in airports around the world. Airsafe is committed to providing high-quality products with stable performance, good service and timely supply to the airport.

Airsafe provides services to countries or regions through local distributors. We welcome enterprises from all over the world to join Airsafe's distribution system.

Leeds Bradford Airport, UK

Leeds Airport is located in West Yorkshire, Leeds, England. Leeds airfield ground lighting renovation project is a milestone project that Airsafe directly participated in international open bidding for the first time and successfully won the contract. Airsafe has provided the airport with a full range of LED runway, taxiway and approach light fittings. Considering that the airport needs to shovel snow in winter, all runway edge lights at Leeds Airport adopt the newly developed LED inset runway edge lights combined with circling guidance function. This light fitting was first used in the European market, breaking the practice that Airsafe products are introduced to the international market after being tried in China.

The successful use experience of Airsafe LED runway light fittings in Leeds has enhanced the confidence of Airsafe in recommending the use of LED runway light fittings at Beijing Daxing International Airport.

- LED runway centerline lights
- LED touch down zone lights
- LED elevated/inset approach lights
- LED inset runway edge lights
- LED elevated/inset taxiway edge lights

Madrid Barajas Int'l Airport, Spain

Madrid Barajas Int'l Airport is the main international airport in Europe and one of the four major hub airports in Europe.

Since 2017, Madrid Airport has adopted LED light fittings provided by Airsafe to replace the traditional halogen light fittings on site.

The ruby red, yellow and green color of LED makes the reconstructed Madrid Airport shine brightly. At the same time, the long life of LED makes the operation of light fittings more reliable. The LED light fittings of Airsafe are welcomed by Madrid Airport.

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

Changi International Airport, Singapore

As the most famous hub airport in Asia, Singapore Changi International Airport is also the No. 1 international airport in the world. Singapore Changi International Airport is renowned in the aviation industry for its high-quality services. From 1993 to 2020, Changi Airport was successively rated as the "best airport in the world" by Skytrax.

Airsafe is honored to have the opportunity to supply to Changi Airport. The performance of Airsafe in Singapore Changi Airport has provided a good performance for Airsafe to develop the Southeast Asian market and even the world market.

A total of 3,900 sets of airfield ground light equipment are provided by Airsafe.

- LED taxiway centerline lights
- LED stop bar lights
- LED intermediate holding position lights
- LED elevated/inset taxiway edge lights
- LED aircraft stand maneuvering guidance lights
- LED taxiing guidance signs
- LED aircraft stand identification signs

Project reference (partial)

Major airports in China (in no particular order)

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

Europe

- MAD Madrid Barajas International Airport, Spain
- MXP Milan Malpensa Airport, Italy
- CDG Paris Charles de Gaulle Airport, France
- MUC Munich International Airport, Germany
- LIS Lisbon Portela Airport, Portugal
- LBA Leeds Bradford Airport, UK

America

- MEX Mexico City Felipe Ángeles International Airport, Mexico
- LIM Jorge Chavez International Airport, Peru
- FOR Fortaleza International Airport, Brazil
- SCL Santiago International Airport, Chile

Asia

- SIN Singapore Changi Airport, Singapore
- KCH Kuching International Airport, Malaysia
- BTH Hang Nadim International Airport, Indonesia
- BHO Raja Bhoj International Airport, India
- DAC Hazrat Shajaral International Airport, Bangladesh
- BKK Suvarnabhumi Airport, Thailand

Africa

- HBE Borg Arab International Airport, Egypt
- ADD Addis Ababa Bole International Airport, Ethiopia
- UAR Bouarfa Airport, Morocco
- JNB Johannesburg OR Tambo International Airport, South Africa

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