





## **Company Profile**

### About Airsafe

Airsafe Airport Equipment Co., Ltd. was established in 1987 with a history of 30 years. The company was restructured in 2003. After decade of effort, Airsafe has now become an internationally recognized brand. The product performance and quality have been widely recognized by the airports in the world.

Airsafe focuses on R&D and has a strong R&D team. The company keeps improvement of the products continuously, with leadership technology new product launches every year. As one of the leader companies in industrial Airsafe will strive to lead to a higher level of AGL equipment.

Airsafe is the designated enterprise that takes part in the compilation of industrial standards of China aviation.

### **Corporate Mission**

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

### **AIRSAFE Brand**

AIRSAFE trademark was registered in 2003, and is a well-known brand in AGL industries

- Active participation in various international high level exhibitions and forums which have great influence
- Airsafe's products have the international authorized or national certifications like CAAC ICAO, FAA and IEC
- Airsafe owns a large quantity of invent patents and holds the leading technology in the world
- Dominance in Chinadomestic market with establishment of distributor system in various countries and regions
- · Major international airports in many countries use Airsafe's AGL products
- AIRSAFE becomes the most potential brand of high quality in the international AGL industry



e's AGL products lity in the international AGL

## **Product Series**

By nearly 10 years effort, Airsafe developed most series of airfield lighting products. We have not only in-pavement and elevated runway and taxiway lights, but also PAPI, sequence flashing lighting system, LED sign and isolation transformer, etc. All the products fully comply with related standards and requirements of CAAC, ICAO and FAA, etc.

Airsafe can offer full series of airfield lighting fixtures for big airports which has 4F runways.

Airsafe will continue to put more effort to expand our product lines in order to offer full range of brand products for our airport clients.

16-34

F 5

- 8"in-pavementLED runway lights
  8"in-pavementLED taxiway lights

- Precision Lighting Photometric Test System
- Mini CCRs

# Full Range of Low Protrusion (6mm) In-pavement LED Lights

### Three series

- 12" Approach and Runway Lights
- 8" Runway Lights
- 8" Taxiway Lights

### **Optional Functions**

- Embeddable single lamp fault detection module, for external connection to single lamp control system
- · Arctickits, for self-heating to melt the ice and snow

### **Main Features**

- 6mm Low protrusion above the pavement (FAA Style 3 & IEC Style 4) available for all in-pavement lights
- Interchangeable, modular-design for all these light series, more convenient maintenance
- Optional automatic LED short or open fault detection function
- Optional patented low temperature heating system
- Unique modularize lightning protection solution
- Advanced forging forming process, excellent mechanical performance
- Specified aluminum alloy, premium heat dissipation and anti-corrosion performance
- Special designed prism and reflector structure, extremely high optical efficiency





#### LED Approach Centerline Light

Type: APPS-12-S-LED 12", Uni-directional, Clear Rated Power: 72 VA Rated Current: 2.8 to 6.6 A ICAO Annex 14 Figure A2-1

### LED Threshold Wingbar Light

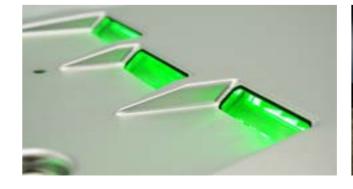


#### Type: THWS-12-X-LED 12", Uni-directional, Green Rated Power: 65 VA Rated Current: 2.8 to 6.6 A ICAO Annex 14 Figure A2-4

#### LED Runway Edge Light



#### Type: RELS-12-X-LED 12", Bi-directional, Clear/Yellow/Red Rated Power: 36 VA Rated Current: 2.8 to 6.6 A ICAO Annex 14 Figure A2-9, A2-10 FAA L-850C





#### LED Runway Centerline Light

Type: RCLS-08-LED 8", Bi-directional, Clear/Red Rated Power: 24 VA (Bi-dir.), 18 VA (Uni-dir.) Rated Current: 2.8 to 6.6 A ICAO Annex 14 Figure A2-6, A2-7 FAA L-850A



#### LED Taxiway Centerline Light

Type: TCLMS-08-X-LED 8", for straight or curved section Bi- or Uni-directional, Green/Yellow Rated Power: 12 VA (Bi-dir. with 2 plugs), 9 VA (Bi-dir. with 1 plug), 7 VA (Uni-dir.) Rated Current: 2.8 to 6.6 A ICAO Annex 14 Figure A2-12, A2-14 FAA L-852C, L-852K



#### LED Inset Taxiway Edge Light

Type: TOEL-08-LED 8", omni-directional, Blue Rated Power: 8 VA Rated Current: 2.8 to 6.6 A ICAO Annex 14 5.3.17 FAA L-852T



## Full Series of Elevated LED Lights

### **Full Series**

- Uni-directional Lights
- Bi-directional Lights
- Omni-directional Lights

### Main Features

- Thermal management for circuit drivers, enhancement of the light life and
- Strict LED color bin management, ensure uniformity of the light beam color
- Optional single lamp fault detection function
- Anti-condensation treatment inside the lights
- Power factor more than 0.9, reduce grid interference
- The fixture can be connected with one or two-inch frangible pole, convenient





### LED Approach Light

Type: EUL-AP-LED Uni-directional, Clear Rated Power: 36 VA Rated Current: 2.8 to 6.6 A ICAO Annex 14 Figure A2-1



#### LED Runway Threshold Light

Type: EUL-TH-LED Uni-directional, Green Rated Power: 36 VA Rated Current: 2.8 to 6.6 A ICAO Annex 14 Figure A2-3





FAA L-804



### LED Runway Edge Light

Type: EBL-RE-LED Bi-directional, Clear/Yellow/Red Rated Power: 36 VA Rated Current: 2.8 to 6.6 A ICAO Annex 14 Figure A2-9, A2-10 FAA L-862



### LED Taxiway Edge Light

Type: EOL-TE-LED Omni-directional, Blue Rated Power: 3 VA Rated Current: 2.8 to 6.6 A ICAO Annex 14 5.3.17 FAA L-861T

### LED Runway Guard Light

Type: EUL-RG-LED Uni-directional, Yellow, Flashing Alternately Rated Power: 24 VA Rated Current: 2.8 to 6.6 A ICAO Annex 14 Figure A2-25

## Precision Approach Path Indicator (PAPI)

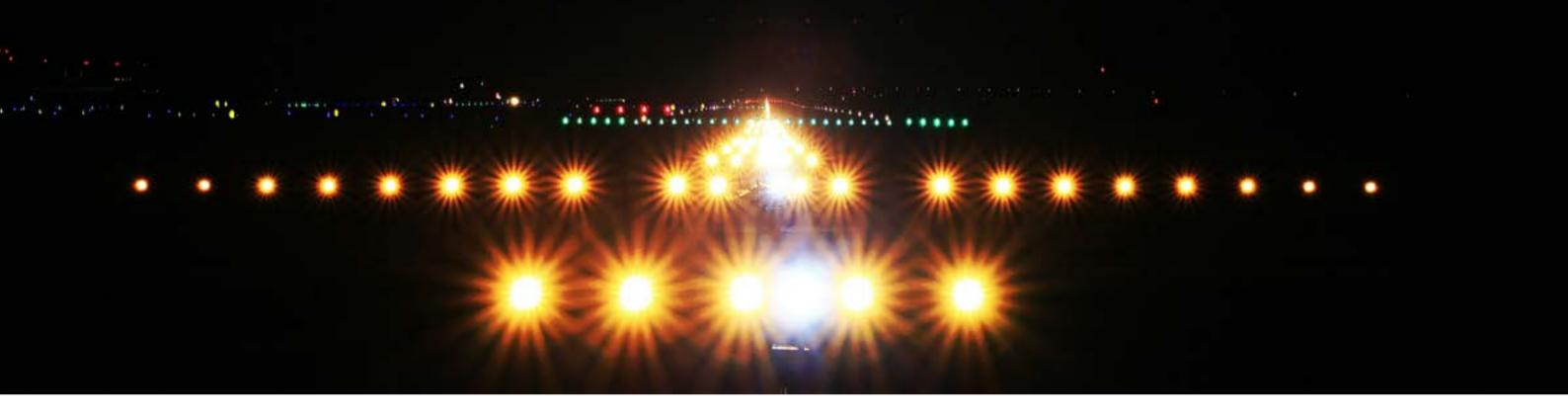
- Subversion of traditional PAPI structure, new design concept
- High precision, stable and reliable structure, easy to operate and maintain
- Each unit uses 3\*105W halogen lamp, equipped with a 300W isolation transformer
- Straight red-white split line, red-white transition zone<3 arc minute, in compliance with ICAO Annex 14
- Incorporated with intelligent electrical control system; it will automatically turn off all the PAPI units once there is a malfunction as excessive light unit tilt or less intensity, etc. on any unit
- Unique optical design which don't need complicated adjusting devices for lamp and filter installation or replacement. No impact on light output if there is any installation deviation
- Internal electronic inclinometer can reach a resolution value of 0.01°
- Four digital LED display alternately shows real angle and flight landing test angle in real time
- Modular design, easy to maintain
- Closed structure of optical system prevents foreign objects from entering into it at routine maintenance
- PAPI's actual operation angle can be directly read for daily spot check without opening cover
- Optional control and monitoring kit, remote monitoring of PAPI angles
- Triple leg supporting structure, structural stability, convenient angle adjustment
- Small form factor, strong resisting wind ability, can withstand 320km/h wind load

### PAPI been mounted in

- CKG Chongqing Jiangbei Intl. Airport
- CTU Chengdu Shuangliu Intl. Airport
- WUH Wuhan Tianhe Intl. Airport
- KMG Kunming Changshui Intl. Airport
- CGO Zhengzhou Xinzheng Intl. Airport
- TAO Qingdao Liuting Intl. Airport
- CSX Changsha Huanghua Intl. Airpo
- YNT Yantai Laishan Intl. Airport



- NKG Nanjing Lukou Intl. Airport
- PAPI been mounted in
- BTH Hang Nadim Intl. Airport, Indonesia
- PEK Beijing Capital Intl. Airport
- PVG Shanghai Pudong Intl. Airport
- SHA Shanghai Hongqiao Intl. Airport
- CAN Guangzhou Baiyun Intl. Airport





# Sequential Flash Light System (SFL)

- Meet specifications of ICAO Annex 14, FAA-E-2628 and CAAC AC
- Main control cabinet use double-color LCD to create a good HMI
- Multiple fault prompts will be displayed on LCD panel, such as offline, missing flash
- Voltage range 160-260V, frequency 50 or 60 Hz, Single phase input, support 380V power input by using star wiring
- Lower power consumption, >2.5km power transmission distance with use of 16 mm<sup>2</sup> cable
- High speed and reliable operation by using CAN between main and unit control boxes
- 485 ports in main control cabinet available, used for communication with control and monitoring system
- · Main control cabinet can control different number of light heads, 32 flashing lights at most (2 runway threshold identification lights included)
- System contains lightning protection circuit for effective anti-lightning
- · Xenon lamps are triggered by electronic switch on trigger circuit
- Unit control circuit can provide reliable protection; it will cut off power when the unit control box or flasher head is open
- Unit control box has multiple protective circuits, reliable operation

### Main Achievements

- BTH Hang Nadim Intl. Airport, Indonesia • PVG - Shanghai Pudong Intl. Airport
- SHA Shanghai Hongqiao Intl. Airport • CSX – Changsha Huanghua Intl. Airport
- CAN Guangzhou Baiyun Intl. Airport
- KMG Kunming Changshu Intl. Airport
- BTH Hang Nadim Intl. Airport, Indonesia

- CGO Zhengzhou Xinzheng Intl. Airport
- TAO Qingdao Liuting Intl. Airport
- NKG Nanjing Lukou Intl. Airport

## LED Guidance Signs

- · The face inscription setting, illuminance, uniformity and chromaticity are in accordance with the requirements of ICAO Annex 14
- The front panel can be open freely and closed freely, even be removed. Maintenance and clean are free of tool
- Labyrinth structure inside, to prevent the intrusion of rainwater and dust
- Aluminum alloy frame structure, supporting pole penetrating in sign box, strong and durable, high wind load rating
- Durable stainless steel fasteners
- Polycarbonate panel with UV resistant layer, anti-UV and shock resistant
- Fully withstand 160km/h or 320km/h wind load on guidance sign
- Stable and reliable frangible structure in accordance with FAA requirements through precision machining
- Equipped with tether to further improve safety of product use
- LED light bar with OSRAM chips, long service life, less light source replacement
- Modular design per function, easy to maintain
- Optimized heat dissipation design, ability to work at high temperature; Additional over temperature protection function which increases the reliability
- <50VA/m<sup>2</sup> atall lighting levels
- Power function≥0.9 at all lighting levels
- Consistent luminance at all brightness steps;
- EMI in compliance with FAA, meet FCC Part15 Class A Standard
- Equipped with reliable lightning protection device
- High insulating reliability, insulation resistance >50Mohms at500V

### Main Achievements

- BEL Val de Cans International Airport, Brazil MXP Malpensa Airport, Italy
- XSP- Seletar Airport, Singapore
- MAD Mardrid Airport, Spain
- BCN Barcelona Airport, Spain
- BGY Bergamo Airport, Italy
- BTH Hang Nadim Intl. Airport, Indonesia
- Airports in China



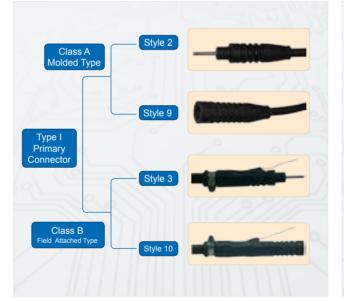




## **Isolation Transformers & Cable Connectors**

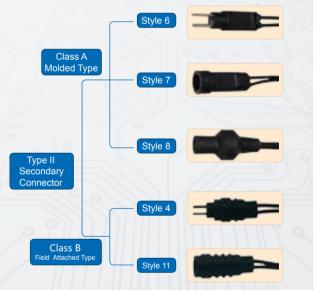
- In compliance with FAA AC 150/5345-47
- Thermoplastic elastomer body, which is high resistance to shock, fatigue, tear strength and high friction function. Good resistance to chemical substances, oils, solvent and weather simultaneously and good performance under high temperature
- Small volume, compact structure, light weight
- Operating temperature range: -55 to 65°C
- Low temperature rising, to ensure operating under high temperature
- Power rate range from 15 W to 300 W
- Designed for universal of 50 Hz and 60 Hz •
- Withstand voltage of primary cable connector >15 kV, of secondary cable connectors > 4.7 kV
- Optional grounded type





#### **Cable Connectors**

- In compliance with FAA AC 150/5345-26 L-823 plugs and receptacles
- Ergonomics design, easy to plug
- Withstand voltage of primary cable connector >15 kV, of secondary cable connectors > 4.7 kV
- Operating temperature range from -55 to 65°C
- Internal pin/socket adopt nickel plating copper technique with good conductivity
- bronze connector and cable, superior in waterproof
- · Combined connectors employ multi-layer waterproof structure, equipped with sealing silicone, which has perfect insulation and waterproof performance. Matching sealing silicones is special silicone that is tailored for cable and thermoplastic elastomer with no untoward effects of accelerated aging and hardening with the material
- · Combined primary cable connectors with protective ground wiring



· Molded connectors employ multi-layer molding processing, reliable connection between thermoplastic elastomer,



## **Precision lighting Photometric Testing System**

PTS-200 precision Lighting Photometric Test System is an airport lighting intensity and chromaticity testing system which is an essential tool for airport safely operation.

The goniophotometer is compact and easy to operate. The range of test objectives covers the most types of elevated and in-pavement lights from locals and abroad. The system automatically generates various types of test reports that can be exported freely.

### **Features**

- Compact photometric test system with an appropriative constant current mini-CCR
- High precision photometric probe, automatic range conversion, resolution correctable •
- Special-made long boot light shield, to prevent redundant external light from entering into sensor
- "Cradle" motion structure to achieve point by point testing •
- High resolution test data, real and reliable •
- · Test intensity and chromaticity simultaneously and provide appropriate reports
- Equipped with photometric test software with friendly interface, providing all the data for verification including intensity and chromaticity
- Integrated with all photometric requirements from FAA and ICAO standards and support a wider • range of lights
- Provide test modes as precision test with low speed, coarse test with high speed, and five points empirical test
- Testing range and speed adjustable •
- Add, delete or edit testing report function available •
- · Database provides preview of report document and light test data statistics

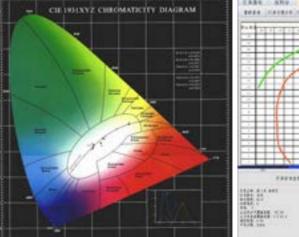


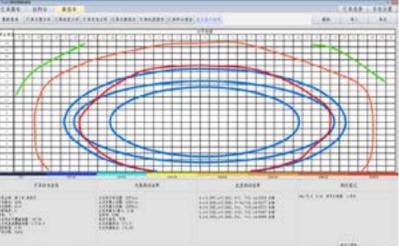
### **Precision Digital Lux Meter**

In application for measuring tri-stimulus values, chroma, chromatic aberration, color temperature and illuminance Type: CL-200A Made by MINOLTA Made in Japan Test range: 0.1 to 99,990 lx Resolution: 0.1 Sampling rate: 0.5 second (continuous measurement) Accuracy: ±2%±1 decimal of display value Dimension: 69×174×35mm

## Photometric Testing System been used in

- Civil Aviation University of China
- Shanghai Pudong Intl. Airport
- Shanghai Honggiao Intl. Airport
- Chengdu Shuangliu Intl. Airport
- Chongging Jiangbei Intl. Airport
- Zhuhai Jinwan Intl. Airport
- Shenzhen Baoan Intl. Airport





• Xi'an Xianyang Intl. Airport Jievang Chaoshan Airport Shijiazhuang Zhengding Intl. Airport Hefei Xingiao Intl. Airport · Changzhou Benniu Airport

Nantong Xingdong Airport

DazhouHeshi Airport

## **Main References**

- LCG La Coruna Airport, Spain, 2015, TGS and taxiway lights
- GRO Girona Airport, Spain, 2015, taxiway lights
- MAD- Madrid Airport, Spain, 2016, TGS and Shallow bases
- BCN Barcelona Airport, Spain, 2016, TGS and taxiway lights
- VLC Valencia Airport, Spain, 2016, TGS
- LPA Gran Canaria Airport, Spain, 2016, TGS
- SCQ Santiago de Compostela Airport, Spain, 2016, TGS and LED holding position lights
- PMI Palma de Mallorca Airport, Spain, 2016, TGS and taxiway lights
- SVG Stavanger Airport, Norway, 2015, shallow bases
- MXP Malpensa Airport, Italy, 2015, taxiway lights and TGS
- BGY Bergamo Airport, Italy, 2016, TGS
- SKG Thessaloniki Airport, Greece, 2016, RTIL
- SIN Changi Airport, Singapore, 2014, TGS
- SIN Changi Airport, Singapore, 2015, aircraft identification signs
- XSP Seletar Airport, Singapore, 2010 to 2012, TGS
- BTH Hang Nadim Intl. Airport, Indonesia, 2015 & 2016, runway end lights, PAPI, SFL, TGS, wind cone
- VTE Vientiane Wattay Intl. Airport, Laos, 2012, SFL
- Thailand, 2012, taxiway lights
- Bangladesh, 2015, isolation transformers
- Columbia, 2014 to 2015, runway and taxiway lights
- Brazil, 2015, TGS
- LAD Luanda Airport, Angola, 2012 to 2013, runway and taxiway lights, SFL
- FIH Kinshasa Intl. Airport, Congo, 2011, runway and taxiway lights, TGS
- LFW Lome Airport, Togo, 2015, Taxiway lights
- Ballela New Airpot, Sudan, 2008 and 2013, PAPI, runway and taxiway lights, isolation transformers
- In 2016, tender won in LBA Leeds Bradford Airport, UK, all range of LED approach, runway and taxiway lights would be provided in 2017







## Beijing Daxin Intl. Airport (in construction)

#### **Project Name**

Beijing New Airport Airfield AGL and power supply engineering project Category: 4F Intl. Airport for both civil & military use

#### **Project Time**

From 2015 to 2019

#### Airsafe supplies fully AGL equipment to 4 runways as below

- SFL, 7 sets, 192 units
- PAPI, 7 sets, 28 units
- Elevated Approach Light, 1,618 pcs (including 332 pcs LED)
- Inset Runway Lights, 1,936 pcs (including 466 pcs LED)
- Elevated Runway Lights, 768 pcs (including 117 pcs LED)
- Inset LED Taxiway Lights, 23,338 pcs
- Elevated LED Taxiway Lights, 3,204 pcs
- Taxiway Edge Reflectors, 2,027 pcs
- Elevated Runway Guard Light, 64 pcs
- Obstacle Light (Solar Power), 5 pcs
- Wind Cone, 8 pcs
- Aircraft Identification Sign & Triangle Aircraft Docking Sign, 300 pcs

### **Airport Brief Introduction**

Beijing Daxin Intl. Airport is designed as massive international aviation integrated transport hub. In long term (in 2040), terminal of 1.4 million square meters and seven runways would be built in order to cover passenger throughput of 100 million, aircraft take-off/landing of 800 thousand times per year. The airport reserves total nine runways to cover passenger throughput of 120 million and aircraft take-off/landing of 1 million times per year.

The principal part of the project covers an area of the airport in Beijing. It is the 3rd civil airport in Beijing, the other two is Beijing Capital Intl. Airport and Beijing Nanyuan Airport (will move).

The first stage of the construction is about 27 square kilometers land scale, four runways for civil airline, one runway for civil and military (for Nanyuan Airforce Base), terminal of 700 thousand square meters, and 92 aircraft bridge.

The airport construction began on 26th Dec 2015 and the airport is scheduled to open in 2019.



## Shanghai Pudong Intl. Airport

### **Project Name**

The fourth runway construction of Shanghai Pudong Intl. Airport (Matching Project of China's Large Aircraft Manufacturing Base)

### **Project Brief**

In order to implement the strategic decision of developing large aircraft industry for China, the site for assembly and test base is selected next to the south end of Shanghai Pudong Intl. Airport with a new fourth runway. The fourth runway will be temporarily used for flight-test of China-made large aircraft C919. As one of the best airport in china, Shanghai Pudong Intl. Airport is unfailing in its commitment to high standards of quality. Through strict qualification examination, three famous international manufacturers were invited to tender. Finally Airsafe won the bidding after fierce competition. Airsafe supplied all the lighting fixtures on the runway with a total number of 5500.

### **Project Time**

2012 ~ 2014

### **Products Ordered**

Approach lights series, including sequence flashing light, PAPI, runway and taxiway light series as well as wind cones etc.

### **Airport Brief Introduction**

Shanghai Pudong International Airport is located in Pudong New Area, Shanghai, China. The airport occupies a 40-square-kilometre (9,900-acre) site adjacent to the coastline in eastern Pudong. Pudong Intl. Airport, along with Beijing Capital Intl. Airport and Hongkong Intl. Airport are called China's three biggest International hub airports. Its international passenger throughput Ranks first domestically, while its cargo throughput places the third worldwide. Pudong Airport hosts 60 Chinese and foreign airlines which cover more than 90 international (regional) cities and 62 domestic cities. By 2016, Shanghai Pudong Intl. Airport will have 5 runways.

### **Airport Basic Information**

Shanghai Pudong Intl. Airport

- 4F Civil Airport
- Qty of Runways: 4 (fifth runway in construction)
- IATA Code: PVG; Qty of Parking Places: 218; Qty of Jet Bridges: 70
- Flight Movements: 480,000 flights (2016), 1,300 flights average daily (2016)
- Passenger Throughput: 65,982,100 (2016)
- Cargo Throughput: 3,425,300 tons (2016)

ion) 8; Qty of Jet Bridges: 70 ,300 flights average daily (2016)



## Airsafe in Asia

SIN – Changi Intl. Airport

### **Project Name and Time**

Changi Intl. Airport east and west cargo zone reconstruction project 2015  $\sim$  2016

### **Project Brief**

SIN reconstructed all the airfield lighting equipment for east and west cargo zone, Airsafe

### **Supplied Products**

- 54 pieces of LED aircraft stand identification signs.
- 32 pieces of LED taxiway guidance signs

### **Airport Brief Introduction**

Changi Airport is the primary civilian airport for Singapore. SIN is the 18th busiest airport in the word, and is the main transportation hub of Asia. SIN is noted for its high quality service and safety. Changi Airport is ranked as the only five star airport in the world in the star ranking list of the international airports by Skytrax

Indonesia BTH – Hang Nadim Intl. Airport

### **Project Name and Time**

Hang Nadim Intl. Airport Airfield lighting Reconstruction Project 2015 ~ 2016

### Project Brief

This reconstruction project consists of two phases, first phase is to replace taxiway guidance signs, and second phase is to replace the PAPI and SFL.

### Products Ordered

- LED Taxiway Guidance Sign
   I
- Elevated LED Runway End Light
   V
- Sequential Flash Light, 1 set

### Airport Brief Introduction

Hang Nadim International Airport is located in Batam, Riau Islands, Indonesia. And it is a only airport of this isand. It has been the primary method of transport to and from Batam, and also the gateways to neighboring islands (including Singapore). Hang Nadim internation airport has the longest runway (4,000 m) in Indonesia, sufficient for wide body aircraft Boeing 747, 777 and Airbus A380.

PAPI, 8 unitsWind cone, 2 sets



## Airsafe in Europe

United Kingdom LBA – Leeds Bradford Intl. Airport

### **Project Name and Time**

Light Emitting Diode (LED) fittings For AGL 2017 (tender won in 2016)

### **Project Brief**

Airsafe is awarded of the runway reconstruction project of Leeds Bradford International Airport to supply all the LED in-pavement and elevated LED lights for entire runway

### **Products Ordered**

- Elevated LED Approach Light
- LED Runway Centerline Light
- Inset LED Approach Light
- Inset LED Stop Bar Light
   Inset LED Runway End Light
- LED Touchdown Zone LightElevated LED Runway Edge Light

### **Airport Brief Introduction**

Leeds Bradford International Airport is located at West Yorkshire in the City of Leeds It serves as the hub between the cities of Leeds and Bradford, as well as the, and is the largest airport within Yorkshire.

Inset LED Taxiway Edge Light

Inset LED Runway Edge Light

Italy MXP – Milan–Malpensa Airport

### **Project Name and Time**

Airport taxiway reconstruction project 2015 ~ 2016

### Project Brief

Airsafe supplied over one thousand LED taxiway centerline lights and over 100 taxiway guidance signs for this taxiway reconstruction project

### Products Ordered

- LED Taxiway Guidance Sign, 56 pcs
   LED Apron Light
- LED Middle Holding Position Light
- Inset Runway Edge Light

### **Airport Brief Introduction**

Milan–Malpensa Airport, is one of the three international airport of Milan, located at Varese, 49 kilometers to the city center. And it is the largest international airport of the Milan metropolitan area.

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LED Apron Light
LED Taxiway Centerline Light, more than 1,000 pcs

## **Future Prospect**

Looking to the future, innovation and development are still the main melody of Airsafe. Quite a long period of time in the future, it keeps momentum of rapid development of airports construction in China. This brings airsafe great opportunity and growth based on the local market.

Airsafe will continue to upgrade our products and further improve the reliability of the product functional. Airsafe will keep developing our product range, and will keep providing our customers with a full range of brand services.

Airsafe will continue our efforts to improve the brand value, efforts to expand the international market, improve our sales system, and make ourselves into a competitive international famous brand in airfield ground lighting industries.





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