

Outdoor Kiosk



# Outdoor Kiosk

Introduction

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01



# Outdoor Environment

# Outdoor Environment



**High temperature and strong sunlight environment**

# Outdoor Environment



**Low temperature and extreme cold environment**

# Outdoor Environment



## **Stormy environment:**

Squall, typhoon class 14; Heavy rain and flooding.

02



# Outdoor Kiosk Protection

# Outdoor Kiosk Protection

## Sunlight Readable



Through the effective blocking of sunlight by special toughened glass, the picture can be presented intact under direct sunlight.

01

04

## Dustproof



Dust is an important factor that reduces product efficiency and accelerates product aging. By designing dustproof structure and dustproof filter products, the dustproof level can reach IP6X.

## Anti-theft



The design does not have one screw exposed on the exterior surface. The combination of locks with anti-theft function and strong structural support will solve the problem of anti-theft immediately.

## Water Proof



Diversified products, waterproof level can reach IPX5, can run normally in heavy rain.

02

05

## Anti-lightning



Through reliable lightning protection and electrical control design to achieve all-weather outdoor playback performance, provide safety guarantee for the equipment in thunderstorm days.

03

06

## Screen Brightness Control

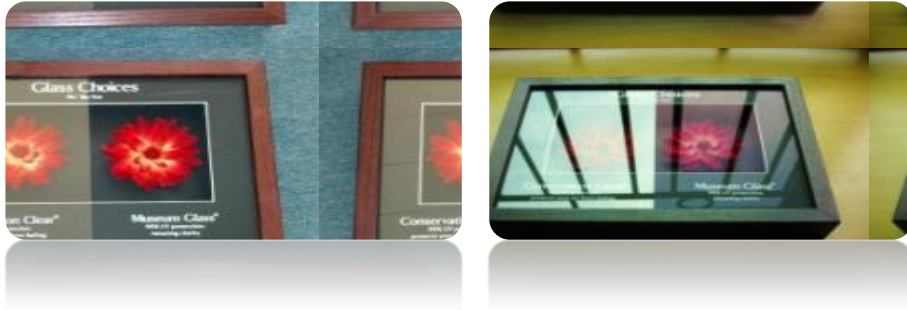


Automatically adjust the screen brightness according to the changes in the environment brightness, to save energy and reduce light pollution under the visible conditions.



# Outdoor Kiosk Protection--Anti Reflection

## Non glass&Anti-glare glass



## Glass Performance Contrast

Product	Standard thickness	Visible light transmittance %	Visible light reflectance %	UV blocking rate	Anti-static reaction	Substrate material
Museum glass	2.5mm	97%	<1%	99%	✓	Glass
Museum high quality Acrylic glass	6mm/ 3mm	97%	<2%	98%	✓	Wear-resistant FF3 acrylic
High quality Acrylic glass	3mm	97%	<2%	93%	✓	Wear-resistant OP-3 acrylic
Non-glare non-reflective glass	2.5mm	97%	<1%	78%	✓	Glass
Ordinary transparent float glass	2.5mm	90%	8%	25%	✓	Glass

# Outdoor Kiosk Protection--Vandal Proof

## FRP ball drop damage test

1. Glass specifications: 4 + 4 laminated non-glare glass;
2. Steel ball mass 1Kg;
3. The drop height of the steel ball gradually increases;
4. Test Results
  - Drop height 1.2m without breaking;
  - Break at drop height 1.3m;

VS

## FRP ball drop damage test



# Outdoor Kiosk Protection--Waterproof&Dustproof

## Dust filter grade

CN standard	EU standard	Particle radius(μm)	Ratio(%)
Primary Effect	G1	10	40-50
	G2	10	50-70
	G3	5	35-70
	G4	3	30-55
Medium Effect	F5	1	30-50
	F6	1	50-65
	F7	0.3	45-60
	F8	0.3	65-75
	F9	0.1	45-60
High Effect	professional air filtration use		

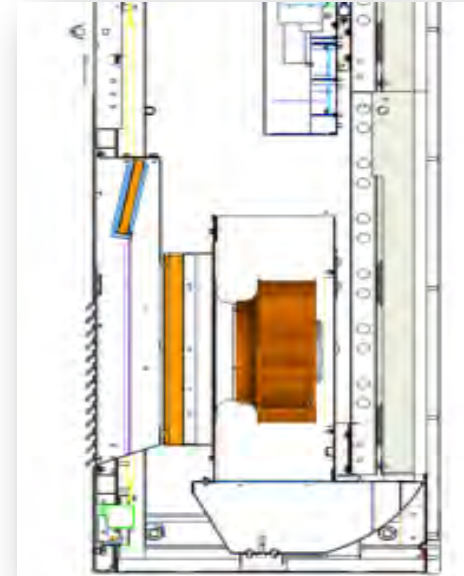
- Internal and external straight-through product rated IP55 protection level
- Inner and outer isolated products rated IP65 protection level

## Waterproof test

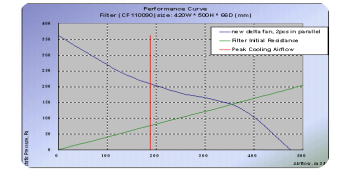


VS

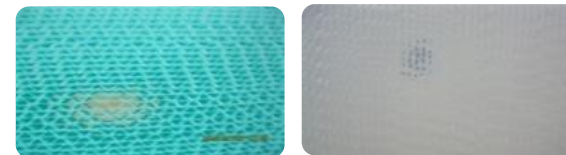
## Multi dust-proof protections



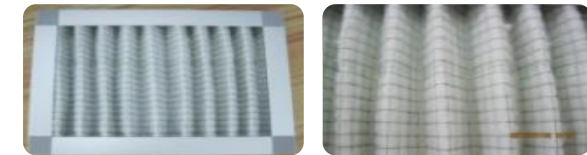
## Air filter performance&use of enviroment&air cooling speed



## An-ti statics&dustproof filter



## G3 dust filter



# Outdoor Kiosk Protection--anti-theft

## Main technical indicators of mechanical anti-theft

No.	Technical standard	Inspection item	
		Class A	Class B
1	Security door resists abnormal opening time	15min	30min
2	Anti-drilling damage time	15min	30min
3	Anti-saw damage time	5min	10min
4	Anti-prying damage time	15min	30min
5	Anti-breaking time	15min	30min
6	Anti-impact damage time	15min	30min
7	Anti-technical opening time	1min	5min
8	Mutual opening rate	≤0.03%	≤0.01%

VS



Hide fastening structure

# Outdoor Kiosk Protection--noise reduction

## Environmental noise standards for urban areas

Categories	Area	Daytime	Night
1	Quiet wellness areas, high-end villa areas, high-end hotel areas and other areas that require special quietness	15min	30min
2	Areas dominated by residential, cultural and educational institutions	15min	30min
3	Mixed residential, commercial, and industrial areas	5min	10min
4	Industrial area	15min	30min
5	The areas on both sides of the main road in the city, crossing the areas on both sides of the inland waterway of the urban area.	15min	30min

VS



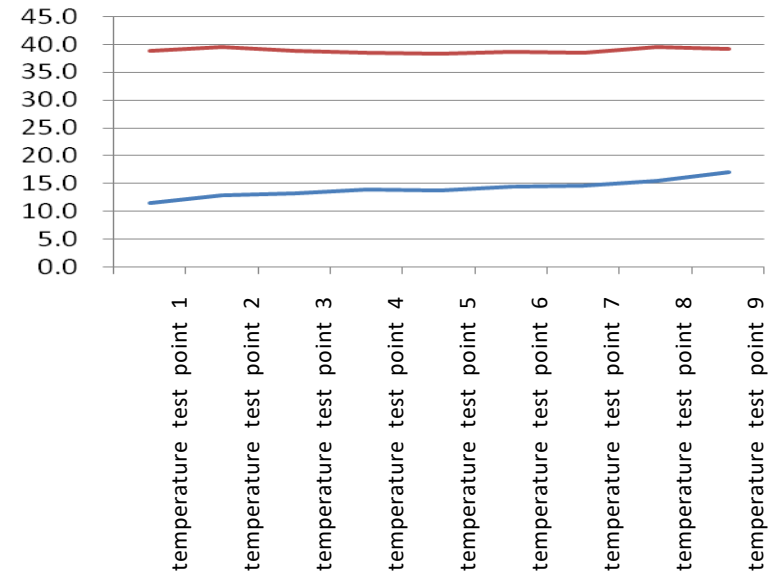
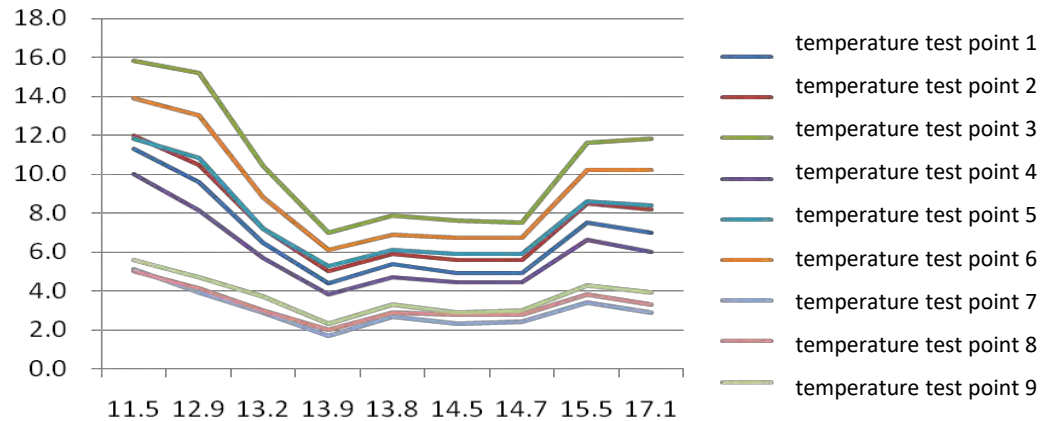
Structural noise reduction

Smart noise reduction control



# Outdoor Kiosk Protection--on-site direct ventilation test

Forced air cooling:  
LCD temperature  
measurement point  
and ambient  
temperature  
difference curve



Air conditioner:  
relationship between  
LCD temperature  
measurement point  
and ambient  
temperature

The on-site direct ventilation test method: LCD is placed south, the display screen is not directly facing the sun, and there is no influence of solar radiation on the screen panel;

After the data are balanced, it is measured that the period of low temperature difference in the curve is the effect of external natural wind (the entire device acts as a heat source to dissipate heat in the atmosphere)

Performance data analysis during field testing:

- Direct ventilation method: The maximum temperature difference between the screen panel temperature and the ambient temperature is 15.8 °C, and there is no temperature rise caused by direct sunlight screen;
- Air-conditioning method: The temperature of the panel does not change with the ambient temperature, and is maintained below 40 ° C, with a maximum of 39.5 ° C.

03



# Outdoor Kiosk Components

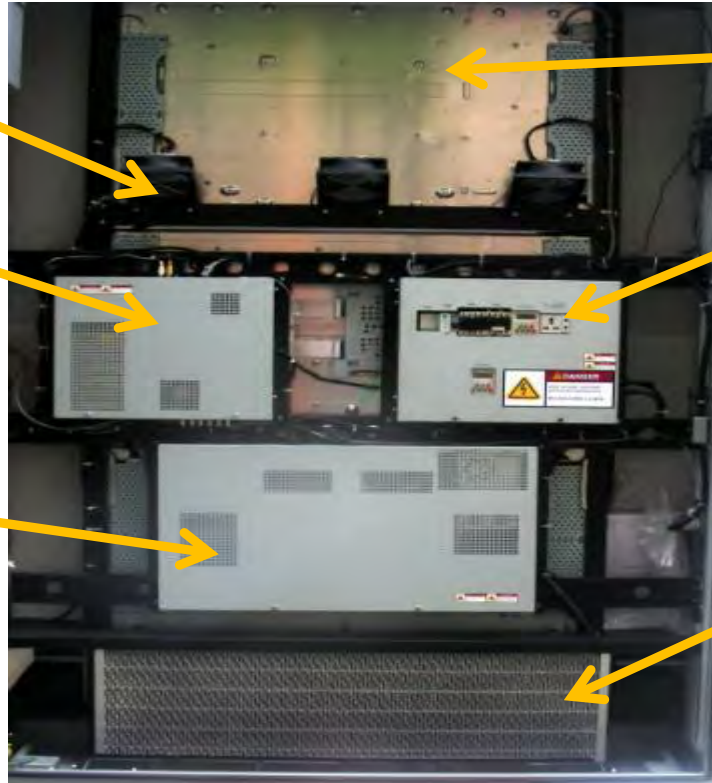
# Outdoor Kiosk Components

Diversion fan

Functional module



Power module



72inch high-definition LCD screen

AC electrical control module



Dustproof cotton



Cooling fan module



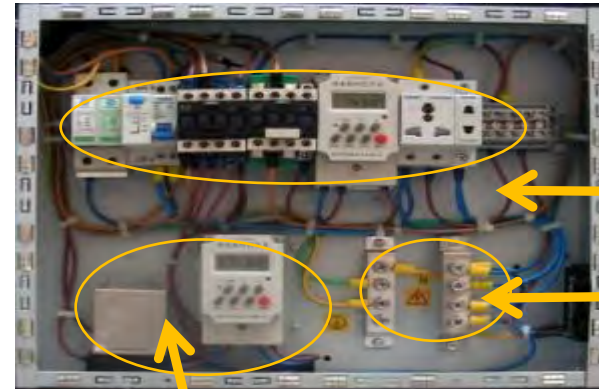
# Outdoor Kiosk Components

AC power control module



Warning sign

Internal layout of control module



High temperature protection control device

Lightning protection control device  
Ground bar

# Outdoor Kiosk Components

power module



Internal layout of the power module



Screen power supply switching power

Fan-powered switching power supply

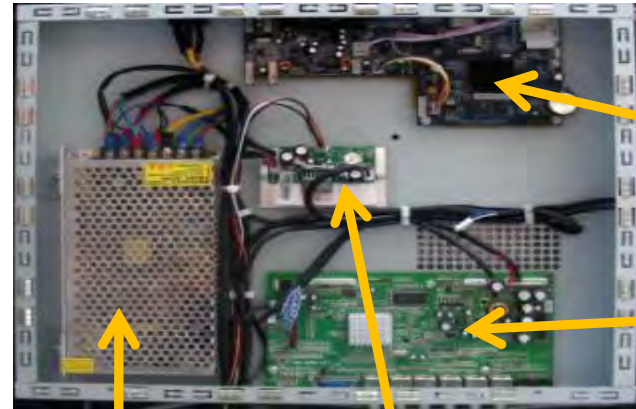
Fan control module

# Outdoor Kiosk Components

functional module



Internal layout of function modules



Function module switching power supply

Amplifier board

HD driver board

04



# Outdoor Kiosk Cooling system

# Outdoor Kiosk Cooling System--fan cooling

## 2. Forced air cooling :

EMB centrifugal fan + F7 dustproof cotton is used to dissipate and protect the inside of the equipment, applicable to the working environment: -30-45 ° C.

- Advantages: Low cost, low power consumption, small size, Relatively low noise
- Disadvantages: Need to maintain the dust filter regularly, Not suitable for desert ultra-high temperature areas

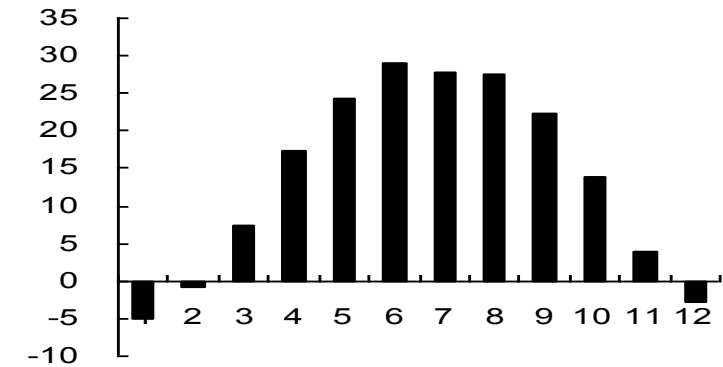


# Outdoor Kiosk Cooling System

## The comparison of LCD screen operating status

Product solutions		Screen and ambient temperature	Solar radiation effects	Average ground temperature in a city		Screen average operating temperature
Heat Exchanger coolin type	East-west	rise 24.0℃	rise 9.5℃	spring	16.0℃	49.5℃
				summer	27.5℃	60.5℃
				autumn	14.0℃	47.5℃
				winter	-3.5℃	30.0℃
	North-south	rise 24.0℃	rise 5℃	spring	16.0℃	45℃
				summer	27.5℃	56℃
				autumn	14.0℃	43℃
				winter	-3.5℃	25.5℃
Forced air cooling type	East-west	rise 15.0℃	rise 9.5℃	spring	16.0℃	40.5℃
				summer	27.5℃	51.5℃
				autumn	14.0℃	38.5℃
				winter	-3.5℃	21.0℃
	North-south	rise 15.0℃	rise 5℃	spring	16.0℃	36.0℃
				summer	27.5℃	48.0℃
				autumn	14.0℃	34.0℃
				winter	-3.5℃	16.5℃
Air conditioning type	East-west	no linkage , lower 45℃	rise 4.5℃	as above		Keep below 49.5℃
	North-south	no linkage, lower 45℃	no linkage	as above		Keep below 45℃

ground temperature (℃)



Ground temperature change in a city by month

- East-west heat exchanger and forced air-cooling solution LCD screen works at an average temperature of 50 °C or more for 3 months but does not exceed 68
- The air-conditioning type LCD screen runs below 50 °C throughout the year.

