

Taurus Series

Multimedia Players



Product Description

Version: V1.0.0

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Change History

Version	Release Date	Description
V1.0.0	2017-05-20	First release.

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1 Safety

This chapter illustrates Taurus series products safety to ensure storage, transportation, installation and usage safety of the products.

Safety description is applicable to all personnel that contact or use the products. First, pay attention to following points:

- Read throughout the description.
- Save the whole description.
- Be complied with the whole description.

1.1 Storage and Transport Safety

- Pay attention to dust and water prevention.
- Avoid long-term direct sunlight.
- Do not place the products at the position near fire and heat.
- Do not place the products in an area containing explosive materials.
- Do not place the products in strong electromagnetic environment.
- Place the products at a stable position to prevent damage or personal injury caused by dropping.
- Save the packing box and materials which will come in handy if you ever have to ship your products. For maximum protection, repack your product as it was originally packed at the factory.

1.2 Installation and Use Safety

- Only trained professionals may install the products.
- Do not insert and unplug (power cord plug) when the power is on.
- Ensure the safe grounding of the device.
- Be careful about electric shock risk. Built-in power supply TB1/TB2/TB3 supports direct input of 110V to 220V AC.
- Always wear a wrist band and insulating gloves.
- Do not place the products in an area having more or strong shake.
- Perform dust removing regularly.
- Do not maintain the products without authorization but contact NovaStar as soon as possible.

- Replace spare parts only with the same parts supplied by NovaStar.

XI'AN NOVASTAR TECH CO.,LTD

2 Overview

2.1 Background

Taurus series products are the second generation of multimedia players dedicated to small and media size LED full color display developed by NovaStar.

Taurus series products feature following advantages, better satisfying users' requirements:

- Synchronization display
- Powerful processing capability
- Omnidirectional control plan
- Synchronous and asynchronous dual-mode
- Dual-Wi-Fi mode
- 4G module
- Redundant backup

Wherein, cluster control plan is a new internet control plan featuring following advantages:

- More efficient: Use the cloud service mode to process services through a uniform platform. For example, VNNOX is used to edit and publish programs, and NovaiCare is used to centrally monitor display status.
- More reliable: Ensure the reliability based on active and standby disaster recovery mechanism and data backup mechanism of the server.
- More safe: Ensure the system safety through channel encryption, data fingerprint and permission management.
- Easier to use: VNNOX and NovaiCare can be accessed through Web. As long as there is internet, operation can be performed anytime and anywhere.
- More effective: This mode is more suitable for the commercial mode of advertising industry and digital signage industry.

2.2 Application

Taurus series products can be widely used in LED commercial display field, such as bar screen, chain store screen, advertising machine, mirror screen, retail store screen, door head screen, on board screen and the screen requiring no PC.

Classification of Taurus' application cases is shown in Table 2-1.

Table 2-1 Application

Classification	Description
Market type	<ul style="list-style-type: none">Advertising media: To be used for advertising and information promotion including bar screen and advertising machine.Digital signage: To be used for signage display in retail stores including retail store screens and door head screens.Commercial display: To display commercial information of hotel, cinema and shopping mall, such as chain store screens.
Networking mode	<ul style="list-style-type: none">Independent screen: Use a PC or the client software of a mobile phone to enable single-point connection and management of a screen.Cluster screen: Use the cluster solution developed by NovaStar to realize centralized management and monitor of multiple screens.
Connection type	<ul style="list-style-type: none">Wired connection: A PC connects to Taurus through the Ethernet cable or LAN.Wi-Fi connection: PC, Pad and mobile phone can connect to Taurus through Wi-Fi, which can be enabled in the case without PC in conjunction with ViPlex software.

2.3 Model

Table 2-2 Product model

Type	Model	Description
Bare card	T3, TR2, T1	It can be integrated into the display screen.
Player	TB3, TB2, TB1	The player, which has housing, can be integrated into the display screen, as well as be externally installed.

3 Features

3.1 Synchronous Display

Taurus series products support switching on/off function of synchronous display.

In case the synchronous display function is switched on, synchronous displays of different screens can be enabled as long as such screens have the synchronous time and are playing the same contents.

3.2 Powerful Processing Capability

Taurus series products feature powerful hardware processing capability:

- Support for 1080P video hardware decoding
- Eight-core processor
- 2 GB operating memory and 8 GB internal storage space

3.3 Omnidirectional Control Plan

Taurus series products have omnidirectional control plan over display screens and displaying programs, as shown in Table 3-1.

Table 3-1 Control Plan

Control Plan	Connecting Mode	Client Terminal	Related Software
Program publishing and control through PC	Connection via network line Connection via Wi-Fi	PC	ViPlex-Express NovaLCT-Taurus
Program publishing and control through LAN	Connection via LAN	PC	ViPlex-Express NovaLCT-Taurus
Program publishing and control through mobile phone	Connection via Wi-Fi	Mobile phone and Pad	ViPlex-Handy

Cluster remote program publishing	Wi-Fi AP+Sta/wired/4G	Mobile phone, Pad and PC	VNNOX VNNOX Player
Cluster remote monitoring	Wi-Fi AP+Sta/wired/4G	Mobile phone, Pad and PC	NovaiCare

3.4 Synchronous and Asynchronous Dual-Mode

Taurus series products T3 and TB3 support synchronous and asynchronous dual-mode, allowing more application cases and being user-friendly.

When internal video source is applied, Taurus is in asynchronous mode; when HDMI-input video source is used, Taurus is in synchronous mode. Content can be scaled and displayed to fit the screen size automatically in synchronous mode.

Users can manually and timely switch between synchronous and asynchronous modes, as well as set HDMI priority.

3.5 Dual-Wi-Fi Mode

Taurus series products have permanent Wi-Fi AP and support the Wi-Fi Sta mode, carrying advantages as shown below:

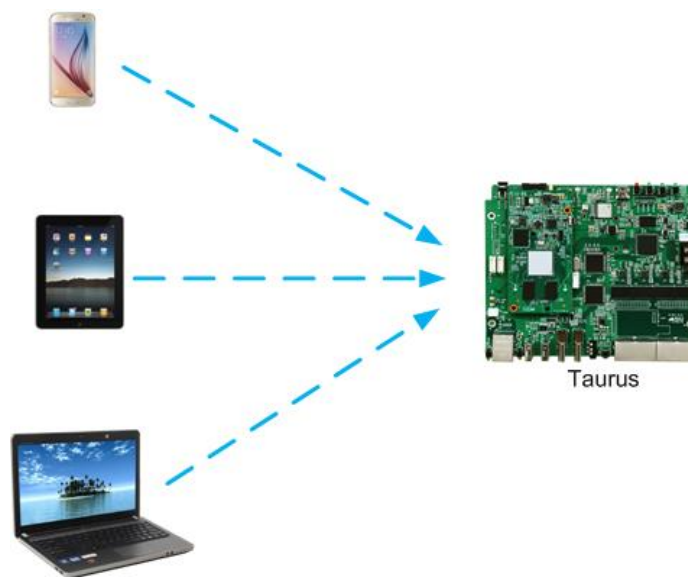
- Completely cover Wi-Fi connection scene. Taurus can be connected to through self-carried Wi-Fi AP or the external router.
- Completely cover client terminals. Mobile phone, Pad and PC can be used to log in Taurus through wireless network.
- Require no wiring. Display management can be managed at any time, having improvements in efficiency.

Taurus's Wi-Fi AP signal strength is related to the transmit distance and environment. Users can change the Wi-Fi antenna as required.

In this topic, the picture of T3 is taken as an example to introduce the Taurus series products.

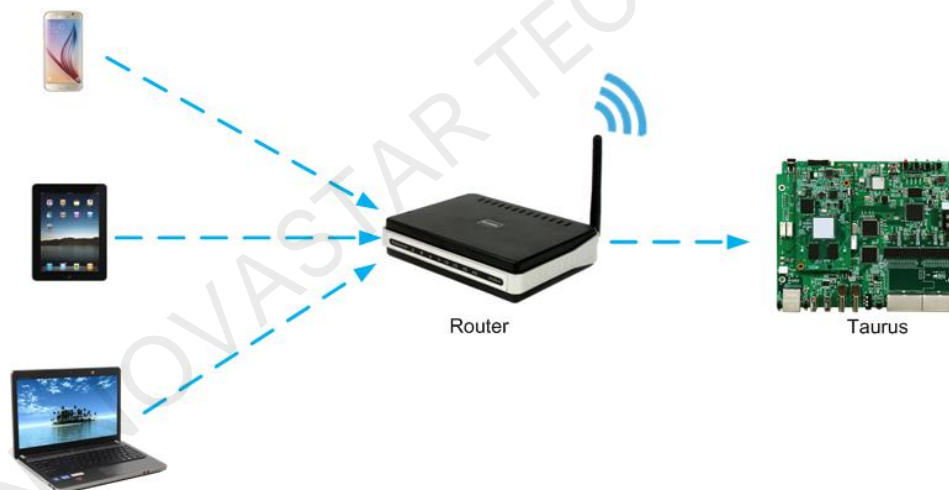
3.5.1 Wi-Fi AP Mode

In Wi-Fi AP connection mode, users can directly access Taurus with SSID being the sum of AP and the last numbers of SN, for example, "**AP10000033**", and the default password is "**12345678**".



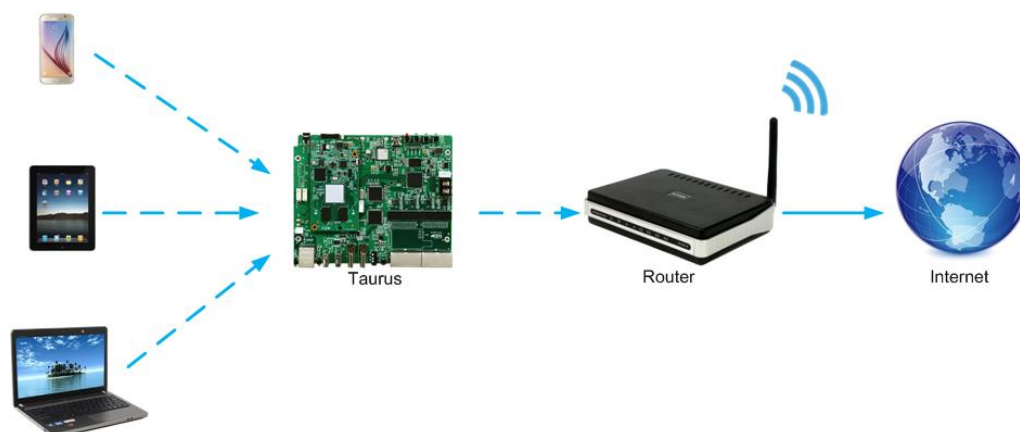
3.5.2 Wi-Fi Sta Mode

In Wi-Fi Sta connection mode, users can access Taurus through the external router.



3.5.3 Wi-Fi AP+Sta Mode

In Wi-Fi AP+Sta connection mode, users can either directly access Taurus or access internet through bridging connection. Upon the cluster solution, VNNOX and NovaiCare can realize remote program publishing and remote monitoring respectively through the Internet.



3.6 4G Module

Taurus series products provide models with 4G module, allowing complete covering of the internet connection.

From high to low, the priority includes:

- Wired network
- Wi-Fi Sta
- 4G network

Taurus automatically selects signals according to the priority.

When mobile data network is enabled for client software ViPlex and priority requirements are met, Taurus with 4G module can connect to the internet.

3.7 Redundant Backup

Taurus series products support network redundant backup and Ethernet port redundant backup.

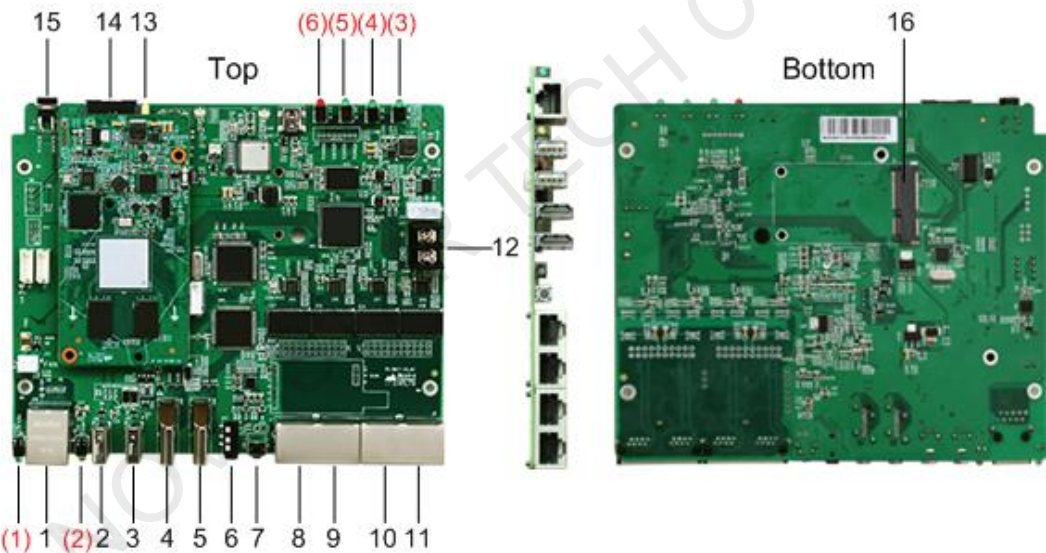
- Network redundant backup: Taurus automatically selects internet connection mode among wired network, Wi-Fi Sta or 4G network according to the priority.
- Ethernet port redundant backup: Taurus enhances connection reliability through active and standby redundant mechanism for the Ethernet port used to connect with the receiving card.

4 Hardware Structure

4.1 T3

4.1.1 Appearance

Figure 4-1 Appearance of T3



Note: Product images provided in this file are for reference only, and the actual products shall prevail.

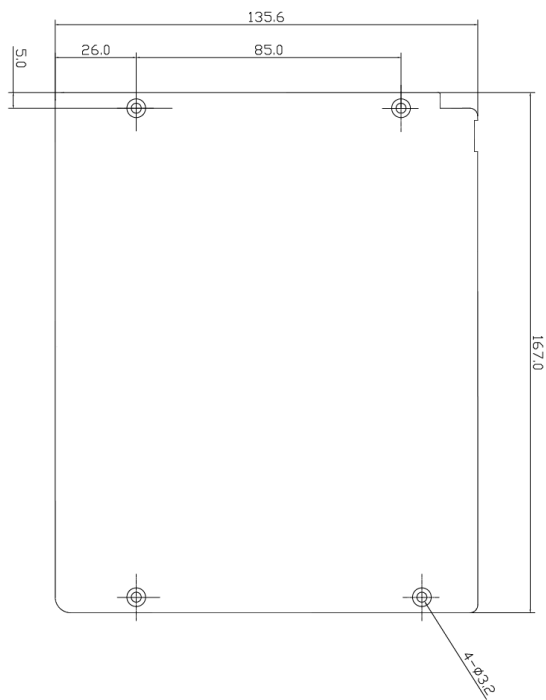
1	Gigabit Ethernet port	9	Ethernet port 2
2	USB port 1	10	Backup for Ethernet port 1
3	USB port 2	11	Backup for Ethernet port 2
4	HDMI input	12	Power input
5	HDMI output	13	SIM card eject button
6	Audio output	14	SIM card slot
7	Factory reset button, hold down for 5 seconds to reset to factory defaults	15	Dual-mode switching button (synchronous/asynchronous)
8	Ethernet port 1	16	4G module slot

Table 4-1 Indicators of T3

No.	Indicator Color	Indicator Status	Description
(1)	Green	Both the green and yellow indicators are turned on simultaneously.	The product is connected to the Gigabit Ethernet cable and the connection status is normal.
(2)	Yellow	Always on	The product is connected to the 100M Ethernet cable and the connection status is normal.
(3)	Green	Always on	The system is operating normally.
		Flashes quickly	The system is sending data.
(4)	Green	Always on	The product is connected to the Internet and the connection status is normal.
		Flashes once every 5 seconds	The product is only connected to VNNOX and the connection status is normal.
		Flashes once every 2 seconds	The product is only connected to NovaiCare and the connection status is normal.
		Flashes once every 0.5 second	The product is normally connected to both VNNOX and NovaiCare simultaneously, and the connection status is normal.
(5)	Green	Always on	FPGA is operating normally.
		Flashes quickly	System is sending data.
(6)	Red	Always on	Power input is normal.

4.1.2 Dimensions

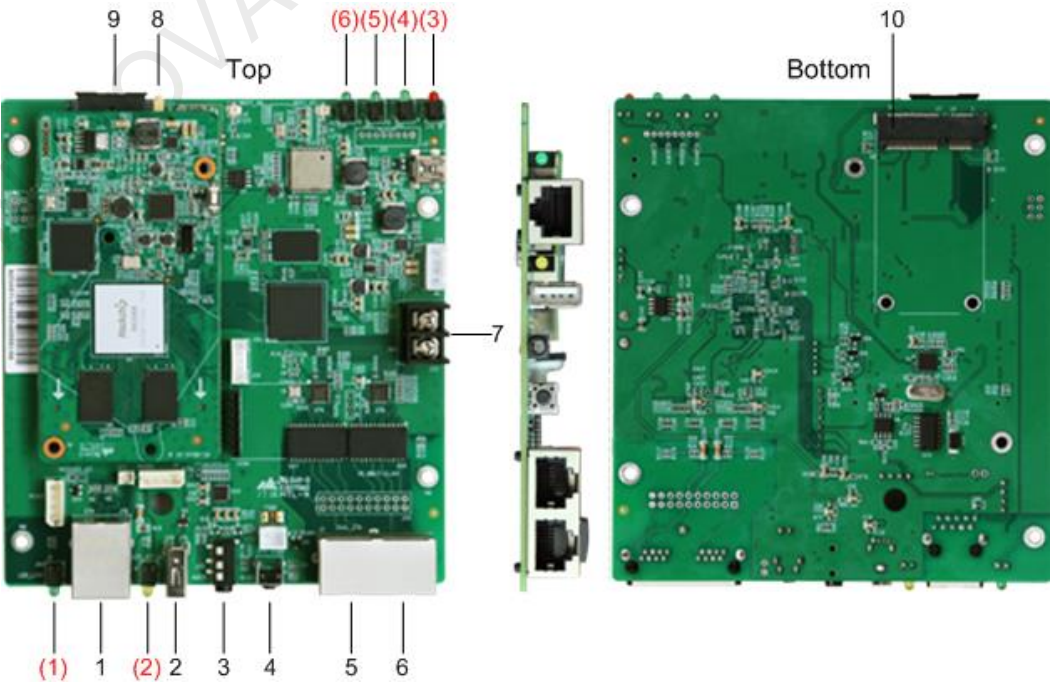
Unit of the dimension chart is “mm”. Ground connection is enabled for location hole (GND).



4.2 T1

4.2.1 Appearance

Figure 4-2 Appearance of T1



Note: Product images provided in this file are for reference only, and the actual products shall prevail.

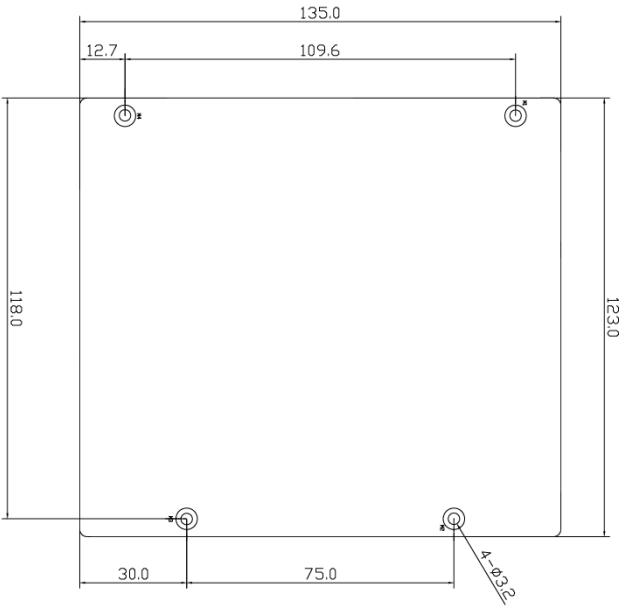
1	Gigabit Ethernet port	6	Backup for Ethernet port
2	USB port	7	Power input
3	Audio output	8	SIM card eject button
4	Factory reset button, hold down for 5 seconds to reset to factory defaults	9	SIM card slot
5	Ethernet port	10	4G module slot

Table 4-2 Indicators of T1

No.	Indicator Color	Indicator Status	Description
(1)	Green	Both the green and yellow indicators are turned on simultaneously.	The product is connected to the Gigabit Ethernet cable and the connection status is normal.
(2)	Yellow	Always on	The product is connected to the 100M Ethernet cable and the connection status is normal.
(3)	Green	Always on	The system is operating normally.
		Flashes quickly	The system is sending data.
(4)	Green	Always on	The product is connected to the Internet and the connection status is normal.
		Flashes once every 5 seconds	The product is only connected to VNNOX and the connection status is normal.
		Flashes once every 2 seconds	The product is only connected to NovaiCare and the connection status is normal.
		Flashes once every 0.5 second	The product is normally connected to both VNNOX and NovaiCare simultaneously, and the connection status is normal.
(5)	Green	Always on	FPGA is operating normally.
		Flashes quickly	System is sending data.
(6)	Red	Always on	Power input is normal.

4.2.2 Dimensions

Unit of the dimension chart is “mm”. Ground connection is enabled for location hole (GND).



5 Software Structure

5.1 Taurus System Software

- Android operating system software
- Android terminal application software
- FPGA program

5.2 Related Configuration Software

Table 5-1 Related configuration software

Software	Description
ViPlex-Handy	Mobile phone client software of Taurus series products includes Android and iOS which are mainly used for screen management, editing, and program publishing.
ViPlex-Express	PC client software of Taurus series products only includes Windows which is mainly used for screen management, editing, and program publishing.
NovaLCT-Taurus	Display screen configuration software works in Windows only, and is used to adjust screens to the best display status.

6 Specifications

6.1 T3

Item	Sub-Item	Specifications
Physical specifications	Dimension (HxWxD)	167.0mm×135.6mm×22mm
	Weight	181.7g
	Input power supply	DC
	Rated voltage	5V
	Rated current	3A
	Maximum power consumption	18W
	Storage temperature	0°C-50°C
	Storage humidity	0%RH-80%RH
	Operating temperature	-40°C-75°C
	Operating humidity	0%RH-80%RH
	Operating memory	2GB
	Internal storage space	8GB
Packing information	Dimension (HxWxD)	200mm×120mm×40mm
	List	<ul style="list-style-type: none"> • One bare card of T3 LED multimedia player • One patch Wi-Fi antenna • One column Wi-Fi omnidirectional antenna • One IPex convert SMA 18cm extension line

Characteristics	<ul style="list-style-type: none"> • Support 1.3 megapixel loading capacity, with maximum width of 4096 pixels and maximum height of 1920 pixel. • Support 2-primary 2-standby Ethernet port redundant mechanism. • Support dual-Wi-Fi, and features Wi-Fi AP and Wi-Fi Sta functions. • Support Gigabit wired network. • Support stereo audio output. • Support HDMI Loop. • Support HDMI input mode. • Support HDMI input full-screen self-adaptive display. • Support manual and timing switching between synchronous and asynchronous modes. • 2-Way USB Host interface supports USB drive importing display. • Onboard brightness sensor interface supports automatic and timing smart brightness adjustment.
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6.2 T1

Item	Sub-Item	Specifications
Physical specifications	Dimension (HxWxD)	123.0mm×135.0mm×19.3mm
	Weight	135.8g
	Input power supply	DC
	Rated voltage	5V
	Rated current	1.5A
	Maximum power consumption	15W
	Storage temperature	0°C-50°C
	Storage humidity	0%RH-80%RH
	Operating temperature	-40°C-75°C
	Operating humidity	0%RH-80%RH
	Operating memory	2GB
	Internal storage space	8GB
Packing	Dimension (HxWxD)	200mm×120mm×40mm

information	List	<ul style="list-style-type: none">• One bare card of T1 LED multimedia player• One patch Wi-Fi antenna• One column Wi-Fi omnidirectional antenna• One IPex convert SMA 18cm extension line
Characteristics	<ul style="list-style-type: none">• Support 650,000 pixel loading capacity, with maximum width of 2048 pixels and maximum height of 1024 pixel.• Support 1-primary 1-standby Ethernet port redundant mechanism.• Support dual-Wi-Fi, and features Wi-Fi AP and Wi-Fi Sta functions.• Support Gigabit wired network.• Support stereo audio output.• 1-Way USB Host interface supports USB drive importing display.• Onboard brightness sensor interface supports automatic and timing smart brightness adjustment.	