



# Taurus Series Multimedia Players

V1.4.1 NS120100606



T3 Specifications

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# 1 Overview

## 1.1 Introduction

Taurus series products are NovaStar's second generation of multimedia players dedicated to small and medium-sized full-color LED displays.

T3 of the Taurus series products (hereinafter referred to as "T3") feature following advantages, better satisfying users' requirements:

- Loading capacity up to 650,000 pixels
- Synchronization mechanism for multi-screen playing
- Powerful processing capability
- Comprehensive control plans
- Dual-Wi-Fi mode
- Redundant backup

**Note:**

If the user has a high demand on synchronization, the time synchronization module is recommended. For details, please consult our technical staff.

In addition to solution publishing and screen control via PC, mobile phones and LAN, the comprehensive control plans also support remote centralized publishing and monitoring.

## 1.2 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 1-1](#).

Table 1-1 Application

Classification	Description
Market type	<ul style="list-style-type: none"><li>• Advertising media: To be used for advertising and information promotion including bar screen and advertising machine.</li><li>• Digital signage: To be used for signage display in retail stores including retail store screens and door head screens.</li><li>• Commercial display: To display commercial information of</li></ul>

Classification	Description
	hotel, cinema and shopping mall, such as chain store screens.
Networking mode	<ul style="list-style-type: none"><li>• Independent screen: Use a PC or the client software of a mobile phone to enable single-point connection and management of a screen.</li><li>• Cluster screen: Use the cluster solution developed by NovaStar to realize centralized management and monitor of multiple screens.</li></ul>
Connection type	<ul style="list-style-type: none"><li>• Wired connection: A PC connects to Taurus through the Ethernet cable or LAN.</li><li>• 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.</li></ul>

# 2 Features

## 2.1 Synchronization mechanism for multi-screen playing

The T3 support switching on/off function of synchronous display.

When synchronous display is enabled, the same content can be played on different displays synchronously if the time of different T3 units are synchronous with one another and the same solution is being played.

## 2.2 Powerful Processing Capability

The T3 feature powerful hardware processing capability:

- 1.5 GHz eight-core processor
- Support for H.265 4K high-definition video hardware decoding playback
- Support for 1080P video hardware decoding
- 2 GB operating memory
- 8 GB on-board internal storage space with 4 GB available for users

## 2.3 Comprehensive Control Plans

Table 2-1 Control Plan

Control Plan	Connecting Mode	User Terminal	Related Software
Solution publishing and screen control through PC	Ethernet cable Wi-Fi	PC	ViPlex Express NovaLCT
Solution publishing and screen control through LAN	LAN	PC	ViPlex Express NovaLCT
Solution publishing and screen control through mobile phone	Wi-Fi	Mobile phone and Pad	ViPlex Handy

Control Plan	Connecting Mode	User Terminal	Related Software
Cluster remote solution publishing and screen control	WiFi AP+Sta Wired	Mobile phone, Pad and PC	VNNOX ViPlex Handy ViPlex Express
Cluster remote monitoring	WiFi AP+Sta Wired	Mobile phone, Pad and PC	NovaiCare ViPlex Handy ViPlex Express

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 solutions, 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, and makes information spreading more effective.

## 2.4 Dual-Wi-Fi Mode

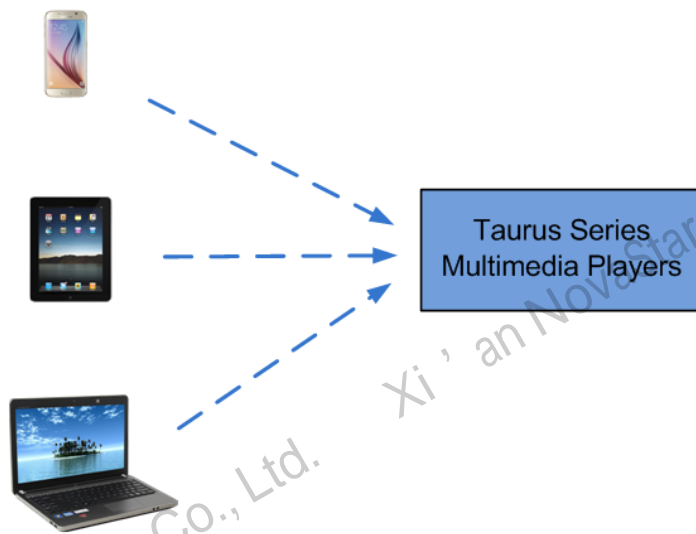
The T3 have permanent Wi-Fi AP and support the Wi-Fi Sta mode, carrying advantages as shown below:

- Completely cover Wi-Fi connection scene. The T3 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 T3 through wireless network.
- Require no wiring. Display management can be managed at any time, having improvements in efficiency.

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

### 2.4.1 Wi-Fi AP Mode

Users connect the Wi-Fi AP of a T3 to directly access the T3. The SSID is "**AP + the last 8 digits of the SN**", for example, "**AP10000033**", and the default password is "**12345678**".



### 2.4.2 Wi-Fi Sta Mode

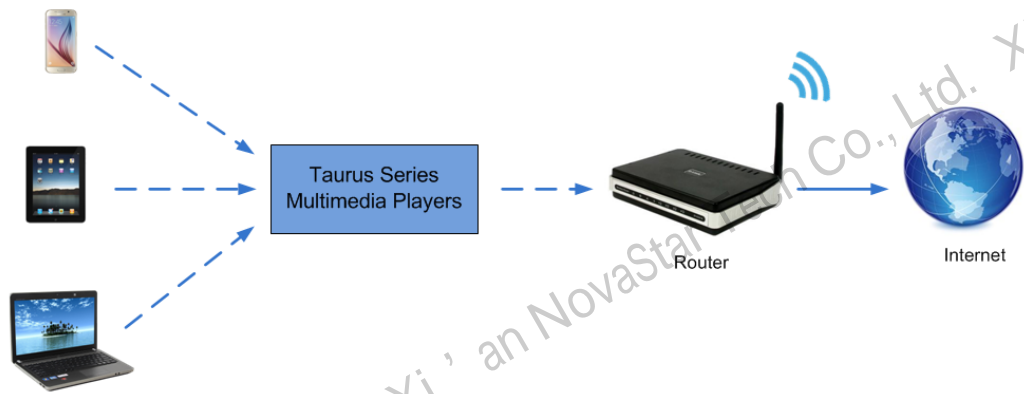
Configure an external router for a T3 and users can access the T3 by connecting the external router. If an external router is configured for multiple T3 units, a LAN can be created. Users can access any of the T3 via the LAN.



### 2.4.3 Wi-Fi AP+Sta Mode

In Wi-Fi AP+ Sta connection mode, users can either directly access the T3 or access internet through bridging connection. Upon the cluster solution, VNNOX and NovaCare can realize remote solution publishing and remote monitoring respectively through the Internet.





## 2.5 Redundant Backup

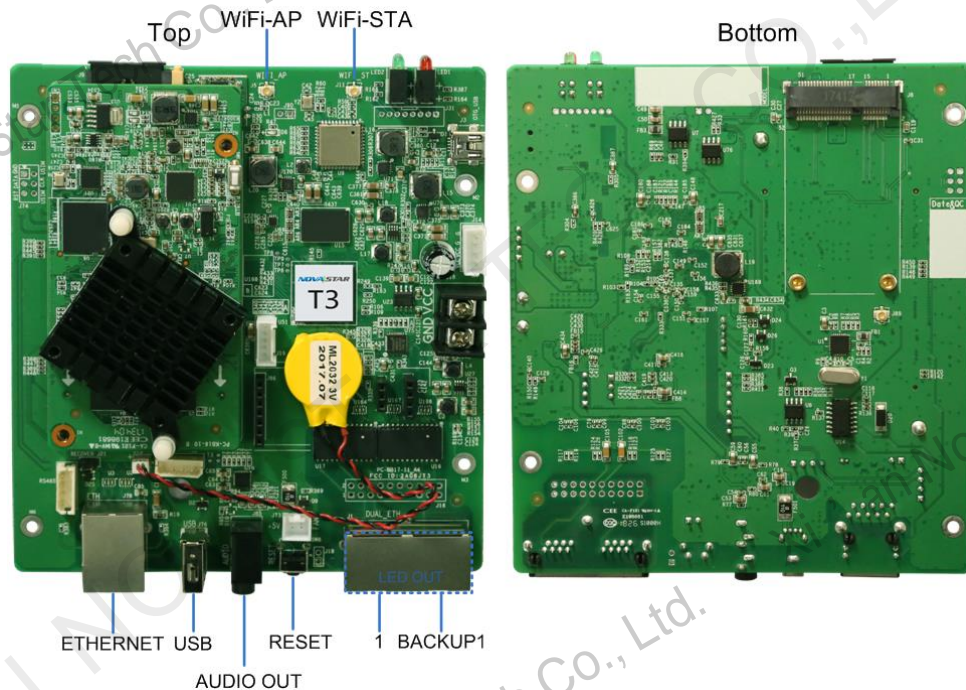
T3 support network redundant backup and Ethernet port redundant backup.

- Network redundant backup: The T3 automatically selects internet connection mode among wired network or Wi-Fi Sta network according to the priority.
- Ethernet port redundant backup: The T3 enhances connection reliability through active and standby redundant mechanism for the Ethernet port used to connect with the receiving card.

# 3 Hardware Structure

## 3.1 Appearance

Figure 3-1 Appearance of T3

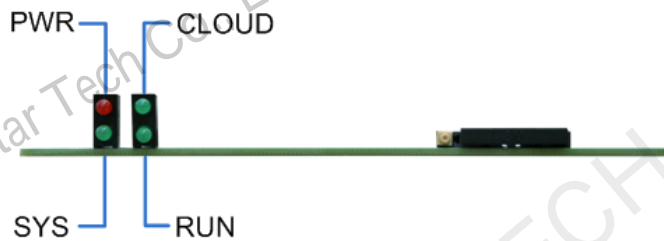


Note: All product pictures shown in this document are for illustration purpose only. Actual product may vary.

Table 3-1 Connectors and buttons of the T3

Name	Description
WiFi-STA	Wi-Fi Sta antenna port
WiFi-AP	Wi-Fi AP antenna port
ETHERNET	Gigabit Ethernet port Indicator status: <ul style="list-style-type: none"> <li>• Yellow indicator always on: The unit is connected to 100M Ethernet cable and the status is normal.</li> <li>• Green and yellow indicators always on at the same</li> </ul>

Name	Description
	time: The unit is connected to Gigabit Ethernet cable and the status is normal.
USB	USB 2.0 port
AUDIO OUT	Audio output
RESET	Factory reset button Press and hold the button for 5 seconds to reset the unit to factory settings.
1	Output Ethernet port
BACKUP1	Backup for output Ethernet port

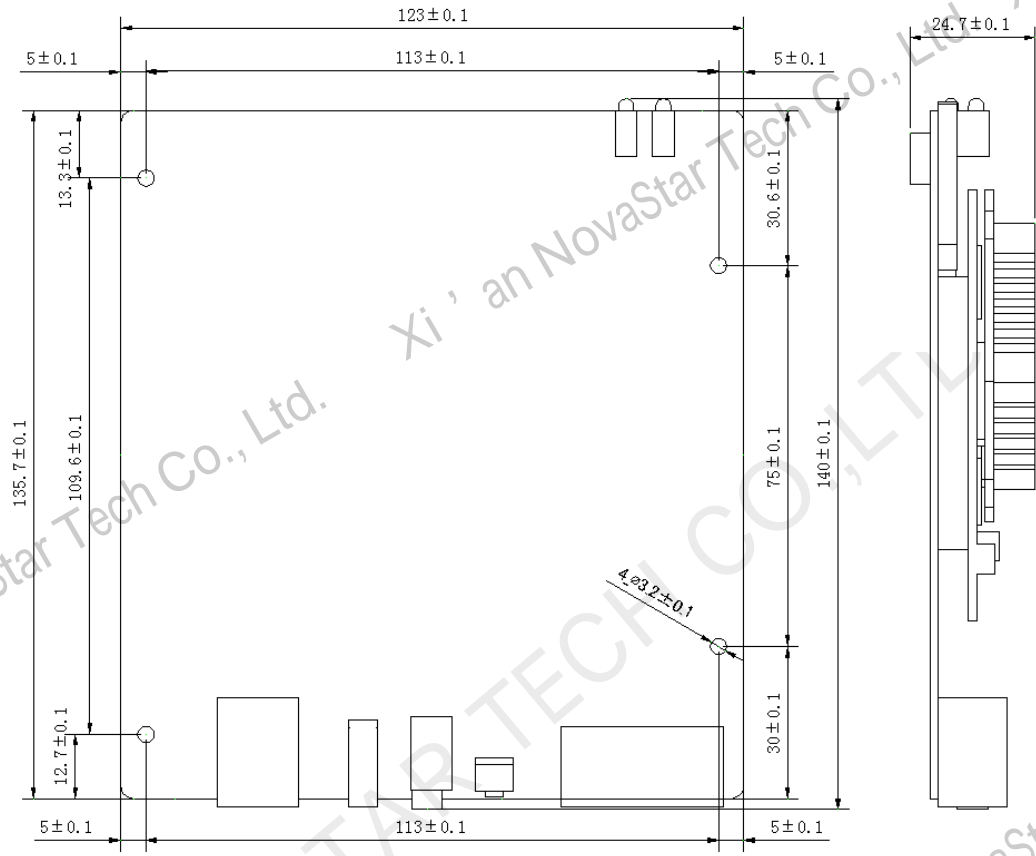


Note: All product pictures shown in this document are for illustration purpose only. Actual product may vary.

Table 3-2 Indicators of the T3

Name	Description
PWR	Power status indicator Always on: Power input is normal.
SYS	System status indicator <ul style="list-style-type: none"> <li>Flashing once every other 2 seconds: The system is operating normally.</li> <li>Flashing once every other second: The system is installing the upgrade package.</li> <li>Flashing once every other 0.5 second: The system is downloading data from the Internet or copying the upgrade package.</li> <li>Always on/off: The system is operating abnormally.</li> </ul>
CLOUD	Internet connection status indicator <ul style="list-style-type: none"> <li>Always on: The unit is connected to the Internet and the connection status is normal.</li> <li>Flashing once every other 2 seconds: The unit is connected to VNNOX and the connection status is normal.</li> </ul>
RUN	FPGA status indicator Same as the signal indicator status of the sending card: FPGA is operating normally.

### 3.2 Dimensions



Unit: mm

# 4 Software Structure

## 4.1 System Software

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

Note: The third-party applications are not supported.

## 4.2 Configuration Software

Table 4-1 Related configuration software

Name	Type	Description
ViPlex Handy	Mobile client	LAN-based screen management software for Android and iOS, which is mainly used for screen management, solution editing and publishing.
ViPlex Express	PC client	LAN-based screen management software for Windows, which is mainly used for screen management, solution editing and publishing.
NovaLCT	PC client	Screen configuration software for Windows and OS X, mainly used to adjust the screen to the optimal display condition.

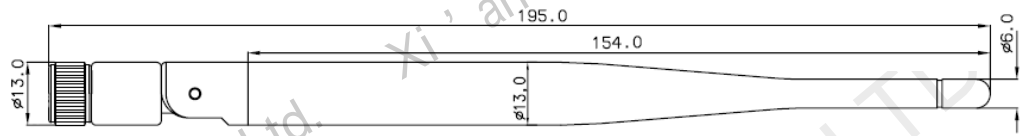
# 5 Product Specifications

## Specifications

Electrical Parameters	Rated voltage	5 V DC
	Rated current	1.5 A
	Maximum power consumption	15 W
Storage Space	Operating memory	2 GB
	Internal storage space	8 GB on-board with 4 GB available for users
Storage Environment	Temperature	0°C-50°C
	Humidity	0% RH-80% RH, non-condensing
Operating Environment	Temperature	-20°C-60°C
	Humidity	0% RH-80% RH, non-condensing
Packing Information	Dimensions (HxWxD)	200 mm x 120 mm x 40 mm
	List	<ul style="list-style-type: none"> <li>• 1 x T3 card</li> <li>• 2 x Wi-Fi omnidirectional antenna</li> <li>• 2 x IPex convert SMA extension line</li> <li>• 1 x Quick Start Guide</li> </ul>
Dimensions (H x W x D)	140.0 mm x 123.0 mm x 24.7 mm	
Net Weight	171.9 g	
Features	<ul style="list-style-type: none"> <li>• Pixel capacity up to 650,000, with the maximum width of 4096 pixels and maximum height of 1920 pixels.</li> <li>• Supports 1-primary 1-standby Ethernet port redundant mechanism.</li> <li>• Supports dual-Wi-Fi, and features Wi-Fi AP and Wi-Fi Sta functions.</li> <li>• Supports Gigabit wired network.</li> <li>• Supports stereo audio output.</li> <li>• 1 USB port allows for playback of media imported from USB</li> </ul>	

	<p>drives.</p> <ul style="list-style-type: none"> <li>1 Onboard brightness sensor port supports automatic and scheduled smart brightness adjustment.</li> </ul>
IP Rating	<p>IP20</p> <p>Please prevent the product from water intrusion and do not wet or wash the product</p>

Antenna



Unit: mm

Antenna extension mast



Unit: mm

# 6 Audio and Video Decoder Specifications

## 6.1 Image

### 6.1.1 Decoder

Type	Codec	Supported Image Size	Container	Remarks
JPEG	JFIF file format 1.02	48×48 pixels~8176×8176 pixels	JPG, JPEG	Not Support Non-interleaved Scan Software support SRGB JPEG Software support Adobe RGB JPEG
BMP	BMP	No Restriction	BMP	N/A
GIF	GIF	No Restriction	GIF	N/A
PNG	PNG	No Restriction	PNG	N/A
WEBP	WEBP	No Restriction	WEBP	N/A

### 6.1.2 Encoder

Type	Codec	Supported Image Size	Maximum Data Rate	File Format	Remarks
JPEG	JPEG Baseline	96×32 pixels~8176×8176 pixels	90Mpixels/Second	JFIF file format 1.02	N/A



## 6.2 Audio

### 6.2.1 Decoder

Type	Codec	Channel	Bit rate	Sampling rate	File Format	Remarks
MPEG	MPEG1/2/2.5 Audio Layer1/2/3	2	8kbps~320Kbps, CBR and VBR	8KHZ~48 KHz	MP1, MP2, MP3	N/A
Windows Media Audio	WMA Version 4, 4.1, 7, 8, 9, wmapro	2	8kbps~320Kbps	8KHZ~48 KHz	WMA	Non-support WMA Pro, lossless and MBR
WAV	MS-ADPCM, IMA-ADPCM, PCM	2	N/A	8KHZ~48 KHz	WAV	Support 4bit MS-ADPCM, IMA-ADPCM
OGG	Q1~Q10	2	N/A	8KHZ~48 KHz	OGG, OGA	N/A
FLAC	Compress Level 0~8	2	N/A	8KHZ~48 KHz	FLAC	N/A
AAC	ADIF, ATDS Header AAC-LC and AAC-HE, AAC-ELD	5.1	N/A	8KHZ~48 KHz	AAC, M4A	N/A
AMR	AMR-NB, AMR-WB	1	AMR-NB 4.75~12.2kbps @8kHz AMR-WB 6.60~23.85kbps @16kHz	8KHZ, 16KHz	3GP	N/A
MIDI	MIDI Type 0 and 1, DLS version 1 and 2, XMF and Mobile XMF, RTTTTL/RTX, OTA, iMelody	2	N/A	N/A	XMF, MXMF, RTTTTL, RTX, OTA, IMY	N/A

### 6.2.2 Encoder

Type	Codec	Channel	Bit rate	Sampling rate	Container	Remarks
AMR	AMR-NB, AMR-WB	2	4.75kbps~12.2Kbps, CBR	8KHZ, 16KHZ	3GPP	N/A
AAC	AAC-ADTS-LC	1	4.75kbps~60Kbps, CBR	8KHZ~44.1KH Z	AAC, 3GPP, Mpeg2TS	N/A

## 6.3 Video

### 6.3.1 Decoder

Type	Codec	Supported Image Size	Maximum Frame Rate	Maximum Bit Rate (Ideal Case)	File Format	Remarks
MPEG-1/2	MPEG-1/2	48x48 pixels~1920x1088 pixels	30fps	80Mbps	DAT, MPG, VOB, TS	Support Field Coding
MPEG-4	MPEG-4	48x48 pixels~1920x1088 pixels	30fps	38.4Mbps	AVI, MKV, MP4, MOV, 3GP	Not support MS MPEG4 v1/v2/v3 Not support GMC
H.264/AVC	H.264	T3&T6&TB3&TB4&TB6&TB8: 48x48 pixels~4096x2304 pixels Other models: 48x48 pixels~1920x1088 pixels	T3&T6&TB3&TB4&TB6&TB8: 4K@25fps, 1080P@60fps Other models: 1080P@60fps	T3&T6&TB3&TB4&TB6&TB8: 100Mbps Other models: 57.2Mbps	AVI, MKV, MP4, MOV, 3GP, TS, FLV	Support Field Coding Support MBAFF
MVC	H.264 MVC	48x48 pixels~1920x1088 pixels	60fps	38.4Mbps	MKV, TS	Support Stereo High Profile only
H.265/HEVC	H.265/HEVC	T3&T6&TB3&TB4&TB6&TB8: 64x64 pixels~4096x2304 pixels Other models: 64x64 pixels~1920x1088 pixels	T3&T6&TB3&TB4&TB6&TB8: 4K@60fps, 1080P@60fps Other models: 1080P@60fps	T3&T6&TB3&TB4&TB6&TB8: 100Mbps Other models: 57.2Mbps	MKV, MP4, MOV, TS	Support Main Profile Support Tile & Slice
GOOGLE VP8	VP8	48x48 pixels~1920x1088 pixels	30fps	38.4 Mbps	WEBM, MKV	N/A
H.263	H.263	SQCIF(128x96), QCIF(176x144), CIF(352x288), 4CIF(704x576)	30fps	38.4Mbps	3GP, MOV, MP4	Not support H.263+
VC-1	VC-1	48x48 pixels~1920x1088 pixels	30fps	45Mbps	WMV, ASF, TS, MKV, AVI	N/A

Type	Codec	Supported Image Size	Maximum Frame Rate	Maximum Bit Rate (Ideal Case)	File Format	Remarks
MOTION JPEG	MJPEG	48x48 pixels~1920x1088 pixels	30fps	38.4Mbps	AVI	N/A

**Note:** Output data format is YUV420 semi-planar, and YUV400(monochrome) is also supported for H.264.

### 6.3.2 Encoder

Type	Codec	Supported Image Size	Maximum Frame Rate	Maximum Bit Rate (Ideal Case)	File Format	Remarks
H.264/AVC	H.264	144x96 pixels~1920x1088 pixels	30fps	20Mbps	MOV, 3GP	Not support MBAFF
Google VP8	VP8	96x96 pixels~1920x1088 pixels	30fps	10Mbps	WEBM	N/A

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