Taurus Series
Multimedia Players

V1.5.0　NS120100713
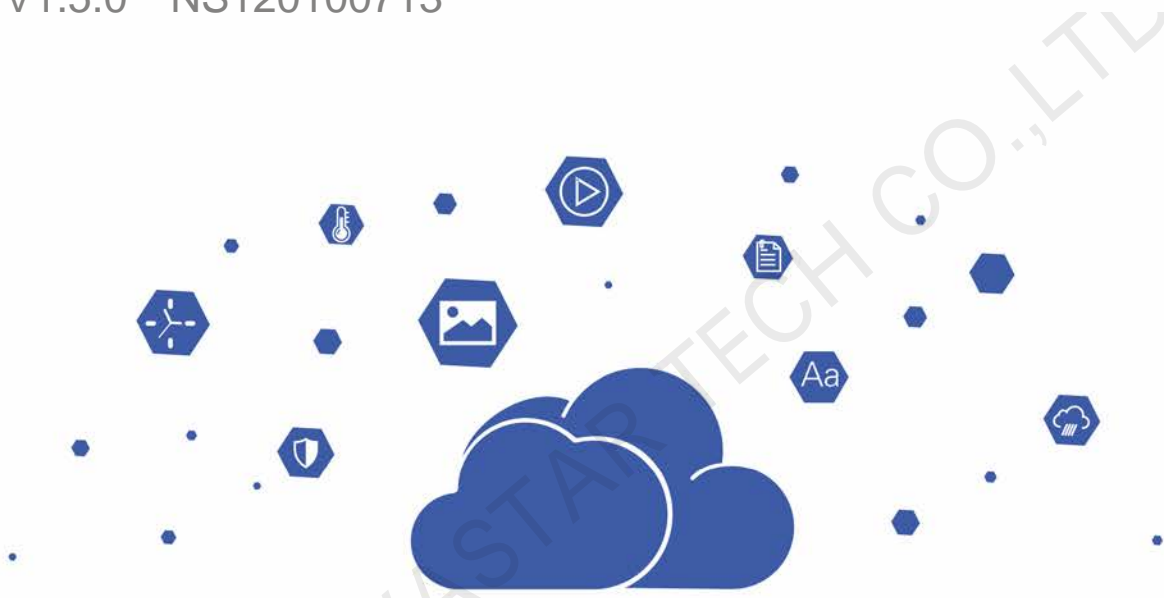
TB3 Specifications

Contents

1 Overview

1.1 Introduction

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

This document introduces TB3.

Features

- Synchronization mechanism for multi-screen playing
- Powerful processing capability
- Comprehensive control plans
- Dual-Wi-Fi mode
- Redundant backup

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.

For Ethernet port redundancy, 1 master and 1 backup Ethernet ports are provided.

Other Hardware Features

- Loading capacity up to 650,000 pixels, with the maximum width of 4096 pixels and maximum height of 1920 pixels
- Wired Gigabit Ethernet
- Stereo audio output
- 1 USB port allowing for USB playback
- Onboard light sensor connector allowing for automatic and scheduled brightness adjustment

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	• 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	• Independent screen: Use a PC or mobile client software 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	• Wired connection: A PC connects to Taurus through the Ethernet cable or LAN. • Wi-Fi connection: PC, Pad and mobile phone can connect to Taunus through Wi-Fi, which can be enabled in the case without PC in conjunction with ViPlex software.

2 Features

2.1 Synchronization mechanism for multi-screen playing

The TB3 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 TB3 units are synchronous with one another and the same solution is being played.

2.2 Powerful 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

- Solution publishing and screen control via PC
- Solution publishing and screen control via LAN
- Solution publishing and screen control via mobile phone
- Clustered remote solution publishing and screen control
- Clustered remote monitoring

2.4 Dual-Wi-Fi Mode

The TB3 has permanent Wi-Fi AP and supports the Wi-Fi Sta mode. The TB3 requires no wiring and users can manage the displays at any time by connecting to the TB3 via mobile phone, Pad or PC.

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 TB3 to directly access the TB3. The default 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 TB3 and users can access the TB3 by connecting the external router. If an external router is configured for multiple TB3 units, a WLAN can be created. Users can access any of the TB3 via the WLAN.
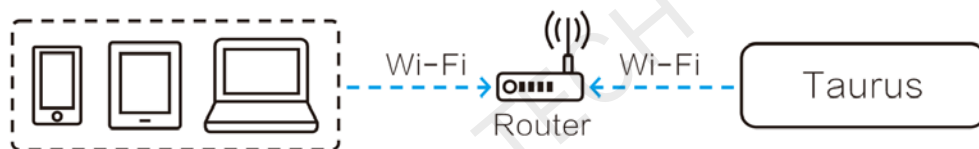
2.4.3 Wi-Fi AP+Sta Mode

In Wi-Fi AP+ Sta connection mode, users can either directly access the TB3 or access internet through bridging connection.
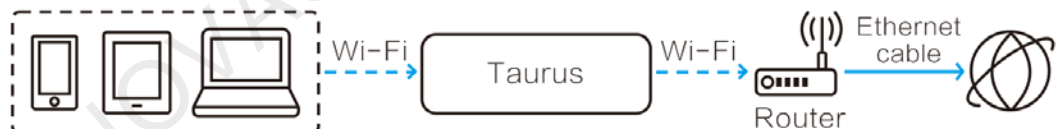
2.5 Redundant Backup

The TB3 supports network redundant backup and Ethernet port redundant backup.

- Network redundant backup: The TB3 automatically selects internet connection mode among wired network or Wi-Fi network according to the priority.

- Ethernet port redundant backup: The TB3 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

3.1.1 Front Panel

Figure 3-1 Front panel of the TB3

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

Table 3-1 Description of TB3 front panel

Name	Description
PWR	Power status indicator Always on: Power input is normal.
SYS	System status indicator • On for 2s and off for 2s: The system is operating normally. • On for 1s and off for 1s: The system is installing the upgrade package. • On for 0.5s and off for 0.5s: The system is downloading data from the Internet or copying the upgrade package. • Always on/off: The system is operating abnormally.
CLOUD	Internet connection status indicator • Always on: The unit is connected to the Internet and the connection status is normal. • On for 2s and off for 2s: The unit is connected to VNNOX and the connection status is normal.

Name	Description
RUN	FPGA status indicator
	Same as the signal indicator status of the sending card: FPGA is operating normally.

## 3.1.2 Rear Panel

Figure 3-2 Rear panel of the TB3

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

Table 3-2 Description of TB3 rear panel

Name	Description
TEMP	Temperature sensor port
LIGHT	Light sensor port
WiFi-AP	Wi-Fi AP antenna port
WiFi-STA	Wi-Fi Sta antenna port
COM1	Reserved
COM2	Reserved
ETHERNET	Gigabit Ethernet port
	Indicator status:
	• Yellow indicator always on: The unit is connected to 100M Ethernet cable and the status is normal.
	• Green and yellow indicators always on at the same time: The unit is connected to Gigabit Ethernet cable and the status is normal.
USB	USB 2.0 port
	The file system supports NTFS (file size up to 2 TB) and FAT32 (file size up to 4 GB), but do not support exFAT.
AUDIO OUT	Audio output
RESET	Factory reset button
	Press and hold the button for 5 seconds to reset the unit to factory settings.
LED OUT	Output Ethernet port

Name	Description
ON/OFF	Power switch
100-240V~,50/60Hz	Power input

3.2 Dimensions
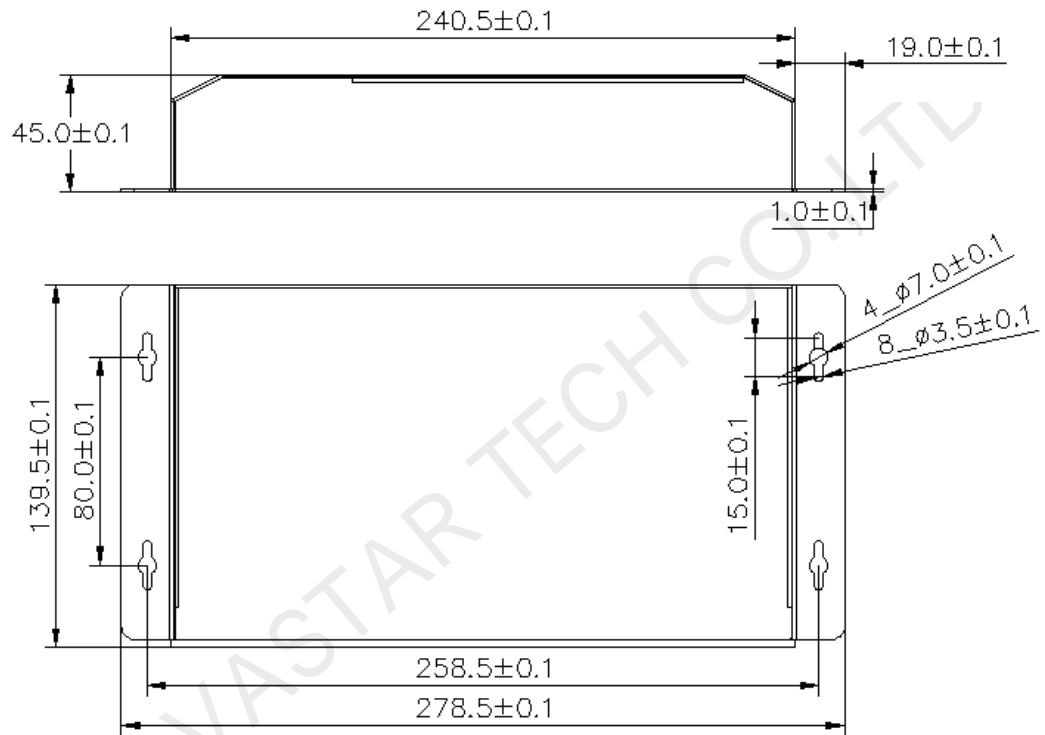
Unit: mm

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	Input voltage	100 V–240 V AC
	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	-40ºC–80ºC
	Humidity	0% RH–80% RH, non-condensing
Operating Environment	Temperature	-20ºC–60ºC
	Humidity	0% RH–80% RH, non-condensing
Packing Information	Dimensions (H×W×D)	375 mm × 280 mm × 108 mm
	List	• 1 × TB3 • 2 × Wi-Fi omnidirectional antenna • 1 × AC power cord • 1 × Quick Start Guide
Dimensions (H × W × D)	278.5 mm × 139.5 mm × 45.0 mm	
Net Weight	1301.9 g	
IP Rating	IP20 Please prevent the product from water intrusion and do not wet or wash the product	

Antenna
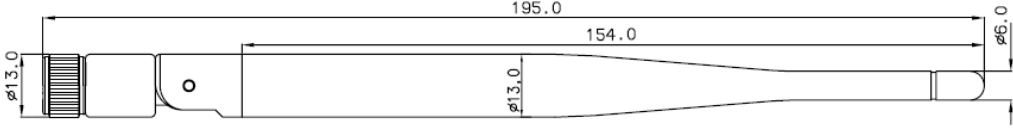
Unit: mm

6 Audio and Video Decoder Specifications

6.1 Image

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

6.2 Audio

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

Type	Codec	Channel	Bit rate	Sampling rate	File Format	Remarks
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, RTTTL/RTX, OTA, iMelody	2	N/A	N/A	XMF, MXMF, RTTTL, RTX, OTA, IMY	N/A

6.3 Video

Type	Codec	Supported Image Size	Maximum Frame Rate	Maximum Bit Rate (Ideal Case)	File Format	Remarks
MPEG-1/2	MPEG-1/2	48×48 pixels~1920×1080 pixels	30fps	80Mbps	DAT, MPG, VOB, TS	Support Field Coding
MPEG-4	MPEG4	48×48 pixels~1920×1080 pixels	30fps	38.4Mbps	AVI, MKV, MP4, MOV, 3GP	Not support MS MPEG4 v1/v2/v3 Not support GMC
H.264/AVC	H.264	48×48 pixels~4096×2304 pixels	4K@25fps, 1080P@60fps	100Mbps	AVI, MKV, MP4, MOV, 3GP, TS, FLV	Support Field Coding Support MBAFF
MVC	H.264 MVC	48×48 pixels~1920×1080 pixels	60fps	38.4Mbps	MKV, TS	Support Stereo High Profile only

Type	Codec	Supported Image Size	Maximum Frame Rate	Maximum Bit Rate (Ideal Case)	File Format	Remarks
H.265/ HEVC	H.265/ HEVC	64×64 pixels~4096×2304 pixels	4K@60fps, 1080P@60fps	100Mbps	MKV, MP4, MOV, TS	Support Main Profile Support Tile & Slice
GOO GLE VP8	VP8	48×48 pixels~1920×1080 pixels	30fps	38.4 Mbps	WEBM, MKV	N/A
H.263	H.263	SQCIF(128×96), QCIF(176×144), CIF(352×288), 4CIF(704×576)	30fps	38.4Mbps	3GP, MOV, MP4	Not support H.263+
VC-1	VC-1	48×48 pixels~1920×1080 pixels	30fps	45Mbps	WMV, ASF, TS, MKV, AVI	N/A
MOTI ON JPEG	MJPE G	48×48 pixels~1920×1080 pixels	30fps	38.4Mbps	AVI	N/A

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

Official website
www.novastar.tech

Technical support
support@novastar.tech