Taurus Series
Multimedia Player

TB8 Specifications

Introduction

The TB8 is the second generation of multimedia player launched by NovaStar for full-color LED displays. This multimedia player integrates playback and sending capabilities, allowing for solution publishing and screen control via various user terminal devices such as PC, mobile phones and tablets. The TB8 also supports the cloud publishing and monitoring platforms to easily enable cross-regional cluster management of screens.

The TB8 supports synchronous playback across multiple screens and can play solutions imported from a USB drive, satisfying various playback demands. Multiple protection measures such as terminal authentication and player verification are taken to keep the playback secure.

Thanks to its security and stability, ease of use, smart control, etc., the TB8 widely applies to commercial display and smart cities such as lamp-post displays, chain store displays, advertisement players, mirror displays, retail store displays, door head displays, vehicle-mounted displays, and displays without requiring a PC.

Certifications

CE, FCC SDoC, FCC ID, UL, PSE, CB, IC, CCC, KC, RCM, MIC, EAC, FAC, IMDA, NTC, NCC

If the product does not have the relevant certifications required by the countries or regions where it is to be sold, please contact NovaStar to confirm or address the problem. Otherwise, the customer shall be responsible for the legal risks caused or NovaStar has the right to claim compensation.

Features

- Loading capacity up to 2,300,000 pixels with a maximum width of 4096 pixels and a maximum height of 1920 pixels
- 4x Gigabit Ethernet outputs. All the four ports are used for main outputs by default. Users can also set two as main and the other two as backup.
- 1x Stereo audio output
- 1x HDMI 1.3 output, allowing for HDMI Loop
- 1x HDMI 1.3 input, accepting HDMI input and allowing content to auto fit to screen
- 2x USB 2.0, capable of playing solutions imported from a USB drive
- On-board brightness sensor connector, allowing for automatic and scheduled smart brightness adjustment
- Synchronous playback across multiple screens
- Powerful processing capacity
    - 8 core 1.5 GHz processor
    - Hardware decoding and playback of H.265 4K HD videos
    - Hardware decoding of 1080P videos
    - 2 GB of RAM
    - 8 GB of internal storage (4 GB available)
- All-round control plans
    - Solution publishing and screen control via user terminal devices such as PC, mobile phones and tablets
    - Remote cluster solution publishing and screen control
    - Remote cluster screen status monitoring
- Synchronous and asynchronous modes
    - When the internal video source is used, the TB8 works in asynchronous mode.
    - When the HDMI video source is used, the TB8 works in synchronous mode.
- Dual Wi-Fi modes

Comes with a permanent built-in Wi-Fi AP and supports Wi-Fi Sta.

- Wi-Fi AP

User terminal devices can connect to the built-in Wi-Fi hotspot of the TB8. The default SSID is "AP+*Last 8 digits of SN*" and the default password is "12345678".

- Wi-Fi Sta

The TB8 and user terminal devices are connected to the Wi-Fi hotspot of a router.

- Wi-Fi AP+Sta

Users can access the TB8 directly and access the Internet by bridging.

- Support for 4G modules
    - The TB8 ships without a 4G module. Users have to purchase 4G modules separately if needed.
    - Wired network is prior to 4G network. When both of the networks are available, the TB8 will choose signals automatically according to the priority.
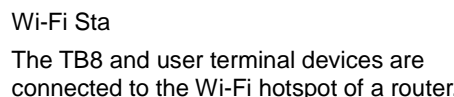
Appearance

Front Panel

Name	Color	Status	Description
PWR	Red	Staying on	The power supply is working properly.
SYS	Green	Flashing once every 2 seconds	The Taurus is functioning normally.
		Flashing once every second	The Taurus is installing the upgrade package.
		Flashing once every 0.5 second	The Taurus is downloading data from the Internet or copying the upgrade package.
		Staying on/off	The Taurus is abnormal.
CLOUD	Green	Staying on	The Taurus is connected to the Internet and the connection is available.
		Flashing once every 2 seconds	The Taurus is connected to VNNOX and the connection is available.
RUN	Green	Flashing once every second	No video signal
		Flashing once every 0.5 second	The FPGA is functioning normally.
		Staying on/off	The FPGA is abnormal.
SWITCH	Green	Staying on	Synchronous mode
		Off	Asynchronous mode

Rear Panel

Name	Description
TEMP	Temperature sensor connector
LIGHT	Light sensor connector
WiFi-AP	Wi-Fi antenna connector
WiFi-STA	Wi-Fi antenna connector
COM1	A reserved connector

Name	Description
COM2	A reserved connector
ETHERNET	Connects to the network or control PC.
USB	2x USB 2.0 Imports solutions from a USB drive for playback Only the FAT32 file system is supported and the maximum size of a single file is 4 GB.
HDMI IN	1x HDMI 1.3 Video input connector in synchronous mode Content can be scaled and displayed to fit the screen size automatically in synchronous mode. Requirements of full screen zoom in synchronous mode: ● 64 pixels ≤ Video source width ≤ 2048 pixels ● Allows images to be zoomed in only
HDMI OUT	1x HDMI 1.3 HDMI 1.3 output, allowing for HDMI Loop
AUDIO OUT	Audio output
RESET	Factory reset button Press and hold this button for 5 seconds to reset the product to its factory settings.
LED OUT	4x Gigabit Ethernet output ports
ON/OFF	Power switch
100-240V~,50/60Hz	Power input connector

Applications

The Taurus series products widely apply to commercial display, such as lamp-post displays, chain store displays, advertisement players, mirror displays, retail store displays, door head displays, vehicle-mounted displays, and displays without requiring a PC.

Table 1-1 lists the application scenarios of the Taurus.

Table 1-1 Applications

| Category	Description
Market type	● Advertising media: Used for advertisement and information promotion, such as lamp-post displays and advertisement players. ● Digital signage: Used for digital signage displays in retail stores, such as retail store displays and door head displays. ● Commercial display: Used for the display of business information of hotels, cinemas, shopping malls, etc., such as chain store displays.
Networking method	● Independent screen: Connect to and manage a screen by using a PC or mobile client software. ● Screen cluster: Manage and monitoring multiple screens in a centralized manner by using the cluster solutions of NovaStar.
Connection method	● Wired connection: The PC and Taurus are connected via Ethernet cable or LAN. ● Wi-Fi connection: The PC, tablet and mobile phone are connected to the Taurus via Wi-Fi. Working with the supporting software, the Taurus can apply to the scenarios where no PC is required.

Dimensions

TB8
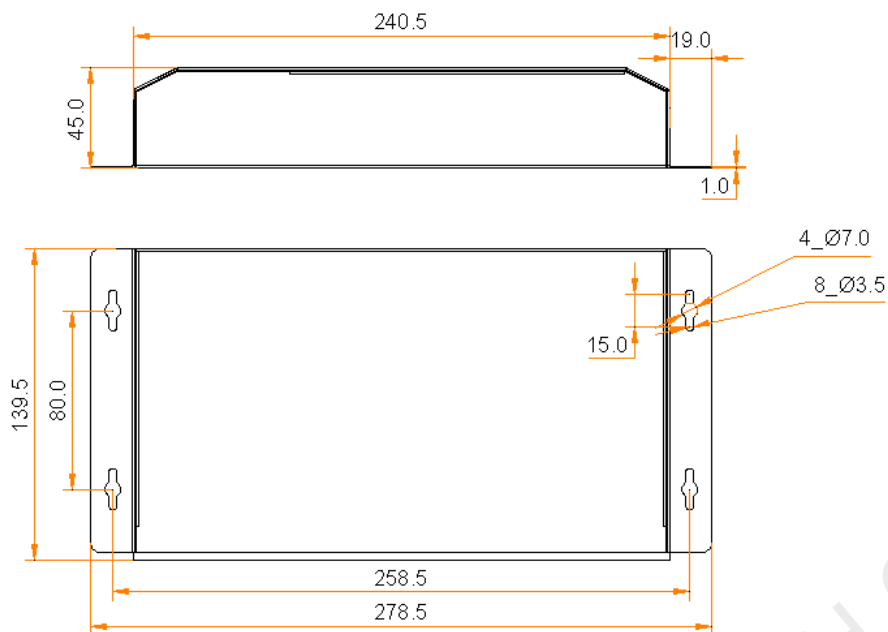
Tolerance: ±0.3   Unit: mm

Antenna
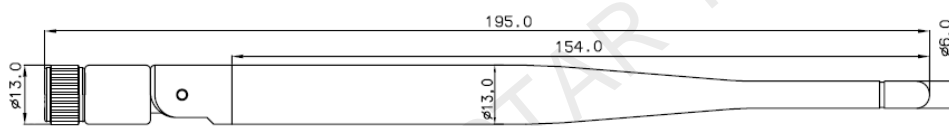
Tolerance: ±0.3   Unit: mm

Specifications

Electrical Parameters	Input voltage	AC 100 V~240 V
	Maximum power consumption	20 W
Storage Capacity	RAM	2 GB
	Internal storage	8 GB (4 GB available)
Storage Environment	Temperature	–40°C to +80°C
	Humidity	0% RH to 80% RH, non-condensing
Operating Environment	Temperature	–20ºC to +60ºC
	Humidity	0% RH to 80% RH, non-condensing
Packing Information	Dimensions (L×W×H)	375 mm × 280 mm × 108 mm
	List	• 1x TB8 • 2x Wi-Fi omnidirectional antennas • 1x AC power cord

		• 1x Quick Start Guide
Dimensions (L×W×H)	278.5 mm × 139.5 mm × 45.0 mm	
Net Weight	1352.3 g	
IP Rating	IP20 Please prevent the product from water intrusion and do not wet or wash the product.	
System Software	• Android operating system software • Android terminal application software • FPGA program Note: Third-party applications are not supported.	

The power consumption may vary according to the setup, environment and use of the product as well as many other factors.

Audio and Video Decoder Specifications

Image

Category	Codec	Supported Image Size	File Format	Remarks
JPEG	JFIF file format 1.02	48×48 pixels~8176×8176 pixels	JPG, JPEG	No support for non-interlaced scan Support for SRGB JPEG Support for 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

Audio

Category	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~48KHz	MP1, MP2, MP3	N/A
Windows Media Audio	WMA Version 4/4.1/7/8/9, wmapro	2	8Kbps~320Kbps	8KHz~48KHz	WMA	No support for WMA Pro, lossless and MBR
WAV	MS-ADPCM, IMA-ADPCM, PCM	2	N/A	8KHz~48KHz	WAV	Support for 4bit MS-ADPCM and IMA-ADPCM
OGG	Q1~Q10	2	N/A	8KHz~48KHz	OGG, OGA	N/A
FLAC	Compress Level 0~8	2	N/A	8KHz~48KHz	FLAC	N/A
AAC	ADIF, ATDS Header AAC-LC	5.1	N/A	8KHz~48KHz	AAC, M4A	N/A

Category	Codec	Channel	Bit Rate	Sampling Rate	File Format	Remarks
	and AAC-HE, AAC-ELD					
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 0/1, DLS version 1/2, XMF and Mobile XMF, RTTTL/RTX, OTA, iMelody	2	N/A	N/A	XMF, MXMF, RTTTL, RTX, OTA, IMY	N/A

Video

Category	Codec	Supported Resolution	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 for field coding
MPEG-4	MPEG4	48×48 pixels ~ 1920×1080 pixels	30fps	38.4Mbps	AVI, MKV, MP4, MOV, 3GP	No support for MS MPEG4 v1/v2/v3, GMC, and DivX3/4/5/6/7…/10
H.264/AVC	H.264	T3 & T6 & TB3 & TB4 & TB6 & TB8: 48×48 pixels ~ 4096×2304 pixels Other models: 48×48 pixels ~ 1920×1080 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 for field coding and MBAFF
MVC	H.264 MVC	48×48 pixels ~ 1920×1080 pixels	60fps	38.4Mbps	MKV, TS	Support for Stereo High Profile only
H.265/HEVC	H.265/HEVC	T3 & T6 & TB3 & TB4 & TB6 & TB8: 64×64 pixels ~ 4096×2304 pixels Other models: 64×64 pixels ~ 1920×1080 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 for Main Profile, Tile & Slice
GOOGLE VP8	VP8	48×48 pixels ~ 1920×1080	30fps	38.4Mbps	WEBM, MKV	N/A

Category	Codec	Supported Resolution	Maximum Frame Rate	Maximum Bit Rate (Ideal Case)	File Format	Remarks
		pixels				
H.263	H.263	SQCIF (128×96), QCIF (176×144), CIF (352×288), 4CIF (704×576)	30fps	38.4Mbps	3GP, MOV, MP4	No support for H.263+
VC-1	VC-1	48×48 pixels~1920× 1080 pixels	30fps	45Mbps	WMV, ASF, TS, MKV, AVI	N/A
MOTION JPEG	MJPEG	48×48 pixels~1920× 1080 pixels	30fps	38.4Mbps	AVI	N/A

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

FCC Caution

Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Note: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator & your body. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

Statement

Thank you for choosing NovaStar's product. This document is intended to help you understand and use the product. For accuracy and reliability, NovaStar may make improvements and/or changes to this document at any time and without notice. If you experience any problems in use or have any suggestions, please contact us via the contact information given in this document. We will do our best to solve any issues, as well as evaluate and implement any suggestions.

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