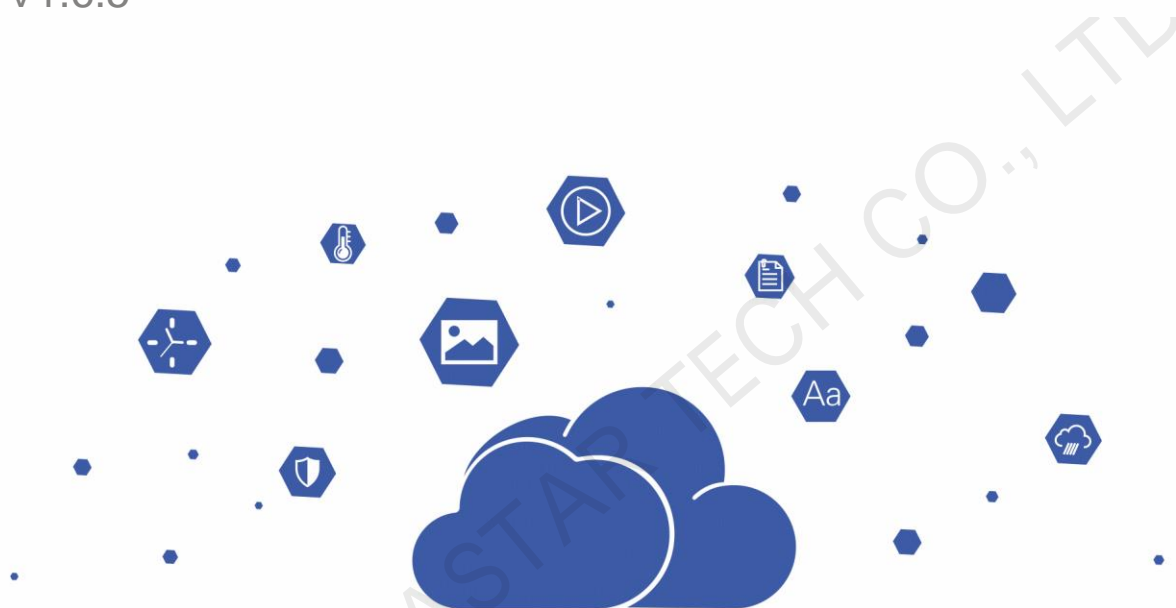


# Taurus Series Multimedia Player

V1.6.5



**TB8 Specifications**

## Introduction

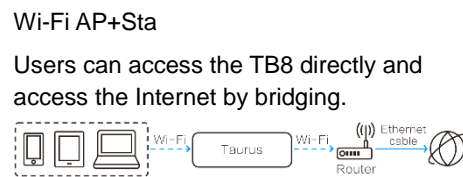
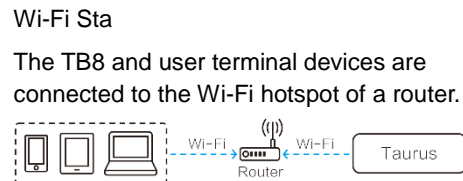
The TB8 is the second generation of multimedia player launched by NovaStar for full-color LED displays. This multimedia player integrates playback and sending capabilities, allowing for solution publishing and screen control via various user terminal devices such as PC, mobile phones and tablets. The 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.

## 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



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

| 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



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

| Name     | Description                  |
|----------|------------------------------|
| TEMP     | Temperature sensor connector |
| LIGHT    | Light sensor connector       |
| WiFi-AP  | Wi-Fi antenna connector      |
| WiFi-STA | Wi-Fi antenna connector      |

| Name              | Description  |
|-------------------|--|
| COM1              | A reserved connector   |
| COM2              | A reserved connector   |
| ETHERNET          | Connects to the network or control PC.   |
| USB               | 2x USB 2.0<br>Imports solutions from a USB drive for playback<br>Only the FAT32 file system is supported and the maximum size of a single file is 4 GB.  |
| HDMI IN           | 1x HDMI 1.3<br>Video input connector in synchronous mode<br>Content can be scaled and displayed to fit the screen size automatically in synchronous mode. Requirements of full screen zoom in synchronous mode: <ul style="list-style-type: none"> <li>• 64 pixels ≤ Video source width ≤ 2048 pixels</li> <li>• Allows images to be zoomed in only</li> </ul> |
| HDMI OUT          | 1x HDMI 1.3<br>HDMI 1.3 output, allowing for HDMI Loop   |
| AUDIO OUT         | Audio output   |
| RESET             | Factory reset button<br>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.

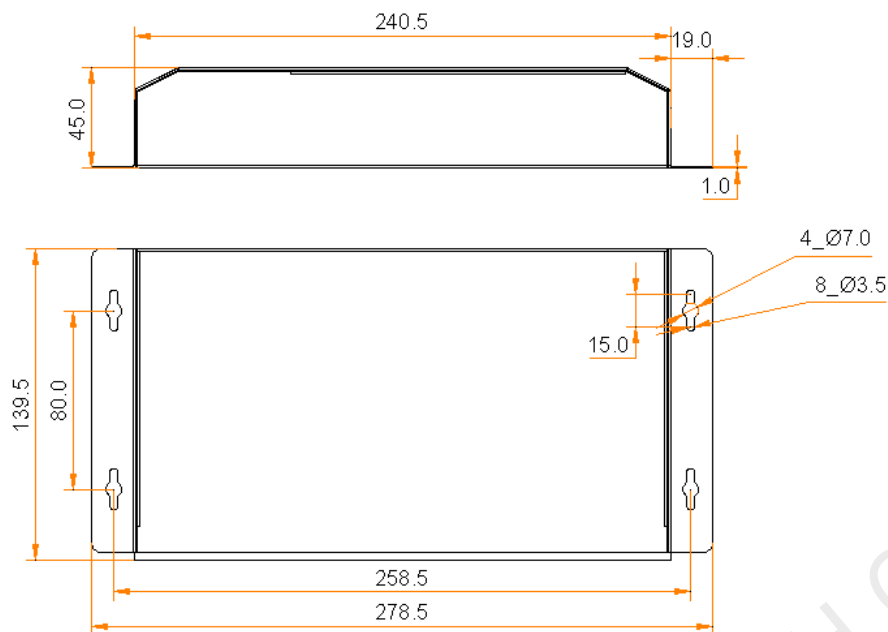
Table 1-1 lists the application scenarios of the Taurus.

Table 1-1 Applications

| Category          | Description  |
|-------------------|--|
| Market type       | <ul style="list-style-type: none"> <li>• Advertising media: Used for advertisement and information promotion, such as lamp-post displays and advertisement players.</li> <li>• Digital signage: Used for digital signage displays in retail stores, such as retail store displays and door head displays.</li> <li>• Commercial display: Used for the display of business information of hotels, cinemas, shopping malls, etc., such as chain store displays.</li> </ul> |
| Networking method | <ul style="list-style-type: none"> <li>• Independent screen: Connect to and manage a screen by using a PC or mobile client software.</li> <li>• Screen cluster: Manage and monitoring multiple screens in a centralized manner by using the cluster solutions of NovaStar.</li> </ul>  |
| Connection method | <ul style="list-style-type: none"> <li>• Wired connection: The PC and Taurus are connected via Ethernet cable or LAN.</li> <li>• Wi-Fi connection: The PC, tablet and mobile phone are connected to the Taurus via Wi-Fi. Working with ViPlex, the Taurus can apply to the scenarios where no PC is required.</li> </ul>   |

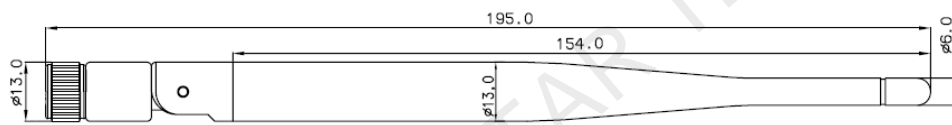
## Dimensions

### TB8



Tolerance:  $\pm 0.1$  Unit: mm

### Antenna



Tolerance:  $\pm 0.1$  Unit: mm

## Specifications

|                              |                           |   |
|------------------------------|---------------------------|---|
| <b>Electrical Parameters</b> | Input voltage             | AC 100 V~240 V  |
|                              | Maximum power consumption | 20 W  |
| <b>Storage Capacity</b>      | RAM                       | 2 GB  |
|                              | Internal storage          | 8 GB (4 GB available)   |
| <b>Storage Environment</b>   | Temperature               | -40°C to +80°C  |
|                              | Humidity                  | 0% RH to 80% RH, non-condensing   |
| <b>Operating Environment</b> | Temperature               | -20°C to +60°C  |
|                              | Humidity                  | 0% RH to 80% RH, non-condensing   |
| <b>Packing Information</b>   | Dimensions (LxWxH)        | 375 mm x 280 mm x 108 mm  |
|                              | List                      | <ul style="list-style-type: none"> <li>• 1x TB8</li> <li>• 2x Wi-Fi omnidirectional antennas</li> <li>• 1x AC power cord</li> <li>• 1x Quick Start Guide</li> </ul> |

|                           |   |
|---------------------------|---|
| <b>Dimensions (L×W×H)</b> | 278.5 mm × 139.5 mm × 45.0 mm   |
| <b>Net Weight</b>         | 1352.3 g  |
| <b>IP Rating</b>          | IP20<br>Please prevent the product from water intrusion and do not wet or wash the product.   |
| <b>Certifications</b>     | CE, FCC SDoC, FCC ID, UL, PSE, CB, IC, CCC, KC, RCM, MIC, SIRIM, EAC, FAC, PSB, IMDA, NTC, CITI, NCC<br><br>Note: If the product does not have the relevant certifications required by the countries or regions where it is to be sold, please apply for the certifications yourself or contact NovaStar to apply for them. |
| <b>System Software</b>    | <ul style="list-style-type: none"> <li>• Android operating system software</li> <li>• Android terminal application software</li> <li>• FPGA program</li> </ul> Note: Third-party applications are not supported.  |

## 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<br>Support for SRGB JPEG<br>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~320K bps, CBR and VBR | 8KHz~48KHz    | MP1, MP2, MP3 | N/A                                      |
| Windows Media Audio | WMA Version 4/4.1/7/8/9, wmapro | 2       | 8Kbps~320K bps              | 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                                      |

| Category | Codec   | Channel | Bit Rate  | Sampling Rate | File Format                     | Remarks |
|----------|---|---------|---|---------------|---------------------------------|---------|
| AAC      | ADIF, ATDS Header AAC-LC and AAC-HE, AAC-ELD                                | 5.1     | N/A   | 8KHz~48KHz    | AAC, M4A                        | N/A     |
| AMR      | AMR-NB, AMR-WB  | 1       | AMR-NB<br>4.75~12.2kps@8kHz<br><br>AMR-WB<br>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    | 48x48 pixels ~ 1920x1080 pixels   | 30fps   | 80Mbps   | DAT, MPG, VOB, TS                | Support for field coding                                       |
| MPEG-4     | MPEG4       | 48x48 pixels ~ 1920x1080 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:<br>48x48 pixels ~ 4096x2304 pixels<br><br>Other models:<br>48x48 pixels ~ 1920x1080 pixels | T3 & T6 & TB3 & TB4 & TB6 & TB8:<br>4K@25fps, 1080P@60fps<br><br>Other models:<br>1080P@60fps | T3 & T6 & TB3 & TB4 & TB6 & TB8:<br>100Mbps<br><br>Other models:<br>57.2Mbps | AVI, MKV, MP4, MOV, 3GP, TS, FLV | Support for field coding and MBAFF                             |
| MVC        | H.264 MVC   | 48x48 pixels ~ 1920x1080 pixels   | 60fps   | 38.4Mbps   | MKV, TS                          | Support for Stereo High Profile only                           |
| H.265/HEVC | H.265/H EVC | T3 & T6 & TB3 & TB4 & TB6 & TB8:<br>64x64 pixels ~ 4096x2304 pixels<br><br>Other models:<br>64x64 pixels ~ 1920x1080 pixels | T3 & T6 & TB3 & TB4 & TB6 & TB8:<br>4K@60fps, 1080P@60fps<br><br>Other models:<br>1080P@60fps | T3 & T6 & TB3 & TB4 & TB6 & TB8:<br>100Mbps<br><br>Other models:<br>57.2Mbps | MKV, MP4, MOV, TS                | Support for Main Profile, Tile & Slice                         |



| Category    | Codec | Supported Resolution  | Maximum Frame Rate | Maximum Bit Rate (Ideal Case) | File Format            | Remarks               |
|-------------|-------|---|--------------------|-------------------------------|------------------------|-----------------------|
| GOOGLE VP8  | VP8   | 48x48 pixels ~ 1920x1080 pixels                               | 30fps              | 38.4Mbps                      | WEBM, MKV              | N/A                   |
| H.263       | H.263 | SQCIF (128x96), QCIF (176x144), CIF (352x288), 4CIF (704x576) | 30fps              | 38.4Mbps                      | 3GP, MOV, MP4          | No support for H.263+ |
| VC-1        | VC-1  | 48x48 pixels~1920x1080 pixels                                 | 30fps              | 45Mbps                        | WMV, ASF, TS, MKV, AVI | N/A                   |
| MOTION JPEG | MJPEG | 48x48 pixels~1920x1080 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.



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