# Taurus Series
# Multimedia Player
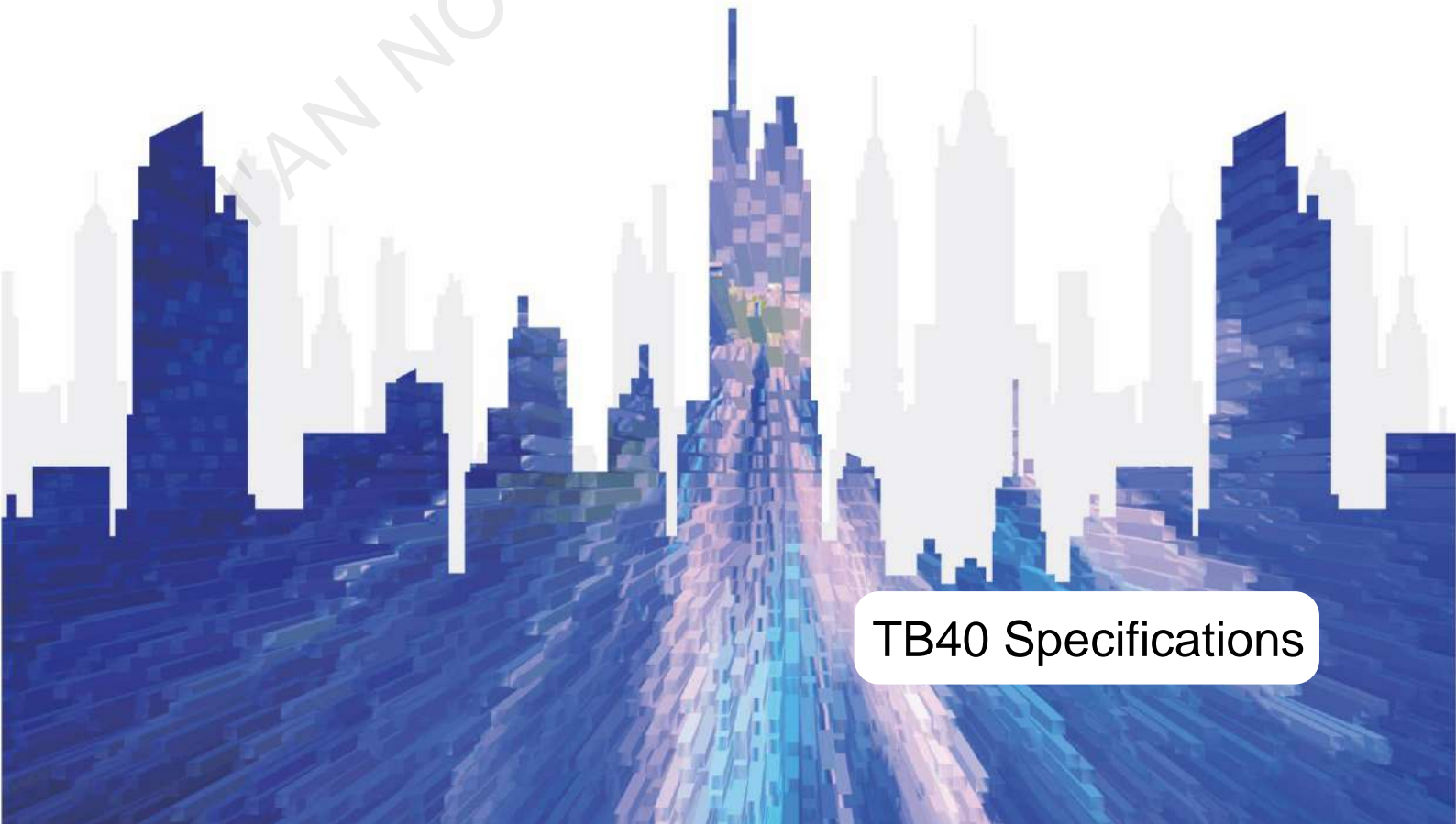
TB40 Specifications

# Change History

| Document Version | Release Date | Description |
|---|---|---|
| V1.0.5 | 2022-08-30 | Updated the appearance pictures. |
| V1.0.4 | 2022-06-10 | • Added a description of RF synchronization.<br>• Added notes and cautions.<br>• Updated the certification information.<br>• Updated the indicator descriptions.<br>• Updated the accessory descriptions. |
| V1.0.2 | 2021-12-17 | • Updated the descriptions of the USB (Type B) port and Gigabit Ethernet port.<br>• Added the gross weight of the product.<br>• Added a note for the power consumption. |
| V1.0.1 | 2021-09-30 | • Added certification information.<br>• Updated the description of the playback performance. |
| V1.0.0 | 2021-07-30 | First release |

# Introduction

The TB40 is a new generation of multimedia player created by NovaStar for full-color LED displays. This multimedia player integrates playback and sending capabilities, allowing users to publish content and control LED displays with a computer, mobile phone, or tablet. Working with our superior cloud-based publishing and monitoring platforms, the TB40 enables users to manage LED displays from an Internet-connected device anywhere, anytime.

Support for multi-screen synchronous playback and synchronous and asynchronous modes makes this multimedia player a perfect fit for a wide range of applications.

Thanks to its reliability, ease of use, and intelligent control, the TB40 becomes a winning choice for commercial LED displays and smart city applications such as fixed displays, lamp-post displays, chain store displays, advertisement players, mirror displays, retail store displays, door head displays, shelf displays, and much more.

# Certifications

CCC, SRRC

**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

## Output

- Loading capacity up to 1,300,000 pixels

  Maximum width: 4096 pixels

  Maximum height: 4096 pixels

- 2x Gigabit Ethernet ports

  These two ports serve as primary by default. Users can also set one as primary and the other as backup.

- 1x Stereo audio connector

  The audio sample rate of the internal source is fixed at 48 kHz. The audio sample rate of the external source supports 32 kHz, 44.1 kHz, or 48 kHz. If NovaStar's multifunction card is used for audio output, audio with a sample rate of 48 kHz is required.

- 1x HDMI 1.4 connector

  Maximum output: 1080p@60Hz, support for HDMI loop

## Input

- 1x HDMI 1.4 connector

In synchronous mode, video sources input from this connector can be scaled to fit the entire screen automatically.

- 2x Sensor connectors

  Connect to brightness sensors or temperature and humidity sensors.

## Control

- 1x USB 3.0 (Type A) port

  Allows for USB playback and firmware upgrade over USB.

- 1x USB (Type B) port

  Connects to the control computer for content publishing and screen control.

- 1x Gigabit Ethernet port

  Connects to the control computer, a LAN or public network for content publishing and screen control.
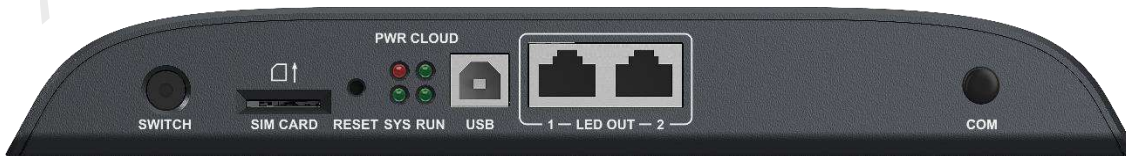
## Performance

- Powerful processing capacity
  - Quad-core ARM A55 processor @1.8 GHz
  - Support for H.264/H.265 4K@60Hz video decoding
  - 1 GB of onboard RAM
  - 16 GB of internal storage
- Flawless playback

  2x 4K, 6x 1080p, 10x 720p, or 20x 360p video playback

## Functionality

- All-round control plans
  - Enables users to publish content and control screens from a computer, mobile phone, or tablet.

- Allows users to publish content and control screens from anywhere, anytime.
- Allows users to monitor screens from anywhere, anytime.

- Switching between Wi-Fi AP and Wi-Fi STA
  - In Wi-Fi AP mode, the user terminal connects to the built-in Wi-Fi hotspot of the TB40. The default SSID is "AP+*Last 8 digits of SN*" and the default password is "12345678".
  - In Wi-Fi STA mode, the user terminal and the TB40 are connected to the Wi-Fi hotspot of a router.

- Synchronous and asynchronous modes
  - In asynchronous mode, the internal video source works.
  - In synchronous mode, the video source input from the HDMI connector works.

- Synchronous playback across multiple screens
  - NTP time synchronization
  - GPS time synchronization (The specified 4G module must be installed.)
  - RF time synchronization (The specified RF module must be installed.)

- Support for 4G modules

  The TB40 ships without a 4G module. Users have to purchase 4G modules separately if needed.

  Network connection priority: Wired network > Wi-Fi network > 4G network

  When multiple types of networks are available, the TB40 will choose a signal automatically according to the priority.

# Appearance

## Front Panel



| Name | Description |
|------|-------------|
| SWITCH | Switches between synchronous and asynchronous modes<br>• Staying on: Synchronous mode<br>• Off: Asynchronous mode |
| SIM CARD | SIM card slot |

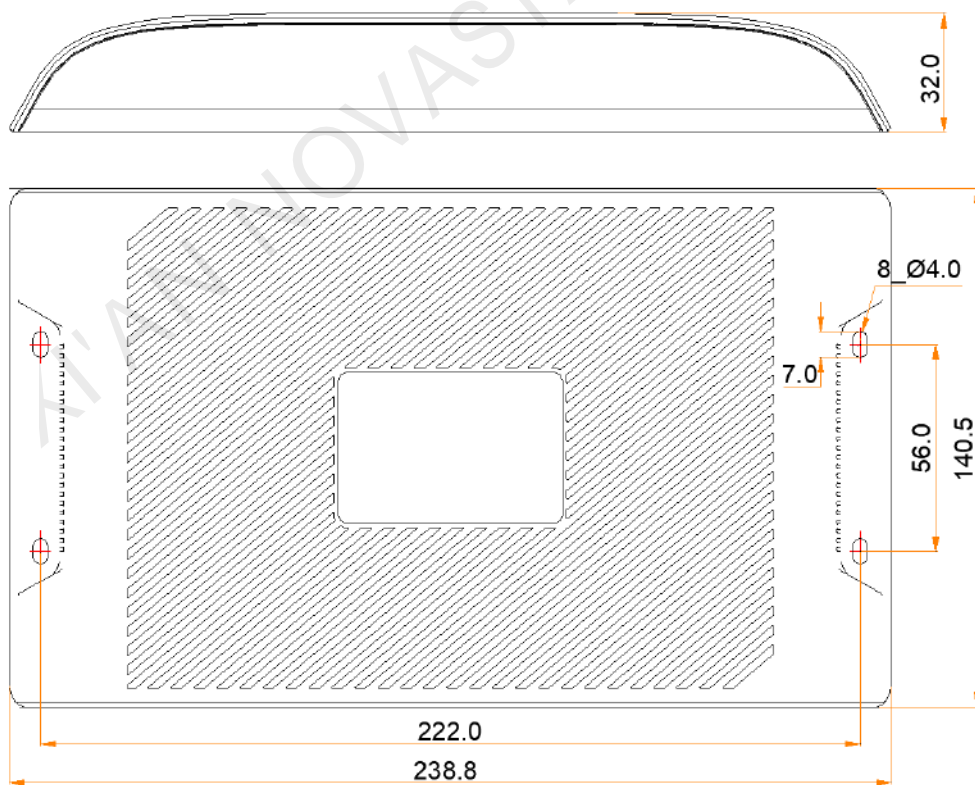| Name | Description |
|---|---|
| | Capable of preventing users from inserting a SIM card in the wrong orientation |
| RESET | Factory reset button<br>Press and hold this button for 5 seconds to reset the product to its factory settings. |
| USB | USB (Type B) port<br>Connects to the control computer for content publishing and screen control. |
| LED OUT | Gigabit Ethernet outputs |
| COM | RF antenna connector (reserved) |

Rear Panel

| Name | Description |
|---|---|
| SENSOR | Sensor connectors<br>Connect to brightness sensors or temperature and humidity sensors. |
| HDMI | HDMI 1.4 connectors<br>• OUT: Output connector, support for HDMI loop<br>• IN: Input connector, HDMI video input in synchronous mode<br>In synchronous mode, users can enable full-screen scaling to adjust the image to fit the screen automatically.<br>Requirements for full-screen scaling in synchronous mode:<br>• 64 pixels ≤ video source width ≤ 2048 pixels<br>• Images can only be scaled down and cannot be scaled up. |
| WiFi | Wi-Fi antenna connector<br>Support for switching between Wi-Fi AP and Wi-Fi STA |
| ETHERNET | Gigabit Ethernet port<br>Connects to the control computer, a LAN or public network for content publishing and screen control. |
| COM2 | GPS or RF antenna connector |
| USB 3.0 | USB 3.0 (Type A) port<br>Allows for USB playback and firmware upgrade over USB.<br>The Ext4 and FAT32 file systems are supported. The exFAT and FAT16 file systems are not supported. |
| COM1 | 4G antenna connector |
| AUDIO OUT | Audio output connector |
| 12V⎓2A | Power input connector |

# Indicators

| Name | Color | Status | Description |
|------|-------|--------|-------------|
| PWR | Red | Staying on | The power supply is working properly. |
| SYS | Green | Flashing once every 2s | The operating system is functioning normally. |
| | | Staying on/off | The operating system is malfunctioning. |
| CLOUD | Green | Staying on | The TB40 is connected to the Internet and the connection is available. |
| | | Flashing once every 2s | The TB40 is connected to VNNOX and the connection is available. |
| | | Flashing once every second | The TB40 is upgrading the operating system. |
| | | Flashing once every 0.5s | The TB40 is copying the upgrade package. |
| RUN | Green | Flashing once every second | The FPGA has no video source. |
| | | Flashing once every 0.5s | The FPGA is functioning normally. |
| | | Staying on/off | The FPGA loading is abnormal. |

# Dimensions

Product Dimensions



Tolerance: ±0.3    Unit: mm

# Specifications

| Electrical Parameters | Input power | DC 12 V, 2 A |
|---|---|---|
| | Maximum power consumption | 18 W |
| Storage Capacity | RAM | 1 GB |
| | Internal storage | 16 GB |
| Operating Environment | Temperature | –20ºC to +60ºC |
| | Humidity | 0% RH to 80% RH, non-condensing |
| Storage Environment | Temperature | –40°C to +80°C |
| | Humidity | 0% RH to 80% RH, non-condensing |
| Physical Specifications | Dimensions | 238.8 mm × 140.5 mm × 32.0 mm |
| | Net weight | 430.0 g |
| | Gross weight | 860.8 g<br>Note: It is the total weight of the product, accessories and packing materials packed according to the packing specifications. |
| Packing Information | Dimensions | 385.0 mm × 280.0 mm × 75.0 mm |
| | Accessories | • 1x Wi-Fi omnidirectional antenna<br>• 1x Power adapter<br>• 1x Quick Start Guide<br>• 1x Packing list |
| IP Rating | IP20<br>Please prevent the product from water intrusion and do not wet or wash the product. | |
| System Software | • Android 11.0 operating system software<br>• Android terminal application software<br>• FPGA program<br>Note: Third-party applications are not supported. | |

The amount of power consumption may vary depending on various factors such as product settings, usage, and environment.

# Media Decoder Specifications

Image

| Category | Codec | Supported Image Size | Container | Remarks |
|---|---|---|---|---|
| JPEG | JFIF file format 1.02 | 96×32 pixels to 817×8176 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 |

| Category | Codec | Supported Image Size | Container | Remarks |
|---|---|---|---|---|
| PNG | PNG | No Restriction | PNG | N/A |
| WEBP | WEBP | No Restriction | WEBP | N/A |

Video

| Category | Codec | Resolution | Maximum Frame Rate | Maximum Bit Rate (Ideal Case) | File Format | Remarks |
|---|---|---|---|---|---|---|
| MPEG-1/2 | MPEG-1/2 | 48×48 pixels to 1920×1088 pixels | 30fps | 80Mbps | DAT, MPG, VOB, TS | Support for field coding |
| MPEG-4 | MPEG4 | 48×48 pixels to 1920×1088 pixels | 30fps | 38.4Mbps | AVI, MKV, MP4, MOV, 3GP | No support for MS MPEG4 v1/v2/v3, GMC |
| H.264/AVC | H.264 | 48×48 pixels to 4096×2304 pixels | 2304P@60fps | 80Mbps | AVI, MKV, MP4, MOV, 3GP, TS, FLV | Support for field coding and MBAFF |
| MVC | H.264 MVC | 48×48 pixels to 4096×2304 pixels | 2304P@60fps | 100Mbps | MKV, TS | Support for Stereo High Profile only |
| H.265/HEVC | H.265/HEVC | 64×64 pixels to 4096×2304 pixels | 2304P@60fps | 100Mbps | MKV, MP4, MOV, TS | Support for Main Profile, Tile & Slice |
| GOOGLE VP8 | VP8 | 48×48 pixels to 1920×1088 pixels | 30fps | 38.4Mbps | WEBM, MKV | N/A |
| GOOGLE VP9 | VP9 | 64×64 pixels to 4096×2304 pixels | 60fps | 80Mbps | 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 | No support for H.263+ |
| VC-1 | VC-1 | 48×48 pixels to 1920×1088 pixels | 30fps | 45Mbps | WMV, ASF, TS, MKV, AVI | N/A |
| MOTION JPEG | MJPEG | 48×48 pixels to 1920×1088 pixels | 60fps | 60Mbps | AVI | N/A |

# Notes and Cautions

This is Class A product. In a domestic environment, this product may cause radio interference in which case the user may be required to take adequate measures.

**Official website**
www.novastar.tech

**Technical support**
support@novastar.tech