# TB40

Multimedia Player

Specifications

# Change History

| Document Version | Release Date | Description |
|---|---|---|
| V1.2.3 | 2026-01-05 | • Updated the playback performance.<br>• Updated the indicator status description.<br>• Updated the media decoding specifications. |
| V1.2.2 | 2025-08-22 | • Updated the features description.<br>• Updated the connector description.<br>• Updated the product weight information.<br>• Updated the media decoding specifications. |
| V1.2.1 | 2024-10-20 | Updated the feature description. |
| V1.2.0 | 2024-07-24 | • Updated the feature description.<br>• Updated the RUN indicator description.<br>• Added the recommended supply power.<br>• Updated the packing information.<br>• Updated the media decoding specifications. |
| V1.1.0 | 2024-05-30 | • Updated the introduction.<br>• Updated the feature description.<br>• Updated the connector description.<br>• Updated the media decoding specifications. |

# 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, retail store displays, door head displays, shelf displays, and much more.

# Certifications

CQC, SRRC, RoHS

**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
  - Non-standard resolutions are supported in both asynchronous and synchronous modes and the pixel clock of the custom resolutions cannot exceed 153 MHz.
- 2x Gigabit Ethernet ports

  All 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 is fixed at 48 kHz. If NovaStar's multifunction card is used for audio output, audio with a sample rate of 48 kHz is required.
- 1x HDMI 1.3 connector

  Maximum output: 1920×1200@60Hz and support for HDMI loop

## Input

- 1x HDMI 1.3 connector

  In synchronous mode, this connector is used as the video source which can be scaled to fit the entire screen automatically.
- 2x Sensor connectors

  Connect to the brightness sensor or temperature and humidity sensor.

## Control

- 1x USB 3.0 (Type A) port allowing for USB playback, firmware upgrade and storage expansion
- 1x USB (Type B) port connecting to the control computer for content publishing and screen control
- 1x Gigabit Ethernet port connecting 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 4K video decoding
  - 1 GB of onboard RAM
  - 32 GB of internal storage
- Flawless playback

  Support for playback of 1x 4K, 2x 1080p, 5x 720p, 6x 480p, or 6x 360p videos

  **Note:** Videos with resolutions between 2K and 4K will be converted into 4K videos.

## 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.
- Wi-Fi AP and Wi-Fi Sta can be turned on at the same time
  - Wi-Fi AP

    User terminal devices can be connected to the built-in Wi-Fi hotspot of the multimedia player. The default SSID is “Model+Last 8 digits of SN” and the default password is printed on the SSID label.
  - Wi-Fi AP+Wi-Fi Sta

Users can connect the multimedia player to a Wi-Fi network and turn on the Wi-Fi hotspot at the same time.

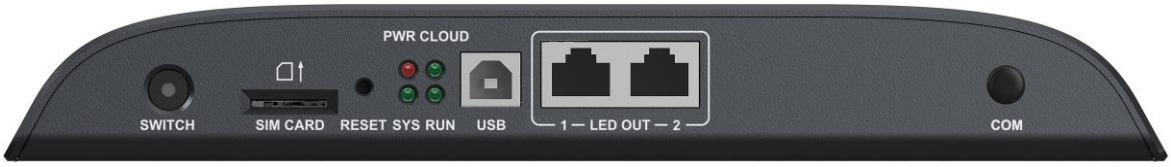
- Synchronous and asynchronous modes
  - In asynchronous mode, the internal video source works.
  - In synchronous mode, the HDMI video source works.
- Synchronous playback across multiple screens

  Enabling synchronous playback halves the number of videos that can be played simultaneously within the decoding capability of the device.
  - 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 device 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 networks are available, the device will choose a network according to the priority order.

# 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<br>Capable of preventing users from inserting a SIM card in the wrong orientation. |
| RESET | Factory reset button |

| Name | Description |
| --- | --- |
| | 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 | Reserved RF antenna connector |

## Rear Panel


| Name | Description |
| --- | --- |
| SENSOR | Sensor connectors<br>Connect to the brightness sensor or temperature and humidity sensor. |
| HDMI | 1x HDMI 1.3 OUT<br>• Support for HDMI loop<br>• The pixel clock cannot exceed 153 MHz.<br>• Maximum output resolution: 1920×1200@60Hz<br>• In asynchronous mode, output resolutions support 400×4096@60Hz and 480×4096@60Hz.<br>• Support for custom resolutions:<br>– Custom pixel width range: 512~4096 (512×512@60Hz~4096×560@60Hz)<br>– Custom pixel height range: 512~4096 (512×512@60Hz~560×4096@60Hz)<br>• HDCP 1.4 compliant<br>• No support for interlaced signal output |
| | 1x HDMI 1.3 IN<br>• The pixel clock cannot exceed 153 MHz.<br>• Maximum input: 1920×1200@60Hz<br>• HDCP 1.4 compliant<br>• No support for interlaced signal input<br>• Support for custom resolutions:<br>– Custom pixel width range: 800~4096 (800×600@60Hz~4096×560@60Hz)<br>– Custom pixel height range: 600~4096 (800×600@60Hz~560×4096@60Hz) |

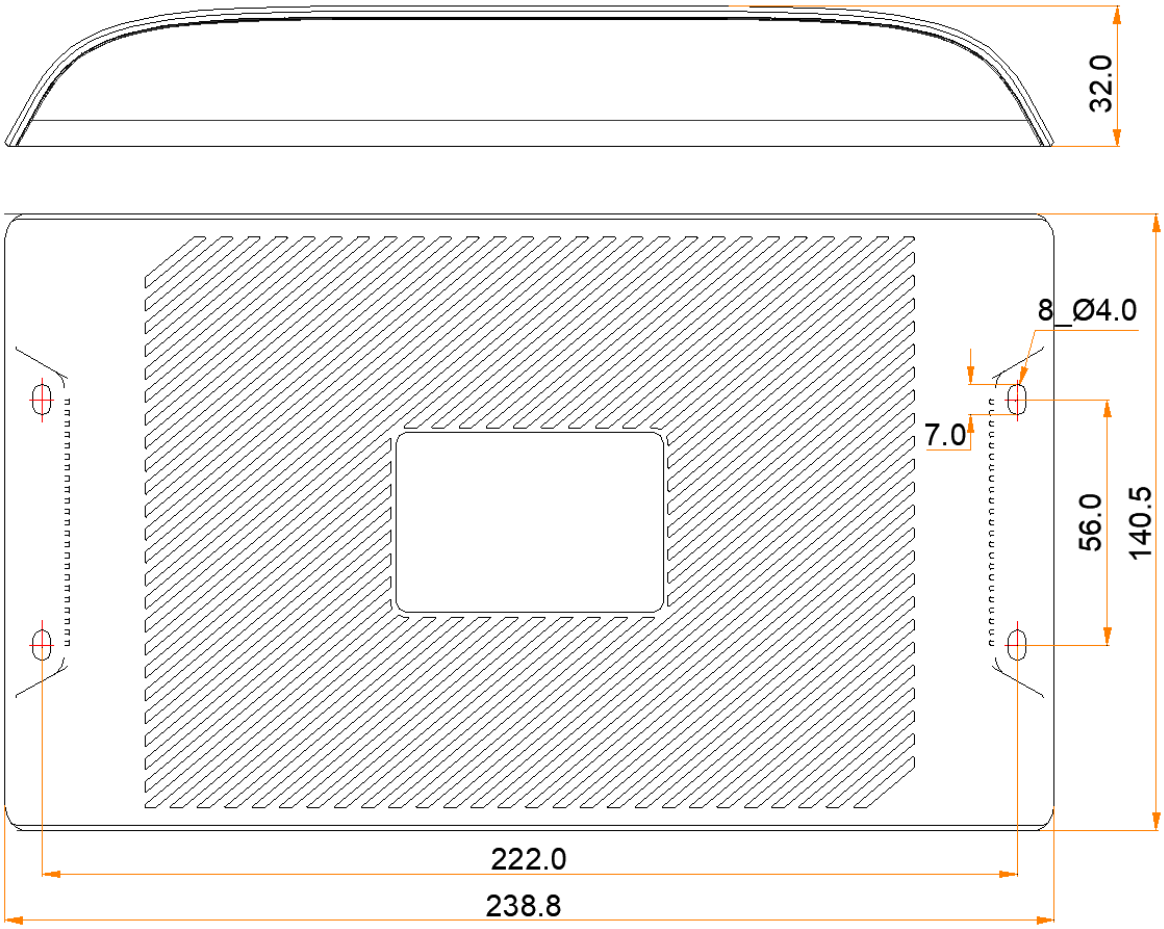
| Name | Description |
| --- | --- |
| | Note: The resolution of HDMI IN can be customized by changing the preset EDID, so the external source must support custom resolutions.<br>• In synchronous mode, HDMI is used for video input and users can enable full-screen scaling to make the image to fit the screen automatically.<br>Requirements for full-screen scaling in synchronous mode:<br>– 512 pixels ≤ video source width ≤ 2048 pixels<br>– 512 pixels ≤ video source height ≤ 2048 pixels<br>– Maximum resolution: 1920×1080<br>– The image can only be scaled down and cannot be scaled up.<br>Note: The pixel width and height of the video source must be greater than or equal to the pixel width and height of the screen, respectively. |
| WiFi | Wi-Fi antenna connector (2.4 GHz Wi-Fi supported)<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. |
| COM 2 | GPS antenna connector |
| USB 3.0 | USB 3.0 (Type A) port for USB playback, firmware upgrade and storage expansion<br>• Supported file systems: FAT32/NTFS<br>• USB drive capacity range: 2 GB to 128 GB<br>• The size of a single file must be greater than 0 KB and less than 4 GB. |
| COM 1 | 4G antenna connector |
| AUDIO OUT | 3.5mm audio output connector<br>Note: Three-pole audio jacks can be connected. |
| 12V ⎓ 2A | Power input connector |

# Indicators

| Name | Color | Status | Description |
| --- | --- | --- | --- |
| PWR | Red | Staying on | The power supply is working properly. |
| SYS | Green | Flashing once | The operating system is functioning normally. |

| Name | Color | Status | Description |
|---|---|---|---|
| | | every 2s | |
| | | Staying on/off | The operating system is malfunctioning. |
| CLOUD | Green | Off | The device is not connected to the Internet. |
| | | Staying on | The device is connected to the Internet and the connection is available. |
| | | Flashing once every 2s | The device is connected to VNNOX and the connection is available. |
| | | Flashing once every second | The device is upgrading the operating system. |
| | | Flashing once every 0.5s | The device is copying the upgrade package or files from the USB drive. |
| RUN | Green | Flashing once every 4s | 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




Tolerance: ±0.3 Unit: mm

# Specifications

| | | |
|---|---|---|
| Electrical Parameters | Input power | DC 12 V, 2 A |
| | Maximum power consumption | 18 W |
| | Recommended supply power | 25 W |
| Storage Capacity | RAM | 1 GB |
| | Internal storage | 32 GB |
| Operating Environment | Temperature | –20°C to +60°C |
| | 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 | 459.7 g |
| | Gross weight | 904.0 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 AC power cord<br>• 1x QR code<br>• 1x Certificate of Approval |
| IP Rating | IP20<br>Please prevent the product from water intrusion and do not wet or wash the product. | |
| System Software | • Android 11 operating system software<br>• Android terminal application software<br>• FPGA program | |

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

# Media Decoding Specifications

## Image

| Category | Codec | Resolution | Format | Remarks |
|---|---|---|---|---|
| JPEG | JFIF file format 1.02 | 64×64 pixels to 4096×2304 pixels | JPG, JPEG | Support for interlaced scan only<br>Support for SRGB JPEG<br>Support for Adobe RGB JPEG |
| BMP | BMP | 64×64 pixels to 4096×2304 pixels | BMP | N/A |

| Category | Codec | Resolution | Format | Remarks |
|---|---|---|---|---|
| GIF | GIF | 64×64 pixels to 1920×1088 pixels | GIF | At a resolution of 1280×720, the supported frame rate range is 1fps to 30fps. At a resolution of 1920×1088, the supported frame rate range is 1fps to 10fps. |
| PNG | PNG | 64×64 pixels to 4096×2304 pixels | PNG | N/A |
| WEBP | WEBP | 64×64 pixels to 4096×2304 pixels | WEBP | N/A |

### Video

| Codec | Resolution | Max Frame Rate | Max Bit Rate (Ideal Case) | Format |
|---|---|---|---|---|
| H.264 | 64×64 pixels to 4096×2304 pixels | 30fps | 80Mbps | MP4, AVI, MKV, MOV |
| H.265/HEVC | 64×64 pixels to 4096×2304 pixels | 60fps | 100Mbps | MP4, MKV, MOV |
| MPEG4 | 64×64 pixels to 1920×1088 pixels | 30fps | 38.4Mbps | MP4, AVI, MKV, MOV |
| VP8 | 64×64 pixels to 1920×1088 pixels | 30fps | 38.4Mbps | MKV, WEBM |
| VP9 | 64×64 pixels to 4096×2304 pixels | 60fps | 80Mbps | MKV, WEBM |

## 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.

# Copyright



**Statement**

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