

Taurus Series Multimedia Player



TB60 Specifications

Change History

| Document Version | Release Date | Description |
|------------------|--------------|---|
| V1.0.4 | 2022-06-10 | <ul style="list-style-type: none"> Added a description of RF synchronization. Added notes and cautions. Updated the certification information. Updated the indicator descriptions. Updated the accessory descriptions. |
| V1.0.2 | 2021-12-17 | <ul style="list-style-type: none"> Updated the descriptions of the USB (Type B) port and Gigabit Ethernet port. Added the gross weight of the product. Added a note for the power consumption. |
| V1.0.1 | 2021-09-30 | <ul style="list-style-type: none"> Added certification information. Updated the description of the playback performance. Updated net weight. |
| V1.0.0 | 2021-07-30 | First release |

Introduction

The TB60 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 TB60 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 TB60 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

NBTC, IMDA, PSB, FAC DoC, ENACOM, ICASA, SRRC, EAC DoC, EAC RoHS, RCM, UL Smark, CCC, FCC, UL, IC, KC, CE, UKCA, CB, MIC, PSE, NOM

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 2,300,000 pixels
Maximum width: 4096 pixels
Maximum height: 4096 pixels
- 4x Gigabit Ethernet ports
All these four ports serve as primary by default. Users can also set two as primary and the other two 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

Function

- 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 TB60. 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 TB60 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 TB60 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 TB60 will choose a signal automatically according to the priority.

Appearance

Front Panel



| Name | Description |
|----------|--|
| SWITCH | Switches between synchronous and asynchronous modes <ul style="list-style-type: none"> • Staying on: Synchronous mode • Off: Asynchronous mode |
| SIM CARD | SIM card slot 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 Connects to the control computer for content publishing and screen control. |
| LED OUT | Gigabit Ethernet outputs |

Rear Panel



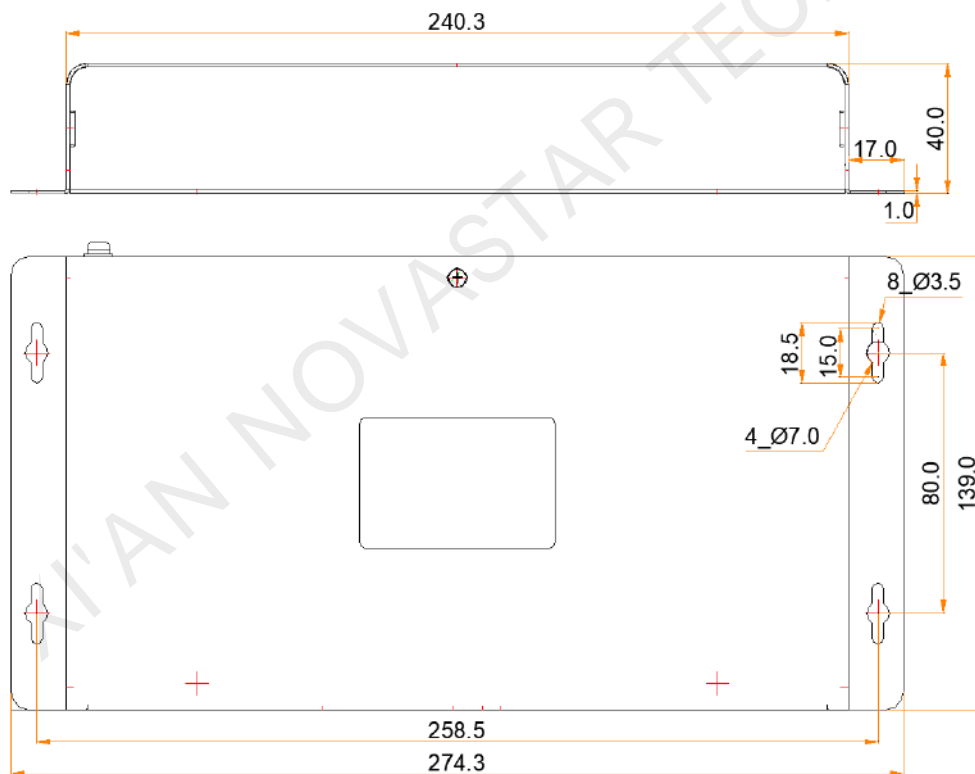
| Name | Description |
|--------------------------|---|
| SENSOR | Sensor connectors Connect to brightness sensors or temperature and humidity sensors. |
| HDMI | HDMI 1.4 connectors <ul style="list-style-type: none"> • OUT: Output connector, support for HDMI loop • IN: Input connector, HDMI video input in synchronous mode <p>In synchronous mode, users can enable full-screen scaling to adjust the image to fit the screen automatically. Requirements for full-screen scaling in synchronous mode:</p> <ul style="list-style-type: none"> • 64 pixels ≤ video source width ≤ 2048 pixels • Images can only be scaled down and cannot be scaled up. |
| WiFi | Wi-Fi antenna connector Support for switching between Wi-Fi AP and Wi-Fi Sta |
| ETHERNET | Gigabit Ethernet port Connects to the control computer, a LAN or public network for content publishing and screen control. |
| COM 2 | GPS or RF antenna connector |
| USB 3.0 | USB 3.0 (Type A) port Allows for USB playback and firmware upgrade over USB. The Ext4 and FAT32 file systems are supported. The exFAT and FAT16 file systems are not supported. |
| COM 1 | 4G antenna connector |
| AUDIO OUT | Audio output connector |
| 100-240V~, 50/60Hz, 0.6A | Power input connector |
| ON/OFF | Power switch |

Indicators

| Name | Color | Status | Description |
|------|-------|------------|---------------------------------------|
| PWR | Red | Staying on | The power supply is working properly. |

| Name | Color | Status | Description |
|-------|-------|----------------------------|--|
| SYS | Green | Flashing once every 2s | The TB60 is functioning normally. |
| | | Staying on/off | The TB60 is abnormal. |
| CLOUD | Green | Staying on | The TB60 is connected to the Internet and the connection is available. |
| | | Flashing once every 2s | The TB60 is connected to VNNOX and the connection is available. |
| | | Flashing once every second | The TB60 is upgrading the operating system. |
| | | Flashing once every 0.5s | The TB60 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



Tolerance: ± 0.3 Unit: mm

Specifications

| | | |
|-----------------------|---------------------------|--------------------------|
| Electrical Parameters | Input power | 100-240V~, 50/60Hz, 0.6A |
| | Maximum power consumption | 18 W |

| | | |
|-------------------------|--|---|
| Storage Capacity | RAM | 1 GB |
| | Internal storage | 16 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 | 274.3 mm x 139.0 mm x 40.0 mm |
| | Net weight | 1230.4 g |
| | Gross weight | 1650.0 g 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 x 280.0 mm x 75.0 mm |
| | Accessories | <ul style="list-style-type: none"> • 1x Wi-Fi omnidirectional antenna • 1x AC power cord • 1x Quick Start Guide • 1x Packing list |
| IP Rating | IP20 Please prevent the product from water intrusion and do not wet or wash the product. | |
| System Software | <ul style="list-style-type: none"> • Android 11.0 operating system software • Android terminal application software • FPGA program <p>Note: Third-party applications are not supported.</p> | |

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

Media Decoding Specifications

Image

| Category | Codec | Supported Image Size | Container | Remarks |
|----------|-----------------------|---------------------------------|-----------|---|
| JPEG | JFIF file format 1.02 | 96x32 pixels to 817x8176 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 |

Video

| Category | Codec | Resolution | Maximum Frame Rate | Maximum Bit Rate (Ideal Case) | File Format | Remarks |
|-------------|------------|---|--------------------|-------------------------------|----------------------------------|--|
| MPEG-1/2 | MPEG-1/2 | 48x48 pixels to 1920x1088 pixels | 30fps | 80Mbps | DAT, MPG, VOB, TS | Support for field coding |
| MPEG-4 | MPEG4 | 48x48 pixels to 1920x1088 pixels | 30fps | 38.4Mbps | AVI, MKV, MP4, MOV, 3GP | No support for MS MPEG4 v1/v2/v3, GMC |
| H.264/AVC | H.264 | 48x48 pixels to 4096x2304 pixels | 2304p@60fps | 80Mbps | AVI, MKV, MP4, MOV, 3GP, TS, FLV | Support for field coding and MBAFF |
| MVC | H.264 MVC | 48x48 pixels to 4096x2304 pixels | 2304p@60fps | 100Mbps | MKV, TS | Support for Stereo High Profile only |
| H.265/HEVC | H.265/HEVC | 64x64 pixels to 4096x2304 pixels | 2304p@60fps | 100Mbps | MKV, MP4, MOV, TS | Support for Main Profile, Tile & Slice |
| GOOGLE VP8 | VP8 | 48x48 pixels to 1920x1088 pixels | 30fps | 38.4Mbps | WEBM, MKV | N/A |
| GOOGLE VP9 | VP9 | 64x64 pixels to 4096x2304 pixels | 60fps | 80Mbps | 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 to 1920x1088 pixels | 30fps | 45Mbps | WMV, ASF, TS, MKV, AVI | N/A |
| MOTION JPEG | MJPEG | 48x48 pixels to 1920x1088 pixels | 60fps | 60Mbps | AVI | N/A |

Notes and Cautions

FCC Caution

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 B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful

interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Radiation Exposure Statement

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 and your body.

This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

IC Caution

This device contains license-exempt transmitter(s)/receiver(s) that comply with Innovation, Science and Economic Development Canada's license-exempt RSS(s). Operation is subject to the following two conditions: (1) This device may not cause interference. (2) This device must accept any interference, including interference that may cause undesired operation of the device.

L'émetteur/récepteur exempt de licence contenu dans le présent appareil est conforme aux CNR d'Innovation, Sciences et Développement économique Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes: 1) L'appareil ne doit pas produire de brouillage; 2) L'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

This equipment complies with Industry Canada radiation exposure limits set forth for an uncontrolled environment.

Cet équipement est conforme à l'exposition aux rayonnements Industry Canada limites établies pour un environnement non contrôlé.

Radiation Exposure Statement

This equipment complies with Canada 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.

Cet équipement est conforme Canada limites d'exposition aux radiations dans un environnement non contrôlé. Cet équipement doit être installé et utilisé à distance minimum de 20cm entre le radiateur et votre corps.


Others

- 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.
- The equipment contains specific radio equipment that has been certified for Technical Regulatory Conformity Certification under the Radio Law.

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