

# Taurus Series

## Multimedia Player



**TB60 Specifications**

## Change History

Document Version	Release Date	Description
V1.0.0	2021-07-30	First release

## Introduction

The TB60 is the third 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.

## 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

- 1x USB (Type B) port

Reserved

- 1x Gigabit Ethernet port

Connects to a LAN, public network, or computer 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  
1x 4K video playback or 2x 1080p 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*"

### 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 playback of content imported from a USB drive and firmware upgrade over USB.

*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

## Appearance

### Front Panel



Name	Description
SWITCH	Switches between synchronous and asynchronous modes <ul style="list-style-type: none"> <li>• Staying on: Synchronous mode</li> <li>• Off: Asynchronous mode</li> </ul>
SIM CARD	SIM card slot Capable of preventing users from inserting a SIM card in the wrong orientation
RESET	Factory reset button Press and hold this button for 5 seconds to reset the product to its factory settings.
USB	Reserved USB (Type B) port
LED OUT	Gigabit Ethernet outputs

### Rear Panel



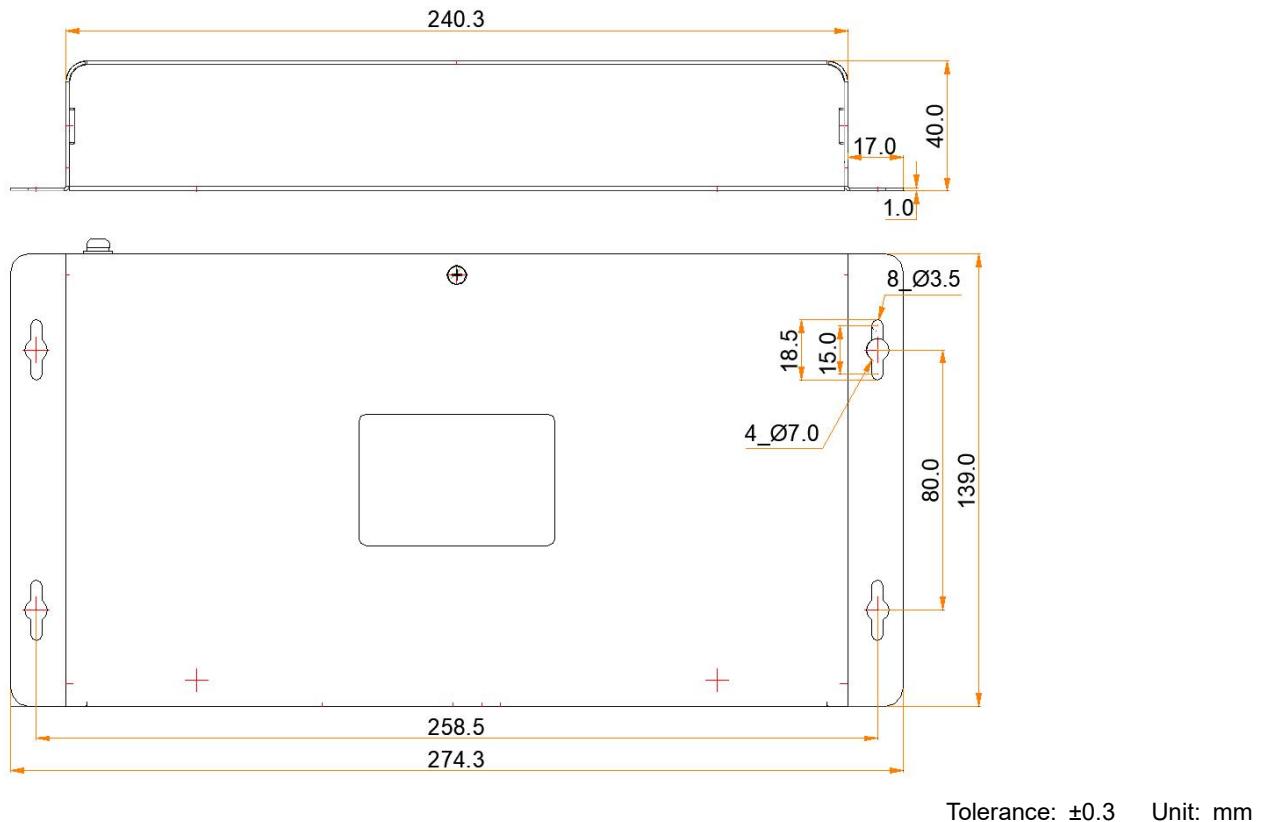
Name	Description
SENSOR	Sensor connectors Connect to light sensors or temperature and humidity sensors.
HDMI	HDMI 1.4 connectors <ul style="list-style-type: none"> <li>• OUT: Output connector, support for HDMI loop</li> <li>• IN: Input connector, HDMI video input in synchronous mode</li> </ul> <p>In 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"> <li>• 64 pixels ≤ video source width ≤ 2048 pixels</li> <li>• Images can only be scaled down and cannot be scaled up.</li> </ul>
WiFi	Wi-Fi antenna connector Support for switching between Wi-Fi AP and Wi-Fi Sta
ETHERNET	Gigabit Ethernet port, capable of connecting to a LAN, public network, or computer

Name	Description
	for content publishing and screen control Indicator status description: <ul style="list-style-type: none"> <li>• The yellow stays on: The TB60 is connected to a fast Ethernet cable and the connection is available.</li> <li>• The green and yellow stay on simultaneously: The TB60 is connected to a Gigabit Ethernet cable and the connection is available.</li> </ul>
COM 2	GPS antenna connector
USB 3.0	USB 3.0 (Type A) port Allowing for playback of content imported from a USB drive and firmware upgrade over USB The Ext4 and FAT32 file systems are supported. The exFAT and FAT16 file systems are not supported.
COM 1	Reserved
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.
SYS	Green	Flashing once every 2s	The TB60 is functioning normally.
		Flashing once every second	The TB60 is installing the upgrade package.
		Flashing once every 0.5s	The TB60 is downloading data from the Internet or copying the upgrade package.
		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.
RUN	Green	Flashing once every second	No video signal
		Flashing once every 0.5s	The TB60 is functioning normally.
		Staying on/off	FPGA loading is abnormal.

## Dimensions



## 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
Storage Environment	Temperature	-40°C to +80°C
	Humidity	0% RH to 80% RH, non-condensing
Operating Environment	Temperature	-20°C to +60°C
	Humidity	0% RH to 80% RH, non-condensing
Packing Information	Dimensions (L×W×H)	385.0 mm × 280.0 mm × 75.0 mm
	List	<ul style="list-style-type: none"> <li>• 1x TB60</li> <li>• 1x Wi-Fi omnidirectional antenna</li> <li>• 1x AC power cord</li> <li>• 1x Quick Start Guide</li> </ul>
Dimensions (L×W×H)	274.3 mm × 139.0 mm × 40.0 mm	
Net Weight	1.22 kg	
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"> <li>• Android 11.0 operating system software</li> <li>• Android terminal application software</li> <li>• FPGA program</li> </ul> <p>Note: Third-party applications are not supported.</p>

## Media Decoding Specifications

### Image

Category	Codec	Dimensions	Container	Remarks
JPEG	JFIF file format 1.02	96×32 pixels to 817×8176 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

### 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)	30fps	38.4Mbps	3GP, MOV,	No support for

Category	Codec	Resolution	Maximum Frame Rate	Maximum Bit Rate (Ideal Case)	File Format	Remarks
		QCIF (176×144) CIF (352×288) 4CIF (704×576)			MP4	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

## 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 important announcement

### 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 licence-exempt transmitter(s)/receiver(s) that comply with Innovation, Science and Economic Development Canada's licence-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.

This radio transmitter 23873-TB60 has been approved by Innovation, Science and Economic Development Canada to operate with the antenna types listed below, with the maximum permissible gain indicated. Antenna types not included in this list that have a gain greater than the maximum gain indicated for any type listed are strictly prohibited for use with this device.

L'émetteur de radio 23873-TB60 a été approuvé par innovation, sciences et développement économique Canada pour fonctionner avec les types d'antennes énumérés ci-dessous et pour afficher le gain maximal admissible. Le gain du type d'antenne non inclus dans cette liste est supérieur au gain maximal de l'un des types énumérés et ne doit pas être utilisé avec cet équipement.

Antenna type:	External Rod Antenna
Antenna Gain:	5.03dBi
Output impedance:	50 Ω

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**Official website**  
[www.novastar.tech](http://www.novastar.tech)

**Technical support**  
[support@novastar.tech](mailto:support@novastar.tech)