

INTRODUCTION OF PRODUCTS

Introduction of wireless speaker system TD-M1

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Introduction

These days, in the Hi-Fi audio industry, many audio devices that are compatible with high-resolution audio⁽¹⁾ come onto the market. On the other hand, an increasing number of users quickly enjoy music due to widespread use of smartphones. TD-M1 was developed as a product that satisfies the diversifying lifestyle of many audio users, ranging from audiophiles who enjoy high-resolution audio to young people who enjoy music quickly on smartphones, and that provides the experience of "accurate sound" to them.



Fig.1 External Appearance of TD-M1

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Features of Product

Besides the previously-developed TD speaker technologies¹⁾, the amplifier, the D/A converter and all other electronic parts of TD-M1, as well as the speaker, are sophisticatedly designed for "accurate sound." Moreover, TD-M1 pursues a high level of perfection even in design and usability by incorporating all the electronic circuits in its base.

2.1 Realization of "Accurate Sound"

(1) Supporting High-Quality High-Resolution Audio of 192 kHz/24bit

The input portion for USB connection includes a 192 kHz/24bit audio interface of which information quantity is about 6.5 times as much as CDs (44.1 kHz/16bit). The output portion includes a world's highest level 192 kHz/24bit D/A converter with excellent S/N ratio and low distortion. Therefore, the system can reproduce and re-create subtle details of charms of music data equivalent to recorded master sound source which is really faithful to original sound.

(2) Equipped with Non-Oversampling D/A Converter (NOS-DAC)

An oversampling filter is generally used to minimize

or remove slight aliasing which occurs when digital data is converted to analog data (digital-to-analog conversion), but its side effect which disrupts time waveforms is not so perceived as a problem. Therefore, TD-M1 includes an oversampling filterless mode as a standard feature because we think that the time waveforms are more important. Thus, TD-M1 realizes the reproduction of more "accurate sound" even after the D/A conversion.

(3) Equipped with Specially-Designed Speaker Unit which Thoroughly Pursues Faithful Reproduction of Time Waveform

The diaphragm, the voice coil and other parts for the vibration-system used in the specially-designed speaker unit were optimized thoroughly based on the evaluation of time-waveform accuracy. Moreover, by matching with the maximum power of the built-in amplifier optimally, the speaker has longer stroke width than our existing models by 10% and improves its amplitude margin. Therefore, the speaker is as small as 8 cm in diameter, but covers the enough reproduction range from 70 Hz to 30 kHz and further improves its transient characteristics, the strongest comparative advantage of the TD speaker, compared with existing models.

2.2 Thorough Pursuance of Usability

(1) Equipped with a Wi-Fi Network Media Module Compatible with AirPlay

TD-M1 has a built-in Wi-Fi network media module and enables streaming reproduction of high-quality lossless audio equivalent to CD (44.1kHz/16bit). As wireless connection methods with iPhones, Android terminals, Mac., etc. through Wi-Fi network, TD-M1 has two modes: one is the "direct mode," which enables direct connection even in the router-less environment, and the other is the "router mode," which enables connection through an existing router. As a result, TD-M1 meets the needs of the users who would like to enjoy music in various environments.

(2) Realization of Smart Operation by Touch Sensor and LED Indicator

Simple and user-friendly operation is realized by touch sensors which enable user's intuitive operation and LED indicators which show the current user's operation.

(3) Enable One-Touch Adjustment of Speaker Angle

TD-M1 employs the angle adjustment mechanism so that the angle of the speaker portion can be changed in three steps (0 degree, 10 degrees and 20 degrees) in the upward direction. This mechanism makes it possible to set

* (1) Sound source having information amount more than conventional music CDs do

the speaker face toward the best listening position easily and to realize the world's top-class spatial acoustic space.

(4) Remote Control Function Controlled by Dedicated Application

The dedicated applications are ready for installation to operate the power switch, volume control, input selection and others. They can be downloaded from App Store and Google Play Store. Convenience is improved for the users. For example, when equipment such as a TV is connected to the external input terminal (3.5mm stereo mini phone jack), the volume control can be operated by user's iPhone or Android terminal at hand.



Fig.3 Angle Adjustment Mechanism



Fig.2 Touch Sensor and LED Indicator

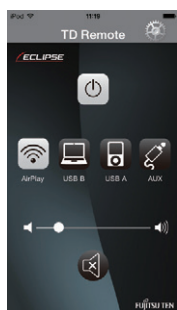


Fig.4 Dedicated Application

3 Product Specification

The product specification of TD-M1 is shown in **Table 1**. As shown in the specification of the input system, especially, TD-M1 can be connected to most music playback devices in the market, such as iPhones and Android terminals through the Wi-Fi network and personal computers through USB.

Table 1 Product Specification

	Item	Specification
System	Frequency response (-10dB)	70Hz~30kHz
	Weight (pair)	Approx. 5.3kg
	Maximum dimensions (W,H,D)	W155×D219×H242
	Input system	AirPlay (Wi-Fi-wireless) / USB Type A / USB Type B / stereo Mini
	Power consumption	10W
Speaker	Driver unit diameter	8cm
	Nominal impedance	8Ω
Amplifier	Rated power (T.H.D:1%) / Maximum power (T.H.D:10%)	20W/25W *When one channel is driven

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Conclusion

We have continued the development in pursuit of "accurate sound" consistently since 2001 when we launched the ECLIPSE TD. With the special built-in amplifier, this newly-marketed TD-M1 is developed as the product of which the "accurate sound" level has been further enhanced by closely reviewing and designing the portions related to the process from input through output of sound. As a result, in addition to winning of numerous top honor awards of the audio professional journals both in Japan and abroad, such as the best product award (What Hi-Fi? of England) in Consumer Electronics Show, which is the world's largest home electronics show, TD-M1 is increasingly used even in broadcasting stations and for music production in recording studios. When both creators and listeners of sound use speakers that can reproduce accurate sound, the quality of sound source is enhanced and the listeners can enjoy the high quality sound at home. We would like to improve our technological skills further in the future to contribute to the musical culture in the world.

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*Android, Google Play and Google Play logo are trademarks or registered trademarks of Google Inc.

Reference

- 1) "Kuruma to Onkyo Gijutsu no Ayumi" FUJITSU TEN TECHNICAL JOURNAL No. 50 Anniversary issue Additional volume1 2007

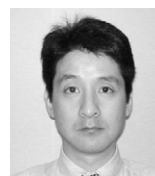
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