



**TD 725 SW**



## Accurate waveform reproduction in the deep bass region

The consistent aim of all the loudspeakers in the ECLIPSE TD series has been to use the philosophy of “accurate waveform reproduction” to recreate a sound source conveying all of the original performance by the artist. It is often said that true High-Fidelity is the completely accurate reproduction of the acoustic signals recorded on mediums such as CD or DVD. The ECLIPSE TD loudspeakers achieve this natural yet beautiful quality of sound reproduction by using the high-speed drive-units required to fulfill the demands of the impulse response time domain theory. The successful application of the time domain theory is amply demonstrated by the consistently high evaluations given to these loudspeakers by leading musicians and recording engineers in both Japan and the rest of the world.

This novel approach gives us considerable advantages in developing subwoofers. Until now it has been impossible to accurately reproduce the sound of some instruments such as the timpani and contrabass in the presence of a full orchestra. Because of uncontrolled acoustic delays the sounds of these instruments have seemed to be out-of-step with the rest of the orchestra. By contrast the design of the TD725sw is based upon the time domain theory of “accurate waveform reproduction” enabling it to offer totally accurate low-frequency reproduction which perfectly tracks even the most subtle changes of timing and tempo. This new standard of performance has, for the first time, satisfied those artists who previously had been openly critical of the low-frequency response of conventional subwoofers.

Of course, the development of such an ideal subwoofer has not been easy with considerable trial and error being necessary when working to the limit of today’s knowledge. The ultra fast TD725sw subwoofer has both the power and accuracy needed for true high-end applications. It is the result of both original technology and intense persistence throughout the development phase. The accurate waveform reproduction of the deep bass recreates the full acoustic of the surround sound field environment and brings the listener that one step closer to the original performance.



## □ The Technology

### R2R Twin Driver, providing world-class levels of high-speed reproduction

#### An ultra fast drive-unit for accurate reproduction of the acoustic source

Drive-units require sufficient power to displace a large volume of air in order to reproduce low frequencies. Although large drive-units are required to reproduce low frequencies with a characteristic richness and punch, both the volume of air displaced and the weight of the driver unit increase in proportion to the size of the unit. The sheer bulk involved results in inertia and the movement of the cone is slowed or delayed so creating a delay in the bass sounds relative to the rest of the music. To solve this problem the TD725sw uses two comparatively small 25cm driver units which are mounted horizontally in a back-to-back configuration. This unusual design offers both power and high speed, whilst still achieving the displacement of air equivalent to the use of a big, heavy and slow conventional 35cm diameter drive-unit.



R2R Twin Driver

#### A unique stabilizer mechanism to improve stability and instantaneous power

The drive-unit array effectively operates as two high-speed pistons which create the rapid rising and falling movement of air required for "accurate waveform reproduction". However this only works effectively if the non-moving frame parts of the drive-units are rigidly fixed; ideally by being firmly and securely anchored to the ground. In the TD725sw the two drive-units are mounted horizontally back-to-back and rigidly connected by an aluminum shaft (patent pending). In addition the in-phase driving system means that the high-mass drive-unit frames experience hardly any movement and become a virtual infinite ground anchor, giving that secure "foot anchor" and so increasing the radiated sound output of the overall unit. Energy that would have been lost as unnecessary internal vibration has instead become additional sound output.

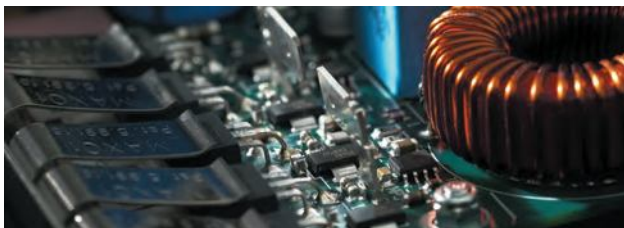
#### A floating structure for the maximum suppression of vibrations

"Accurate waveform reproduction" has been made possible through the use of a high-speed drive-unit array yet regardless of how near we approach accurate waveforms any direct connection between the array and its enclosure will cause the powerful cone vibrations to be transmitted to the enclosure where they will generate unwanted resonances. These are heard as additional colourations which muddy the sound and make it obvious to the listener that the sound is not natural but emanates from a loudspeaker. In the TD725sw this problem is virtually eradicated by using isolating material such as felt and poron\* to cushion the drive-unit array allowing it to float minimizing the transmission of vibrations to the enclosure.

\* Poron is a registered trademark of Inoac Corporation

#### A high-power 500W digital power amplifier

An amplifier with an output of several hundred watts is required to make full use of the performance of the unique drive-unit array. Traditional analogue amplifiers create a lot of unwanted heat and are bulky in construction using much of the internal space needed to achieve the best low-frequency acoustic performance. For these reasons ECLIPSE TD has evolved a compact digital power amp with high-energy conversion efficiency so enabling a significant improvement in the internal cubic capacity of the subwoofer, and thus ensuring high linearity even at maximum output levels.



#### The input / output connections offer wide system flexibility

The TD725sw has been designed to work with a wide variety of systems to improve the reproduction of low frequencies in almost every surround sound system. In addition to the 2-channel line inputs, there is an XLR (stereo) input to allow for connection to the balanced subwoofer outputs of high-end AV processors and professional gear. There are also speaker level input and output connections and a 2-channel line output. This permits the addition of two loudspeakers with the TD725sw to create a 2.1ch system when using a pre-main amplifier in a normal stereo system.



#### LPF bypass function for the direct transmission of the signal

One of the reasons the sound from conventional subwoofers is perceived to be slow and ponderous is because of the action of the low pass filter (L.P.F.) in the audio signal path. This L.P.F. plays the important role of filtering out the high frequencies, allowing through only low frequencies. However, this circuitry causes a slight delay of the low frequency signals and since such filters are also used in the production of CDs and DVDs, and in devices such as AV amps and receivers, unnecessary additional filtering is occurring and this results in even more unwanted delays to the low frequencies. The TD725sw uses an L.P.F. bypass function to avoid this problem. With subwoofer channel signals that are already filtered, such as the 5.1ch surround sound signals on DVDs, the L.P.F. can be used at its minimum setting so reducing the delay to the low frequencies to a minimum.



#### Infrared remote control & illumination functions for easy operation

Because the level or apparent volume of the low frequency sounds recorded on CD and DVD varies with each disc, it is often desirable for the listener to adjust the subwoofer output level for each piece played. The remote control functions for the TD725sw have been reduced to the bare minimum keeping the handset small and the modes of operation simple and stress-free for the listener. When the volume is adjusted, the speed of a flashing lamp allows the current setting to be understood immediately and a dimmer is provided to set the lamp brightness when viewing movies in a home theatre.



# φ25cm×2 Subwoofer

## TD725sw

Configuration: R2R Twin Drive-Units, sealed enclosure  
Unit: Ø25cm x 2  
Rated Output: 500W (T.H.D. 1%)  
Frequency Response: 20Hz-200Hz (-10dB) (at Bass Mode, L.P.F. 200Hz)  
Play Mode: Direct / Bass (remote control)  
Phase Changes: 0 / 180° (remote control)  
Crossover: 40Hz-200Hz (variable)  
L.P.F.: 40Hz-200Hz (variable, on & off)  
H.P.F.: 40Hz-200Hz (variable, on & off)  
Harmonic Distortion: 0.05% max (at 50Hz, 1/2 rated output)  
S / N: 95dB minimum  
Input: Line (stereo) 1  
        XLR (stereo) 1 (2nd hot)  
        Speaker Level 1  
Input Impedance: 10kΩ by Line / XLR  
                  3kΩ by Speaker Level  
Output: Line (stereo) 1  
        Speaker Level 1  
Power Consumption: 65W (stand by: 8W)  
Maximum Dimension: W517 x H473 x D503mm  
Mass: 42.4kg  
Remote Control: Yes



The Ideal Combination

Find perfection in the ultimate surround system  
Combine with the TD712z loudspeakers  
for the finest reproduction of the spatial environment

**TD725sw + TD712z**



Testimonials from renowned artists and engineers, technical data, stockists and further information on ECLIPSE TD can be found at

[www.eclipse-td.com](http://www.eclipse-td.com)

- Specifications and images in this catalogue may be subject to revision without prior notice.
- Product colours may differ from those published.
- The sensation of presence at the original recording can only be achieved if the music software reflects the recorded conditions; including microphone settings, editing, mixing and mastering.

### FOR FURTHER INFORMATION (UK & Europe)

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