



DS Audio Optical Cartridge

■ Renaissance of Legendary Optical Cartridge; Recreated by High precision Laser Technology

DS-001 has been the one and only one optical cartridge you can find in the market. Since its initial introduction in Japan, DS-001 has received excellent reviews and overwhelming sales in the domestic market. Now, DS-Audio is proudly announce DS-W1 for the audio fans around the world to provide you our ultimate solution for the new analog sound experience.

Many audiophiles recall Optical cartridges introduced by several companions many years ago. Its sound was shockingly sensational. Comment at the time was, "Pure like mountain dew, yet strong like a water fall." However, contrary to the market response, those cartridges quickly disappeared from the market. It was Precision mechanism and sophisticated optics that were too difficult to come over at the time. Furthermore, the audio market begun to shift into Digital Sound Era (CD music).

People still talk about Optical cartridge as analogous to Hi-fidelity. So, Optical Cartridge became a legendary product among audiophiles.

Unlike MM/MC cartridges, which based on Electromagnetic induction, Optical cartridge detects stylus vibration by a beam of light. This innovative design made it possible to eliminate Electromagnetic frictional force intrinsically exists in any MM/MC cartridges.

DS-Audio proudly announce that DS-W1 is Renaissance of Legendary Optical Cartridge. DS-W1 is the re-creation of this optical cartridge with State-of-Art laser optical technology. Based on our years of research and countless experiments, DS-W1 Optical Cartridge is our ultimate solution to the audio lovers who seek for pure analog sounds.

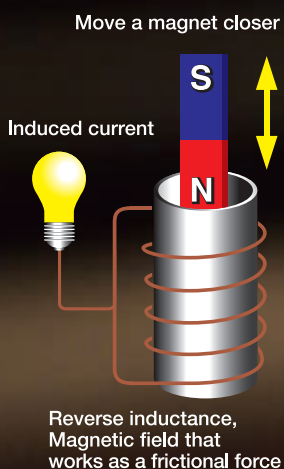
■ Free from Electromagnetic induction force; Clear and superb fidelity

In a moving magnet cartridge, the stylus cantilever carries a tiny permanent magnet, which is positioned between two sets of fixed coils (in a stereophonic cartridge), forming a tiny electromagnetic generator.

As the magnet vibrates in response to the stylus following the record groove, it induces a tiny current in the coils. The MC design is again a tiny electromagnetic generator, but (unlike an MM design) with the magnet and coils reversed: the coils are attached to the stylus, and move within the field of a permanent magnet. The coils are tiny and made from very fine wire. (Wikipedia)

In both cases, Faraday's law of induction governs the fundamental design of the cartridges. At the same time, both designs cannot eliminate frictional force governed by Lenz's law. This is an intrinsic force that MM/MC cartridges must deal with no matter how you design the cartridge.

In Audio terms, Lenz' law states that Stylus vibration receives a frictional force by its fundamental law, meaning Exact Stylus vibration is never reproduced by MM/MC cartridge systems.



■ Upmost S/N ratio; Simple and Pure Equalization by Amplitude-Proportional read-out

There are mainly two methods to play back Vinyl records ; Velocity-proportional method and Amplitude-Proportional method. MM/MC cartridges belong to the Velocity-proportional method. In which, read-out signal depends on how fast a tiny magnet (or a tiny coil in MC) moves in the magnetic field. At lower frequencies, a magnet moves slow in the magnetic field, so the resulted read-out signal level is very small. Whereas in high frequencies, a magnet moves faster, so that the read-out signal becomes un-proportionally large. Therefore, Play-back system requires Equalizer to compensate / correct Velocity-Proportional read-out signals to the original sound. (Technically speaking, MM/MC signals are time differential of Analog sound information. Signal reproduction requires Integration of the read-out signals, which requires additional electrical circuits)

Optical cartridge belongs to Amplitude-Proportional method. In which, read-out signal depends on how much distance stylus moved. Therefore, there is no dependence on frequencies in read-out signals. It results no equalization required in the read-out signals except RIAA-Curve correction. As the conclusion, Optical cartridge requires a very simple circuit in read-out process, enabling a pure and clear sound reproduction without any signal treatment on the recorded signals on a vinyl record. (RIAA curve correction is necessary)

■ Pure Analog System

You might imagine that "Optical = Digital" as in CD/DVD players. DS-W1 optical Cartridge is pure analog system. There is no digital process involved in the play back of a vinyl record. The difference is whether you read-out a record by Electromagnetic method or Optical sensing method. Furthermore, light is a ultimate analog signal that pure and natural.



DS-W1

Optical Cartridge
Equalizer for Optical Cartridge



DS-W1 Optical Cartridge

| | | | | | |
|--------------------|---------------------------|---------------------|----------------|-----------------|-----------------------|
| Signal output | Photo-electric Conversion | Output signal level | 500mV and more | Needle pressure | 1.3g ~1.7g |
| Channel separation | 20db more (1KHz) | Canti-lever | Boron | | (1.5g is recommended) |
| Weight | 6.5g | Body material | Aluminum | Stylus | Shibata-Stylus |

DS-W1 Equalizer for Optical Cartridge

| | | | | | |
|----------------------|--------------|-----------------|---|------|--------------------|
| Rated output voltage | 500mV (1kHz) | Input terminal | RCA terminal | Size | 325Wx105Hx210D(mm) |
| Impedance | 120Ω | Output terminal | RCA terminalx2 | | |
| Weight | 6.0kg | | (Standard output, Subsonic filter output) | | |

DS001

Optical Cartridge
Equalizer for Optical Cartridge



DS-001 Optical Cartridge

| | | | | | |
|--------------------|---------------------------|---------------------|----------------|-----------------|-----------------------|
| Signal output | Photo-electric Conversion | Output signal level | 500mV and more | Needle pressure | 1.3g ~1.7g |
| Channel separation | 20db more (1KHz) | Canti-lever | Aluminum | | (1.5g is recommended) |
| Weight | 6.5g | Body material | Aluminum | Stylus | Line-contact |

DS-001 Equalizer for Optical Cartridge

| | | | | | |
|----------------------|--------------|-----------------|---|------|--------------------|
| Rated output voltage | 500mV (1kHz) | Input terminal | RCA terminal | Size | 325Wx960Hx210D(mm) |
| Impedance | 120Ω | Output terminal | RCA terminalx2 | | |
| Weight | 5.5kg | | (Standard output, Subsonic filter output) | | |