



## CLEARLINK OPTICAL AUDIO TOSLINK CABLE

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### DESIGN CONCEPT AND PERFORMANCE

Our very careful controlled listening tests on widely varying designs of Toslink cables found that the conventional audiophile “wisdom” in the optical arena is largely wrong. Our tests proved the following:

1. Large diameter optical cables are not better than small diameter ones.
2. Optical cables are as directional as metallic conductor wires, if not more so.
3. Glass fiber cables with more strands are not better than ones with fewer strands. Thinner polymer cables sound better than fatter ones.
4. High transmissivity optical cable does not sound better than moderate transmissivity (exactly analogous to our previous wire research finding that the lowest resistance, fattest copper conductors sound worse than thinner conductors of moderate resistance).
5. Glass fiber generally sounds better than almost all polymer cables, but the very best polymers sound better than the best glass (perhaps because the polymers are single strand while glass is necessarily multi-stranded for flexibility).
6. The configuration and precision of the terminations installed on optical cables make a big difference. The best ones sound seriously better but can only be selected by ear--no engineering parameter is a useful predictor of good terminations.
7. Optical cable sound quality is very length sensitive. As we found with digital coaxial (SPDIF) cables, speaker cables and AC power cables, shorter Toslinks are most definitely not better—and being on the short side of the optimum is much worse than being on the long side.

Putting all these findings together resulted in our unique Clearlink Optical. It features:

- The very best optical polymer material we tested
- Ultra-small diameter, single strand optical fiber
- Directionality markings, based on careful direct listening tests
- The best-sounding terminations available in the optical market
- Optimum length of 14', easily coiled down to 1½'.

This final design delivers sonic quality far better than we ever hoped for using a Toslink cable. Specifically, our Clearlink Optical offers significantly better sound quality than any USB interconnect and outdoes the most expensive high end Toslinks, whether polymer or glass.

For high resolution DACs that accept both optical and RCA digital inputs, our Clearlink Optical sounds better than the vast majority of high end digital RCA coax interconnects. On the other hand, the Clearlink Optical is not quite as transparent as our coax Clearview Excalibur Digital Ribbon ICs (noting that the Excalibur Digital coax has prevailed in every head-to-head listening test to date, regardless of the cost of the competing IC).

### APPLICATIONS

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Typical applications for which the Clearlink Optical is particularly well suited include:

1. To provide a superb sounding SPDIF digital interconnect between a Mac Mini, iMac, Macbook laptop or Mac desktop and any Toslink-equipped DAC—including your main stereo system DAC—use our Clearlink mini-Toslink. Unbeknownst to most Mac owners, the Audio Out headphone jack on all these Mac devices doubles as a SPDIF digital output whenever a mini-Toslink is plugged into the jack (the computer detects the presence of the mini-Toslink plug and switches from analog outputs to digital out). Using the Clearlink SPDIF optical cable into the DAC's Toslink In is always better sounding than the USB digital connection (when available on your Mac). A nice extra benefit is that you can remotely control the superb sound of your Mac-Toslink-DAC setup from any iPhone or iPad using any one of many remote apps.
2. To get the best possible home theater or stereo sound out of any Apple TV or Airport Express device, always use device's the Toslink audio output to connect to your home theater receiver. This will provide major sonic upgrades over any HDMI or wireless connection into the receiver.
3. To get the best possible sounding audio out of your cable or satellite box, use the Toslink Out and Clearlink cable to connect to your home theater receiver's Toslink Audio In. This always sounds better than using the HDMI to carry audio—and, if you have a high quality DAC in your receiver, the Clearlink also sounds better than any high end analog audio ICs out of the cable box. On the other hand, if your cable box has an RCA digital coax out—and if it is within 2 meters of your receiver, then you will get slightly better sound by using one of our Excalibur Digital Ribbon Interconnects.
4. For digital interconnect runs that are vulnerable to damage from cats or small children, the Clearlink Optical is far more damage resistant than either our Clearview Ultrathin or Excalibur Digital ICs—and better sounding than any conventional thick-jacketed high end digital RCA interconnect.

## INSTALLATION TIPS

1. For our standard Toslink cable, always connect the purple end to the receiving device and the black end to the source device. For example, if you are playing music files from a computer into a DAC, then the computer is the source device. Likewise, a cable box is the source that plays into the home theater receiver.
2. For our mini-Toslink to Toslink cable, the same directionality applies. The black-marked mini end *must* go into the source (the most common source being the headphone jack of any of the Mac computers). If you use the mini Toslink end plugged into the receiving device, you will be setting up the Clearlink Optical with the wrong directionality and with degraded sound. If you require a mini-Toslink for the receiving component, please call 410-685-4618 to order a Clearlink custom-assembled with the non-standard directionality.
3. If our 14' Clearlink is too long, simply coil the excess length and then tie the coil with twist ties or string. Make sure the coil is no smaller than 6" in diameter.