



# PRODUCT SPECIFICATIONS

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## **UNI Series Enhanced Universal Multicore Cable**

Kelsey's Universal Enhanced Multicore is a high-performance digital cable, purpose-built for professional touring applications. Designed to excel in challenging environments, it guarantees consistent, high-quality signal transmission for audio, lighting, and stage equipment.

Engineered with a focus on reliability, this multicore cable is constructed to withstand the physical demands of frequent setup, breakdown, and transportation. Its robust yet flexible design makes it ideal for use in complex audio systems, DMX lighting control, and high-speed data transmission. Whether you're managing a live concert, theatre production, or corporate event, this cable ensures seamless connectivity and operational efficiency under real-world touring conditions.

With both a foil and lapped screen the enhanced series is designed for transmitting multiple audio signals with high-quality shielding against electromagnetic interference (EMI) and radio frequency interference (RFI). Making it ideal for professional audio applications where signal integrity is paramount, such as live sound, studio setups and event production.

Kelsey's Universal Enhanced Multicore is not just about durability; it's also designed with practical use in mind. Its flexibility ensures easy handling and fast deployment in time-sensitive setups, while maintaining excellent mechanical strength to protect against wear and tear from heavy foot traffic, equipment movement, and challenging weather conditions.

Ideal for professionals who demand performance and reliability, this multicore cable delivers dependable results, making it an essential tool for high-pressure touring environments.



## Cable Construction

### Core Configuration:

Number of Pairs: 2,4,8 & 12

**Conductor Type:** Oxygen-Free Copper (OFC) for superior conductivity and minimal signal loss

**Conductor construction & Size:** 19/0.12 mm - 0.22mm<sup>2</sup> (24 AWG)

### Insulation:

**Material:** Low-density polyethylene (LDPE) for enhanced flexibility and safety

**Core Colour:** blue & white

**Insulation OD:** 1.10mm

### Shielding:

**Type:** Mylar Tape + Spiral Shield + Aluminum Foil for maximum interference protection

**Conductor:** ABC Copper – (0.09mm) 65 wires (approx)

**Purpose:** Minimizes electromagnetic interference (EMI) and radio frequency interference (RFI), ensuring signal integrity in noisy environments

### Twisting:

**Twist Rate:** Optimized twist rates per pair to reduce crosstalk and maintain signal clarity

### Jacket:

**Material:** Durable, High flex matt finish PVC

**Colour:** black

**Outer Jacket OD:** 2 - 9mm, 4 - 11mm, 8 - 14.5mm & 12 - 17.9mm + - 0.1mm

**Rating:** Outdoor-rated, UV-resistant, and moisture-resistant to withstand various touring conditions

## Electrical and Mechanical Characteristics

**DC resistance @20 °C – Conductor:** 80 Ω / Km

**DC Resistance @ 20 °C – Sheild:** 48 /Ω Km

**Capacitance – Cond / cond:** 22 pF/Feet

**Capacitance – Cond / Shield:** 55 pF/Feet

**Impedance:** 110 Ohms ± 15%

**Inductance b/w conductors @1kHz 20°C:** 0.8 μH/m

**Electrostatic Noise:** 100mV Max

**Electromagnetic Noise:** 0.15mV Max

**Microphonics @ 50KΩ Load:** 30 mV Max

**Voltage Breakdown:** Must withstand DC 30V for 15 seconds

**Operating Voltage:** 300 V

**Operating Temperature:** -20° C to 70° C

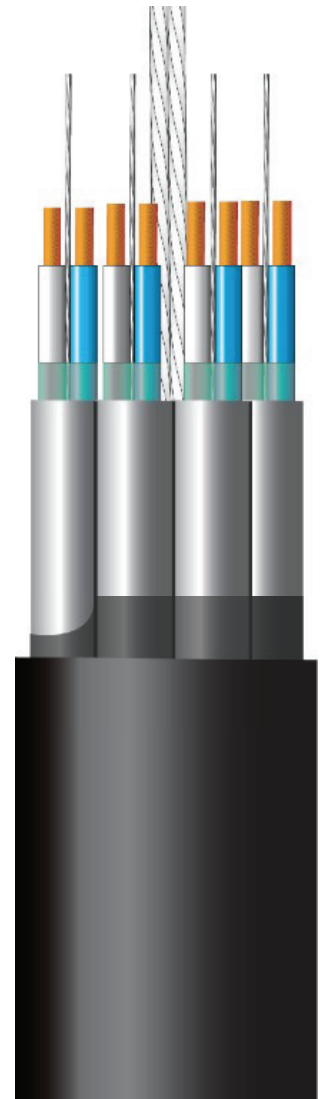
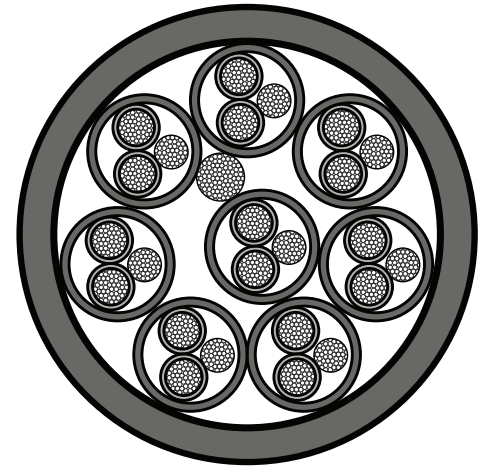
**Dielectric Constant 1k hz:** 2.30

**Tensile Strength:** 659 zN

## Standards Compliance

### Certifications:

**RoHS Compliance:** Free from hazardous substances as per RoHS directives





# Foil and Lapped Screened Audio Multicore Physical Construction Breakdown

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## **1. Conductors**

**Inner Conductors:** The cable typically has multiple cores (conductors), each of which carries an individual audio signal. These conductors are usually made of copper or oxygen-free copper (OFC) for high electrical conductivity and minimal signal loss. Copper is preferred for its high conductivity and reliability in audio signal transmission. The number of cores depends on the number of individual audio channels the multicore is designed to carry. Each core is typically insulated to prevent short circuits and interference.

## **2. Insulation**

Each conductor is insulated with a material like PVC (polyvinyl chloride), PE (polyethylene), or FEP (fluorinated ethylene propylene). This insulation ensures that the conductors are electrically isolated from each other and from the outer shielding, preventing signal degradation or interference between channels. The insulation also provides some mechanical protection for the inner wires and helps maintain the cable's flexibility.

## **3. Foil Shielding**

**Foil Shielding:** A thin layer of aluminium foil is wrapped around each conductor (or groups of conductors) to provide shielding against external EMI and RFI. The foil acts as a barrier that reflects or absorbs unwanted electrical signals, preventing them from entering the cable and causing interference. This shielding is often applied in a continuous wrap around the individual signal conductors or groups of conductors, ensuring that the audio signals remain protected from external electromagnetic disturbances.

## **4. Lapped Shielding**

**Lapped Shielding:** In addition to the foil shield, a lapped layer of copper or tinned copper wire is applied over the foil shielding. This wire is helically wound around the conductors to provide further protection against electromagnetic interference. The lapped shield offers a high level of coverage and can handle higher amounts of interference compared to foil shielding alone. It's often used to improve the cable's ability to reject noise and prevent signal degradation over long distances. The lapped shield is also flexible and robust, allowing the cable to withstand physical stress and wear, while maintaining its shielding effectiveness.

## **5. Drain Wire (Optional)**

Some designs may include a drain wire underneath the lapped shield, running along the length of the cable. This is used to drain off any static electricity or unwanted electrical charges that may build up on the shield, ensuring the system's grounding is effective.

## **6. Outer Jacket**

The entire assembly of conductors, foil shielding, and lapped shielding is enclosed in an outer jacket that provides mechanical protection and durability. The jacket is made from a tough, flexible material such as PVC, PUR (polyurethane), or LSZH (low smoke zero halogen), depending on the application. The outer jacket also ensures that the cable is safe to handle, protects it from abrasion, and helps to resist environmental factors like moisture, UV exposure, and physical stress.

## **Summary of the Construction Layers in a Foil and Lapped Screened Audio Multicore:**

- **Inner Conductors:** Usually copper or oxygen-free copper.
- **Insulation:** Individual insulation around each conductor.
- **Foil Shielding:** A thin aluminium foil shield around each conductor or group of conductors to block EMI and RFI.
- **Lapped Shielding:** Copper or tinned copper wires wound around the foil shield for enhanced protection against external interference.
- **Drain Wire (optional):** A wire that provides grounding for the shield.
- **Outer Jacket:** Durable outer covering to protect the cable from environmental and mechanical damage.

This construction provides excellent shielding, making it ideal for environments with high levels of electromagnetic interference, ensuring minimal signal loss and maintaining the quality of audio transmission. The foil and lapped shielding together create a highly effective barrier against noise, ensuring the multicore can carry clean, high-quality audio signals over long distances.