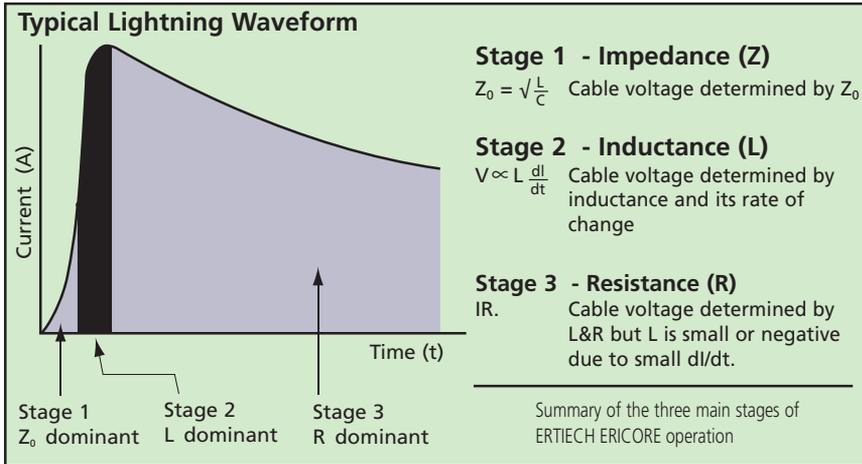


# ERITECH® ERICORE DOWNCONDUCTOR



ERITECH® ERICORE offers purpose-designed performance in each phase of the lightning control process to help convey the energy safely to the grounding system.

As an example, consider the following comparison between the same 50 m length of conventional downconductor (25 mm x 3 mm copper tape) and ERITECH ERICORE downconductor, using the air breakdown electric field (nominally 3 MV/m) and cable termination voltage (250 kV) as the criterion for "failure" of the downconductors.

The conventional downconductor will, conservatively, cause a flashover or structure dielectric breakdown when carrying lightning currents of only ~ 30 kA. On the other hand, the ERITECH ERICORE screened/insulated downconductor can easily handle far greater lightning currents. This magnitude of lightning current is exceeded in only ~ 5% of lightning events or approximately once every 30 years in a region with a ground flash density of 5 strikes/km<sup>2</sup>/yr (approximately 80 thunder days/yr).

## Main Benefits

- Lightning impulse is contained within the cable and the semiconductive outer sheath is bonded to the structure via metallic saddles, which means that the risk of sideflashing is negligible
- The low characteristic impedance of the cable minimizes internal dielectric failure
- The cable is able to be routed away from sensitive equipment, electrical wiring, structural steel and human work areas
- Use of a single downconductor as opposed to multiple downconductors
- Ease of installation
- Minimal maintenance

ERITECH ERICORE Characteristic	
Characteristic impedance (Ω)	<12
Inductance (nH/m)	37
Capacitance (nF/m)	0.75
Cross Sectional Area of Conductor - mm <sup>2</sup>	55
Resistance $R_{DC}$ (mΩ/m)	0.5
Resistance $R_{Impulse}$ (mΩ/m)*	6
Upper Termination Voltage withstand (kV)	250
Weight (kg/m)	1.2
Diameter (mm)	36

Characteristics of ERITECH ERICORE downconductor.

\* Due to skin effect

## Why Use ERITECH ERICORE?

The ERITECH ERICORE downconductor cable is purpose-designed low inductance, low impedance cable designed to minimise voltage build-up due to lightning impulses. This cable provides significantly higher performance than any normal HV cable and is specially designed for the control of lightning impulses.

The main danger in controlling lightning impulses is the very fast voltage and current rise times following the capture of the lightning strike.

To further understand the technical value of the cable, it is necessary to review the lightning mechanism and resulting voltage build-up. The voltage between inner conductor and outer sheath is determined by three different parameters. These are dominant at different stages during the operation of the cable in conveying lightning energy to ground (as shown in The Typical Lightning Waveform Table.)