PolyPhaser

Application Note

Surge Protection for Equipment with 4.3-10 Connectors

The Application

- Small-cell surge protection
- Cellular radios using coaxial 4.3-10 connectors
- Also LMR, WLAN environments

Specific Configuration

Cellular radios using coaxial 4.3-10 connectors

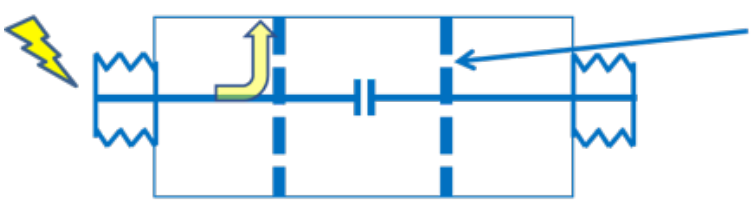
Also LMR, WLAN environments

The Solution

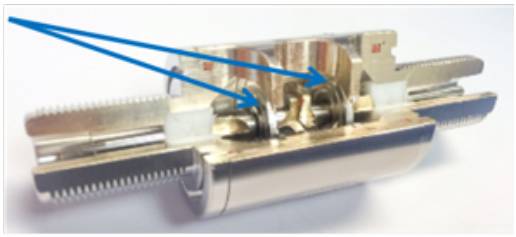
PolyPhaser TSX-4310 Series Surge Arrestors

Overview

Thanks to a small footprint and increased PIM performance, many cellular radio users are standardizing on coaxial 4.3-10 connectors, especially in compact applications such as small cells. While 4.3-10 connectors help to improve efficiency, boost capacity, and control costs, the equipment still requires surge protection.


Lightning Filter Incorporating two inductors and a blocking capacitor

Spiral Coils



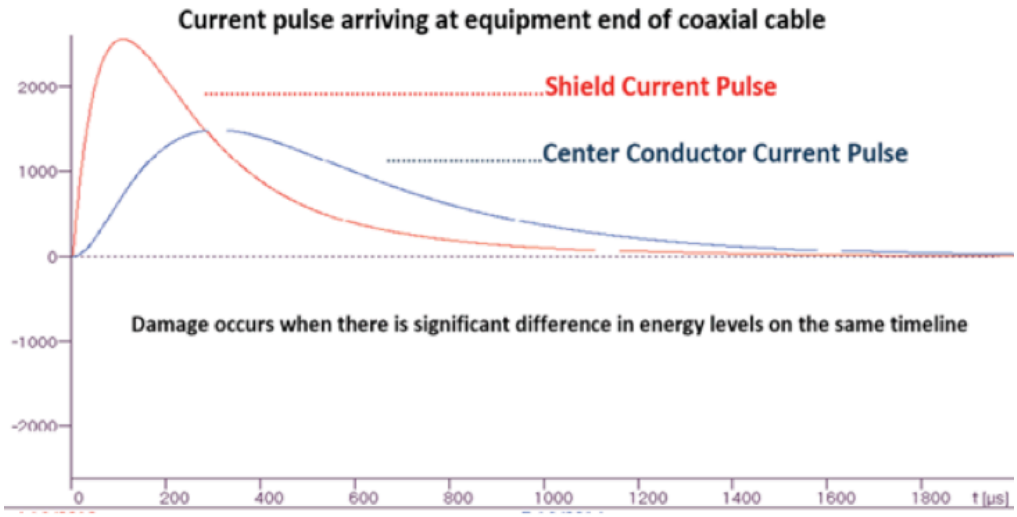
PolyPhaser TSX-4310 Series surge protectors fit the application. Spiral filter inductor technology enables nearly instantaneous response to lightning surges, while 4.3-10 connectors maximize space and are lighter in weight, key features in DAS and small cell deployments

Details

PolyPhaser TSX-4310 Series surge protectors fit the application. Patented spiral filter inductor technology enables nearly instantaneous response to lightning surges, while 4.3-10 connectors maximize space and are lighter in weight, key features in DAS and small cell deployments.

Critical Advantages

- Patented PolyPhaser spiral inductor technology is designed to react almost instantly to a lightning strike
- Lightning simulation testing revealed traditional quarter wave stub (QWS) surge arrestors passed at least 150 times more let-through voltage than PolyPhaser spiral inductor arrestors (see table below)
- PolyPhaser TSX surge protection reduced let-through voltage to millivolts, compared to more than 50V with QWS protectors
- Let-through voltage is an essential determinant in the long-term effectiveness of a surge protection device



Let-Through Voltage Comparison

Current Level	PolyPhaser SX (TSX-4310FF-P)	QWS Surge Arrestor
2kA, 8/20us	260mV	43V
3kA, 8/20us	337mV	59V

The Value of Surge Protection

A lightning strike—even indirect to equipment—can damage, degrade, and, ultimately destroy mission-critical electronic equipment. The relative low cost of surge protection virtually eliminates this possibility, particularly when you select solutions from a reliable source such as PolyPhaser.

TSX-4310 options include DC block and DC pass configurations, with male/female connector options to fit the application. Each operates in 698 MHz to 2700 MHz frequency ranges, making them ideal for cellular networks and co-located small cells. These filters offer ultra-low PIM, with a typical rating of -130dBm (-173 dBc, 2 x 20 W).

Contact PolyPhaser or your PolyPhaser representative today for more information on TSX-4310 surge protection devices.