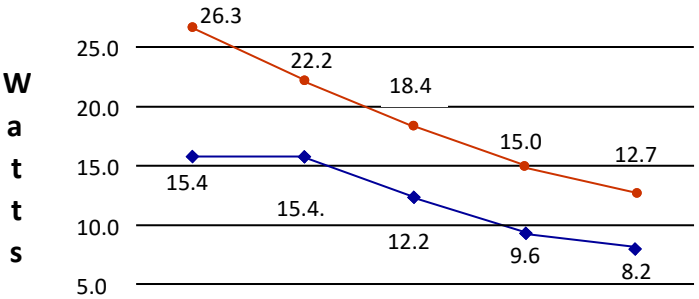
By Chad Szekeres with Nitek International LLC.

Understanding the PoE limitation and voltage drop which occurs over longer length of cable becomes critical when attempting to power IP edge devices with PoE from the headend. Nitek's Etherstretch product line is designed to extend 10/100 network communication and PoE well beyond standard network limitations. Voltage drop is a natural occurrence which is best described as how energy is reduced or lost as electric current moves through resistant conductors of an electrical circuit. As the distances of cable get longer the supplied voltage will become less. The Etherstretch product line is designed to support communications over coax up to 500 meters and over Category UTP cable to 600 meters. Electrical wiring such as coax and category UTP each have a resistance value and based on the gauge and material will fall victim to the effect of voltage drop on long circuits. Nitek has done thorough testing and documentation on voltage drop when deploying Etherstretch which can be found in each of the product specification sheets. The charts below will indicated the available wattage for the connected device based on distance and cable type.

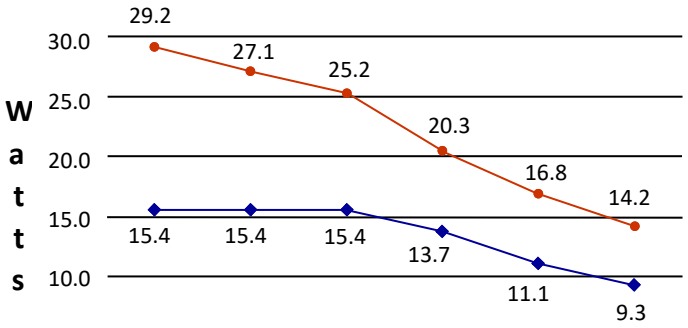
Coax - Available PoE Wattage at PoE Device



	100 Meters	200 Meters	300 Meters	400 Meters	500 Meters
802.3AT	26.3 Watts	22.2 Watts	18.4 Watts	15.0 Watts	12.7 Watts
802.3AF	15.4 Watts	15.4 Watts	12.2 Watts	9.6 Watts	8.2 Watts

* Results charted were calculated using RG59U coaxial cable with a 20AWG center conductor and power sourcing equipment using IEEE 802.3AF standard with starting voltage of 48 volts DC and IEEE 802.3AT standard with starting voltage of 54 volts DC. PoE Switches with internal power and current limits may change individual results.

UTP - Available PoE Wattage at PoE Device



	100 Meters	200 Meters	300 Meters	400 Meters	500 Meters	600 Meters
802.3AT	29.2 Watts	27.1 Watts	25.2 Watts	20.3 Watts	16.8 Watts	14.2 Watts
802.3AF	15.4 Watts	15.4 Watts	15.4 Watts	13.7 Watts	11.1 Watts	9.3 Watts

* Results charted were calculated using four pair 24awg Cat5e cabling and power sourcing equipment using IEEE 802.3AF standard with starting voltage of 48Vdc and IEEE 802.3AT standard with starting voltage of 54Vdc. PoE Switches with internal power and current limits may change individual results.

The Etherstretch product line is manufactured with IEEE 802.3 PoE compliant components which will allow power to be sourced from a PoE or PoE+ device. To maintain the PoE and UL standards the components will have a maximum capability of 30 watts. Based on voltage drop associated with the cable length and type the usable PoE will be reduced. In the event your connected edge device requires a greater amount than supplied, High Power PoE or an untraditional power type such as 18VDC as are commonly found with wireless networking products a PoE inserter or power injector is suggested as shown in the following illustration.