



Generonix *SureReach 2000*: Powering xDSL Conditioners/Extenders

Customers are demanding high speed Internet service. Telco Service Providers are building copper based xDSL networks, offering “triple play” video, data and voice services to residential subscribers, including primary line phone service. xDSL technology offers high-bandwidth connectivity, however losses due to loop resistance limit the reach of the xDSL service. The insertion of active loop “extenders” or “conditioners”, placed in the Outside Plant (OSP) between the DSALM and the subscriber, can boost the xDSL signal, so it can reach more distant customers, and operate with greater reliability. *SureReach* provides a way to economically power several of these xDSL conditioner/extenders using fewer pairs while leveraging investment in existing Network Line Power central office equipment. This allows the service provider to increase service footprint, expand customer base, and reuse existing assets.

The Challenge: Power for Distance

Powering active OSP network elements is a challenge. xDSL conditioners require -48VDC power. Some times this power can be provided by the customer line, but line loss at this low voltage means that using line power has a limited reach; the xDSL extender that amplifies and conditions the signal is now limited by the power available from the customer line. Some technologies require a second pair to power the conditioner/extender; this may be referred to as express power. This solution may not be practical as multiple spare pairs are often not available. Another solution is to use a second pair and specialized power equipment only suitable for the conditioner/extender, which is an expensive solution and such equipment can not be used to power other NLP equipment or reused as the network evolves and product vendors change.

The Solution: *SureReach 2000*

SureReach (model number SR248190) is a small, out-door unit that can deliver up to 55 watts of power for multiple DSL conditioner/extenders. *SureReach* is mounted next to the extenders on a pole, or in an OSP cabinet. *SureReach* converts +/- 190 VDC from the central office over the copper telephone network to -48VDC. It contains no batteries, and is environmentally hardened. It uses existing central office NLP equipment, not specialized power systems designed just for the conditioner/extender. One line pair and a single *SureReach* can power multiple extenders. More than 25 watts is available at 18KF of 24 gauge.



Conditioner/extenders can be deployed in clusters or cabinets or along a copper path with several *SureReach* units sharing a single copper pair.

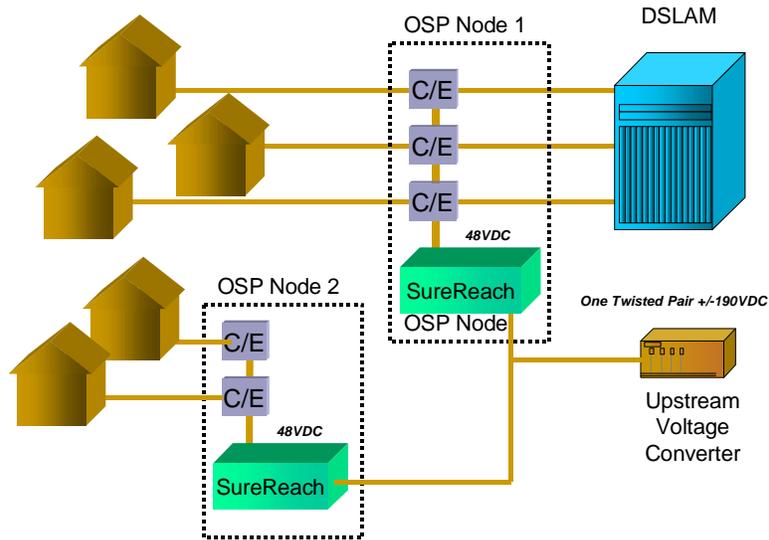
End Customer Benefits

- **Quicker installation**
- **No affect on voice service**
- **Lower cost**

Phone Company Benefits

- **Lower xDSL extension costs**
- **No specialty power equipment**
- **Fewer OSP pairs required**
- **Ease of installation**
- **Uses existing network line power equipment**
- **Lower five-year costs**

How it Works - Supporting xDSL Conditioners/Extenders with Network Line Power



SureReach OSP power converters support xDSL by providing reliable power to various types of network loop conditioner/extender or line conditioning devices. Central office -48vDC power is up-converted to +/- 190 and is sent out over the telephone copper network. One or more copper twisted pairs connect the central office NLP shelf to *SureReach* nodes mounted in OSP locations. In areas where a subscriber is too far from the DSLAM to reach directly, or bandwidth is restricted due to line loss, loop conditioner/extenders (labeled C/E on the picture above) can be inserted in the line loop to amplify or condition the signal. These C/E's are active, and require 48VDC power. A single twisted pair line is run from a standard +/- 190VDC power supply in the Central Office to a *SureReach* unit co-located with one or more C/E's. It converts the line voltage to -48VDC and up to 55 watts which is enough power to run dozens of Loop extenders.

SureReach SR2-48190 is just one model of a line of outdoor hardened power supplies tailored for use in homes, buildings, apartments, outdoor spaces, cell sites, telephone poles and cabinets. For more information, go to www.generonix.com.

For More Information

www.generonix.com or 1-866-464-4693

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