



Real-Time Answers/Integrated Solutions

Engineered products and services to increase the capacity, efficiency and reliability of electric power delivery systems.

**Power Donut Applications:**

- Real Time, Dynamic Line Ratings
- Real Time, Dynamic Line Tension and Sag Monitor
- Load Survey Applications
- Power Flow Monitoring for Automatic Sectionalizing Systems

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# Power Donut2™

## The Instrumentation Platform For High Voltage Power Systems (Cell Phone Version)

### Aerial Conductor Installation



### Product Description

The Power Donut2 is a state of the art instrumentation platform designed for data acquisition, data logging, and alarm monitoring applications on high voltage, over head conductor systems. The Power Donut2 is completely self contained: it is self powered, it measures current, voltage, MW, MVars, MWh, conductor temperatures, stores data on board, and it transmits data on demand using GSM wireless cell phone technology.

### Installation

The Power Donut2 needs no supporting infrastructure. It attaches to the conductor by means of a hot stick and can be installed without taking an outage. Bushing assemblies match the Donut hub to the customer's conductor and are available for the entire range of transmission conductor sizes including bundled conductor configurations. The Donut™ is powered by magnetic flux coupling from the conductor and operates on all voltage level systems up to 500 kV.

### Information Technology

The Power Donut2's built-in GSM Cell Phone Modem is capable of receiving calls from a remote communications controller, and will automatically 'phone home' on pre-set alarm conditions. The Donut™ may be used in real time, Wide Area Management Systems, in SCADA and Energy Management Systems, and has on board flash memory for analog and event data logging. Users retrieve alarms and data from the Donut™ using the USi/Nitech software package.

### Power Donut 2 can be Adapted to Your Instrumentation Requirements

The Power Donut2 includes expansion I/O, expansion memory and has the on board computational power to implement custom applications.



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# Power Donut2<sup>™</sup>

## Instrumentation Platform Specifications

### Physical

Diameter: 12.6 inches — 32 cm.  
Width: 5.5 inches — 14 cm.  
Weight: 22 Lbs — 10 kg.  
Temperature Range: - 40 C to + 60 C operating  
Environmental: Corona free housing through 500 kV, Fully weatherproof  
Installation: Suitable for bundled conductor applications

### Power Supply

No external power supply is required, the Donut is powered from the magnetic field. Minimum start up current — 50 amperes.

Battery Power: Runs on battery for 12 hours when line current is less than 50 amperes; Donut<sup>™</sup> will shut down correctly on low battery status. Charging begins when the line current is above 120 amperes; total charge time is 6 hours

### Signal Inputs

Line Current, Phase (conductor) to ground Potential, conductor temperatures (2), conductor angle, internal unit temperature, battery voltage, power supply voltage, and spare analog inputs

Metering Inputs: +/- 0.5% of reading. (Voltage scale and current scale should be verified on site)

Temperature probe: 1 degree C accuracy, 0.1 degree C resolution

### Information Output

Power Donut2<sup>™</sup> communicates using patented TDMA polling methodology

Amps and Volts: RMS values updated every second.

Demand and Consumption: kW, kWhr, kVar, kVarh updated every 30 seconds

Analog Values: Values updated every second

Historical Data: Two (2) Megabyte of on board flash memory storage. Data logging parameters are configured by the user

### Radio Specifications

GSM Cell Phone 850MHZ/900MHZ

Baud Rate: 115 kbps maximum

### Software

USi real time data acquisition and control software is available. The software operates with Microsoft Windows 2000 and Windows XP operating systems on Pentium class processors.

### Options

A weather station is available for use with DLR applications



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