Alpha Powers

DAS & Small Cells

alpha TECHNOLOGIES™

Your Power Solutions Partner

Alpha is the leader in powering wireless networks. Our application knowledge, coupled with expertise in DC, AC, Line Power and enc
Macro Cell, DAS and Small Cell networks. We pioneered the powering of indoor DAS remotes using copper cable, dramatically lower
For outdoor DAS, we are the industry leader in powering remotes with our line of rugged UPS systems. Now, we are the first to devel
Our commitment to industry leadership has been rewarded with the opportunity to deploy products in some of the most visible and hig
convention centers to world-renowned sports venues. Alpha Technologies stands alone as the leader in DAS and Small Cell power.

ODAS

Outdoor DAS remote access units are typically AC powered, though some products are now transitioning to DC. An ODAS remote can consume from 400 to 6000 Watts of power, depending on the configuration. DAS remotes with AC inputs are typically powered with one or more of Alpha's rugged FXM UPS products for deployment in outdoor environments. The FXM's can be mounted in a variety of enclosures designed to meet the structure, capacity and aesthetics of any application.

FXM Family

The FXM family of rugged UPS power modules are engineered for a broad range of applications. We offer standard solutions from 350 watts to 6000 watts in a single cabinet. Input units are available from 350W to 2000W, and are all designed for the most demanding environment where clean backup power is needed. FXM units ensure DAS equipment, and other critical devices, remain safe and protected from power disturbances. Alpha's proven battery solutions combined with the FXM's powerful and programmable battery charger are capable of providing the run-time you need.

Enclosures

Alpha offers compact power system enclosures that are designed to operate reliably in extreme environments of heat, moisture, dust, temperature and vibration, yet are also ideal for locations where aesthetics are important. Our cabinets come in a wide range of sizes and shapes to accommodate different power conversion and battery backup configurations. Multiple options are available for thermal management. Depending on the application, the cabinet may be designed to GR-487 or NEMA 4 standards.

IDAS

Today's indoor DAS remote access units are typically DC powered, and can consume up to 450W of power, depending on the configuration. Alpha is the leading provider of remote (line) power solutions, using the head-end power delivered over copper cables to energize the remotes. Our Line Power solutions also include rectifier systems and/or batteries for use in enterprise applications, or for deployment in a mid-span arrangement at a large indoor venue.

eLimiter+

The eLimiter+™ is a modular, current limiting, power distribution system that delivers up to 36 individual 100VA Class 2 circuits in a single 19-inch, 2RU shelf. The eLimiter+ converts conventional 48Vdc into a constant 57Vdc output, nearly doubling the reach compared to 48Vdc line power systems and dramatically reducing the cost of powering iDAS networks. A built-in intelligent controller provides remote access, control and monitoring. Though the eLimiter+ increases the output to 57Vdc, it still limits the power to 100 Watts per circuit to ensure full compliance with the NEC Class 2 standard. The Class 2 standard eliminates the need for conduit, licensed electricians and remote batteries, significantly improving the business case for the service provider.

Aggregator

For iDAS equipment that consumes more than 100W, the Aggregator solves the problem by terminating up to eight (8) NEC Class 2 circuits and combining them into a single 48V bulk output of up to 800W. The Class 2 circuit aggregation device is compact, front accessible and can be rack or wall mounted near the iDAS remote node. By combining the unit with products from Alpha's eLimiter™ family, the Aggregator meets the requirements for NEC Class 2 safety. With the eLimiter+ and Aggregator, service providers can use conventional cable to cost effectively and safely power all iDAS remotes.

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op AC, DC and Line Power solutions for Small Cell networks.
gh priority venues, ranging from high end communities to

Head End

Head End DAS equipment, which consists of interfaces to the base stations and devices that convert RF energy into light energy for transport over fiber optic cables, can operate off 120Vac and/or -48Vdc, and often requires a mixture of the two. The amount of power required can range from a few hundred to a few thousand watts of power depending on the size of the venue. In some cases, the DAS provider may also supply power for the base stations, which increases the -48Vdc demand by several thousand watts. Alpha has power solutions for all types of head-end configurations, including inverters for AC-powered equipment.

CXPS-E3

The CXPS-E3 is a DC power plant that is ideally sized for supplying power to all the elements in a DAS head-end. The E3 delivers up to 250 Amps of DC current through an industry-leading 26 breakers, in only 3RU of rack space. The E3 can be mounted in a rack along with five (5) battery trays to provide up to 4 hours of power and battery backup in a single bay. The compact design eliminates the need for a separate battery rack, freeing floor space for other revenue-generating equipment. The E3 also features Alpha's next generation system controller, the CXC HP, for advanced monitoring and control.

CXPS-W

The CXPS-W is a midsize power plant that serves both wireless and wireline applications. The versatile 48Vdc system can be configured for single or dual voltage operation, while still providing a vast array of distribution options which include bullet, GJ style breakers and TPL, TPS, GMT fuses at various power levels. With high efficiency rectifiers, an intelligent system controller and ample space for cabling, the "W" marries state-of-the-art features with traditional cable management. The ability to add DC-DC converters makes it an ideal solution for powering macro cell sites with dual voltage operation.

Small Cells

Telecom operators will deploy millions of small cells in the coming years to increase coverage and meet the exponential demand for mobile data. One of the key benefits of small cells is the ability to pinpoint coverage near the users. However, deploying small cells presents new site acquisition, maintenance, backhaul and powering challenges. Alpha's comprehensive AC, DC and line powering portfolio of compact and outdoor rated products enables the most effective and efficient solutions for Small Cells.

Cellect™ 600

The Cellect™ 600 Small Cell Power Supply and Battery provides 600W of 48Vdc power for connection to six (6) devices at a site. The battery overcomes most AC grid interruptions to ensure ultimate Quality of Experience (QoE) for small cell users. Cellect is ideal for a wide variety of applications, with a universal mounting bracket for pole or wall installations, a removable solar shield that can be painted to match the site's aesthetics, and an IP65-rated waterproof design that can be deployed in harsh outdoor environments with temperatures ranging from -40 to +65°C (-40 to 149°F). The maintenance-free, sealed design enables a "set it and forget it" deployment process, eliminating truck rolls and dramatically lowering Opex over the life of the installation. Economically designed for mass deployment and minimal impact on Capex budgets, the unit still complies with industry standards and the ability to offer remote access via SNMP. For small cell power, the Cellect 600 is the industry leader with the lowest TCO, the smallest footprint and lightest weight, the most connection points, a maintenance free battery, system quick connect/disconnect, and the only available solution with an IP65 rating.

Micro 100

Alpha's Micro 100 is an Uninterruptible Power Supply that addresses the needs for AC powered small cells. Housed in a compact NEMA 3R cabinet designed for pole mounting, the Micro 100 delivers up to 2 hours of battery backup for small cells that consume less than 100 Watts. It is ideal for powering outdoor small cells in harsh operating environments, including regions with unstable AC grids and severe environments. The system also features built-in SNMP option for access to system alarms and status.

LPR48-150-IP68

LPR48-150-IP68 is a compact, sealed, standalone line powering remote unit that provides up to 150 Watts at 54Vdc to the Small Cell site using only two twisted copper pairs to receive the power. Deriving power from an existing centralized power node that may be located several miles away, the LPR48-150 eliminates the need for AC utility or battery backup at the remote site, reduces installation and operating expenses, provides flexibility in site selection, and improves network reliability.

Alpha Technologies Powers NYC Subway DAS

With over 277 underground stations and an annual ridership exceeding more than one billion, the New York City subway system is the largest and most established of its kind in North America. In 2011, an ambitious plan was developed by Transit Wireless and the Metropolitan Transportation Authority (MTA) to use DAS as a means of blanketing all 277 underground subway stations with mobile voice and data coverage for commuters, emergency and security services. Given the critical nature of this application and the harsh, variable subterranean environment, Alpha was brought in to design a customized power solution that could withstand extremes of temperature, moisture, vibration and shock, while meeting all the operational load requirements such as battery backup time in the event of a grid failure. Alpha's solution came packaged as a ceiling mounted cabinet (able to support 250lbs of gear, with an Ingress Protection rating of 66), FXM 2000 outdoor rated UPS module and AlphaCell 85GXL batteries. Expected to be completed by 2016, the network will host services provided by the four biggest wireless carriers, AT&T, Sprint, T-Mobile & Verizon and others.

See our other case studies at www.alpha.ca/case-studies

Major wireless carriers and DAS integrators in the US and Canada are using Alpha's power systems to backup their IDAS and ODAS nodes, e.g.

- IDAS - PNC Park, Pittsburgh
- IDAS & ODAS - PPL Park, Philadelphia
- ODAS - NYC Subway, New York City
- ODAS - Chicago Transit Authority, Chicago
- IDAS - Houston Subway, Houston
- IDAS - Sports Authority Field at Mile High, Denver
- IDAS - Bankers Life Field House, Indianapolis
- IDAS – Texas A&M University, College Station
- ODAS - Oakland Bay Bridge, San Francisco
- IDAS - Century Link Field, Seattle
- IDAS - Husky Stadium, Seattle
- IDAS - Safeco Field, Seattle
- IDAS - JW Marriott, Palm Springs
- IDAS - Coliseum, Los Angeles
- IDAS - MGM Grand, Las Vegas
- IDAS - Venetian, Las Vegas
- ODAS - University of Cal Football Stadium
- ODAS - City of Palo Alto

About NEC Class 2

The National Electrical Code defines a Class 2 circuit as that portion of the wiring system between the load side of a Class 2 power source and the connected equipment, such as the IDAS remote device. The Class 2 power source is limited to 100 Watts of output power per circuit and cannot exceed 60Vdc. Due to its power limitations, a Class 2 circuit is considered safe from a fire initiation standpoint and provides acceptable protection from electrical shock. Because it is deemed low risk, a Class 2 circuit can be installed by DAS technicians over conventional surface-mounted cable.

In order to meet the 100W restriction, the power equipment must employ some form of active current limiting circuitry. Without the 100W guarantee, remotely powering the distant devices requires that the cable be armored or enclosed in conduit, and that the site be certified by a licensed electrician. Since the latter approach is so costly, most DAS providers have looked to use line power equipment like Alpha's eLimiter+ to meet the NEC requirements.

Though products like eLimiter+ have significantly reduced the cost of IDAS installations, there persists a common misconception that low cost, conventional fuse panels can meet Class 2 provided they are fused appropriately. This belief is incorrect because the power distribution device must meet the 100W requirement even when the primary protection device (i.e., the fuse) is bypassed. The end result is that conventional fuse panels are not compliant with NEC Class 2, though they may be used if the provider elects to incur the expense of conduit and a licensed electrician.

Contact our Power Experts and find out why:

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