SELdirect Dispatch

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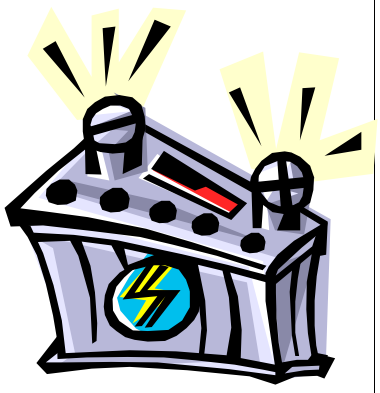
Battery Bank Connections for ITE

Why is this so confusing?

First of all, up until deregulation in the mid 80s, the requirements for telecommunication equipment were under the exclusive domain of AT&T. UL Standards were not traditionally applied to central office equipment, as the industry had its own requirements that were not necessarily based on the NEC - the basis for many UL Standards. Additionally, much of the intent of the original requirements is not immediately available to companies today.

With deregulation, there was a need for an industry standard for the safety of such equipment. UL1459 (1985) was the original Standard for Telecommunication Equipment, with specific requirements for battery bank connections, and some requirements therein are still in our current Standards. When the subsequent UL1950 1st Edition for Information Technology Equipment (ITE) was published in 1989, it did not include requirements for telecommunication equipment, like it does presently. As a result, when telecom requirements were added piecemeal in subsequent updates and editions, it was not done with any coherence, as traditional US requirements were "shoe-horned" into the IEC-based standard.

Some current requirements include:



Physical Connection: The connection should be fairly clean, but can depend on a fairly trained installer, who is expected to have access to tools and follow instructions.

Voltage Test Range: According to IEC62102, there are two types of

SEL's New Addition - Paul Carter

SEL is pleased to announce its recent hiring of Paul Carter.

HIS EXPERIENCE: Paul worked at Ampex Corporation for 16 years, where he was responsible for product safety, EMC compliance and power supply qualifications. For product safety, SEL worked intensively with him at Ampex, where he eventually was able to handle the efforts himself over the years. We consider this a result of SEL's policy to train our clients as much as they want to learn, and Paul's ability to learn quickly.

Also at Ampex, Paul was responsible for EMC compliance and operated his own in-house 3m semi-anechoic chamber, testing both commercial products and military flight recorders (MIL-STD-461). His skills include designing test plans, troubleshooting for practical solutions, and effectively communicating results and/or corrective action to engineering teams, when necessary.

He also qualified power supplies and components to performance standards and specifications, performed failure analysis, and conducted vendor evaluations. As a result, he has been involved in developing test programs to automate data collection.

At SGI for the last couple of years, he was responsible for the Design Verification Test (DVT) lab, where he managed a small group of engineers, as well as performed as an individual contributor. Duties included evaluating design performance under adverse conditions of temperature/humidity, ESD, shock & vibration, frequency margins, power, etc. - above and beyond industry standards.

We consider Paul a valuable resource to SEL, as he brings us the perspective from industry's standpoint. He is familiar with companies' inner workings and understands our clients' challenges and experiences. Finally, his efforts to "get things right and on time" make him a good fit with SEL's approach to compliance.

HIS ROLE AT SEL: He will be handling product safety like the rest of us. In addition, for the clients who are interested in having a "single-point-of-contact", Paul can manage the EMC compliance, by offering tips for designing in compliance, and testing at our partner's facilities, CKC Laboratories.

HIS LIFE OUTSIDE SEL: Paul has a great family with four children and a wife of 17 years. He functions as a deacon in charge of youth programs at his local church.

Inside this issue:

Special points of interest:

- For agency visit dates to SEL and seminar dates, see www.SELdirect.com
- For info between newsletter issues, see our website or contact us directly.
- To see our larger facility where SEL has been since early 2002, see our website, which has directions (http://www.seldirect.com/map.html).

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Battery Banks (continued)

distribution systems — one at nominal 48Vdc in North America and most of Europe, and 60Vdc for some parts of Eastern Europe. Then a product could be marked 48V/60Vdc, with the testing to take place at 40-56.7Vdc for the 48V system and at the plus tolerance of the 60V system, DC72V.

Isolation: The current standard allows for an AC500V dielectric from the + and - inputs to chassis ground and SELV (secondaries), similar to the original UL1459, or arguably requires AC1000V, depending on the edition of Standard and interpretation of the agency. Restricted access locations allow for telecom circuitry up to DC120V to be accessible, so the effort to isolate the maximum DC72V should not be overdone for these products, in our opinion. Although UL1459 was a troublesome Standard in other regards, its requirements were fairly straightforward for battery bank input, including this isolation effort, and other items such as marking products for installation in a restricted access location (see NEC 1996, Articles 110-16, -17 and -18 for more details).

Rather than merge the requirements into the main body of the Standard, as is current practice in ITE, we believe this would have been a good candidate for a particular standard, such as 60950-2-x, where it could be isolated and applied only when needed, with specifics detailed like UL1459 had done.

Although the current requirements for battery bank systems are fairly convoluted, there is an opportunity to clarify and simplify in future efforts. The new Standard in development (IEC62368) which proposes to cover traditional ITE, audio/video, and telecom would be well served to separate and isolate those requirements for battery-powered equipment with specific concise requirements… rather than "shoe-horn" them into the Standard as an afterthought.

For more complete current and future requirements, you can contact SEL for details, and clients are encouraged to ask for SEL's Handout on the topic.

Compliance Tip!

Organize your product's safety compliance into the potential hazards that need to be addressed:

Common Hazards: Shock (Electrical), Fire, Energy and Mechanical

Specific Hazards: Laser, Chemical, and Ergonomic (Stress)

Useful Website

Visit IEC's JUST PUBLISHED by visiting: http://www.iec.ch/online_news/justpub/jp_service.htm to subscribe to the email alert service where weekly you will be notified of new IEC standards.

HAPPY HOLIDAYS EVERYONE!

SEL Handouts

For our clients, we offer 2-4 page summaries of those traditional problem areas, including:

- Plastics flammability
- Labeling
- Manuals
- Factory Inspections
- Standards Evolution
- Process Flowchart
- Spacings
- Why Do Safety at All?
- CB Scheme
- CE Mark and the European Union
- Battery Bank Connections

Did You Know?

TUV America, formerly TUV Product Service, has effectively pulled up stakes in Silicon Valley and Boulder, with downsizing in San Diego as well.

The latest CB Bulletin has added the new member countries Malaysia and Ukraine and published national deviations for Australia and China.

Starting in April of 2005, pins of power plugs shipped to Australia will require insulation per AS/NZS 3112:2001.

Products certified under EN60950 through A4 were not presumed to conform with the EU Directives as of August 2003? They are supposed to include A11 at present time!

SEL posts its agency visit schedule on:

www.SELdirect.com/calendar.htm