

## Electric Vehicle Supply Equipment Intertek

Battelle Energy Alliance, LLC, managing and operating contractor for the U.S. Department of Energy's Idaho National Laboratory, is the lead laboratory for the U.S. Department of Energy's Advanced Vehicle Testing. Battelle Energy Alliance, LLC contracted with Intertek Testing Services, North America (ITSNA) to collect data on federal fleet operations as part of the Advanced Vehicle Testing Activity's Federal Fleet Vehicle Data Logging and Characterization study. The Advanced Vehicle Testing Activity study seeks to collect data to validate the use of advanced electric drive vehicle transportation. This report focuses on the Fort Vancouver National Historic Site (FVNHS) fleet to identify daily operational characteristics of select vehicles and report findings on vehicle and mission characterizations to support the successful introduction of electric vehicles (EVs) into the agencies' fleet. Individual observations of the selected vehicles provided the basis for recommendations related to EV adoption and whether a battery electric vehicle (BEV) or plug-in hybrid electric vehicle (PHEV) (collectively plug-in electric vehicles) could fulfill the mission requirements. FVNHS identified three vehicles in its fleet for consideration. While the FVNHS vehicles conduct many different missions, only two (i.e., support and pool missions) were selected by agency management to be part of this fleet evaluation. The logged vehicles included a pickup truck and a minivan. This report will show that BEVs and PHEVs are capable of performing the required missions and providing an alternative vehicle for both mission categories, because each has sufficient range for individual trips and time available each day for charging to accommodate multiple trips per day. These charging events could occur at the vehicle's home base, high-use work areas, or in intermediate areas along routes that the vehicles frequently travel. Replacement of vehicles in the current fleet would result in significant reductions in emission of greenhouse gases and petroleum use, while also reducing fuel costs. The Vancouver, Washington area and neighboring Portland, Oregon are leaders in adoption of PEVs in the United States<sup>1</sup>. PEV charging stations, or more appropriately identified as electric vehicle supply equipment, located on the FVNHS facility would be a benefit for both FVNHS fleets and general public use. Fleet drivers and park visitors operating privately owned plug-in electric vehicles benefit by using the charging infrastructure. ITSNA recommends location analysis of the FVNHS site to identify the optimal station placement for electric vehicle supply equipment. ITSNA recognizes the support of Idaho National Laboratory and ICF International for their efforts to initiate communication with the National Parks Service and FVNHS for participation in this study. ITSNA is pleased to provide this report and is encouraged by the high interest and support from the National Park Service and FVNHS personnel.

Having trouble keeping up with the latest standards for external power supplies such as the California Energy Commission's (CEC) requirements for efficiency and no-load power consumption; or the implications of the 3rd Edition 60601 on Medical Safety? Ever wondered why seemingly similar power supplies have significantly different performance and reliability characteristics? The answers to these and many more questions can be found in this Essential Guide to Power Supplies. Whether you're new to designing-in a power supply or DC-DC converter or an 'old hand', this book offers an invaluable resource and all the information you'll need in one easy reference guide.

Presents the latest electrical regulation code that is applicable for electrical wiring and equipment installation for all buildings, covering emergency situations, owner liability, and procedures for ensuring public and workplace safety. The "National Electrical Code 2011 Handbook" provides the full text of the updated code regulations alongside expert commentary from code specialists, offering code rationale, clarifications for new and updated rules, and practical, real-world advice on how to apply the code. Prudent Practices in the Laboratory--the book that has served for decades as the standard for chemical laboratory safety practice--now features updates and new topics. This revised edition has an expanded chapter on chemical management and delves into new areas, such as nanotechnology, laboratory security, and emergency planning. Developed by experts from academia and industry, with specialties in such areas as chemical sciences, pollution prevention, and laboratory safety, Prudent Practices in the Laboratory provides guidance on planning procedures for the handling, storage, and disposal of chemicals. The book offers prudent practices designed to promote safety and includes practical information on assessing hazards, managing chemicals, disposing of wastes, and more. Prudent Practices in the Laboratory will continue to serve as the leading source of chemical safety guidelines for people working with laboratory chemicals: research chemists, technicians, safety officers, educators, and students.

Vols. for 1970-71 includes manufacturers' catalogs.

This timely book provides you with a solid understanding of battery management systems (BMS) in large Li-Ion battery packs, describing the important technical challenges in this field and exploring the most effective solutions. You find in-depth discussions on BMS topologies, functions, and complexities, helping you determine which permutation is right for your application. Packed with numerous graphics, tables, and images, the book explains the OC whysOCO and OC howsOCO of Li-Ion BMS design, installation, configuration and troubleshooting. This hands-on resource includes an unbiased description and comparison of all the off-the-shelf Li-Ion BMSs available today. Moreover, it explains how using the correct one for a given application can help to get a Li-Ion pack up and running in little time at low cost."

User-friendly and up-to-date, these National Electrical Code? tabs are a great way to organize the 2005 NEC?. These self-adhesive tabs can reduce the time spent searching to find key information. Tabs are durable and allow for positioning adjustments after being placed on the code paper. Affordable and time-saving, these are a must-have for NEC? users.

This principal source for company identification is indexed by Standard Industrial Classification Code, geographical location, and by executive and directors' names.

Companion volume to Components and Sub-Assemblies Directory, providing access to 8000 manufacturers, agents and representatives of electronics systems and equipment. Entries include names of key managers, addresses, fax/telephone numbers, and pocket descriptions of manufacturing and sales programmes. There is also a product index to track the companies involved in any given business lines.

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Testing Activity's Federal Fleet Vehicle Data Logging and Characterization study. The Advanced Vehicle Testing Activity study seeks to collect data to validate the utilization of advanced electric drive vehicle transportation. This report focuses on the Golden Gate National Recreation Area (GGNRA) fleet to identify daily operational characteristics of select vehicles and report findings on vehicle and mission characterizations to support the successful introduction of plug-in electric vehicles (PEVs) into the agencies' fleets. Individual observations of these selected vehicles provide the basis for recommendations related to electric vehicle adoption and whether a battery electric vehicle or plug-in hybrid electric vehicle (PHEV) (collectively PEVs) can fulfill the mission requirements. GGNRA identified 182 vehicles in its fleet, which are under the management of the U.S. General Services Administration. Fleet vehicle mission categories are defined in Section 4, and while the GGNRA vehicles conduct many different missions, only two (i.e., support and law enforcement missions) were selected by agency management to be part of this fleet evaluation. The selected vehicles included sedans, trucks, and sport-utility vehicles. This report will show that battery electric vehicles and/or PHEVs are capable of performing the required missions and providing an alternative vehicle for support vehicles and PHEVs provide the same for law enforcement, because each has a sufficient range for individual trips and time is available each day for charging to accommodate multiple trips per day. These charging events could occur at the vehicle home base, high-use work areas, or intermediately along routes that the vehicles frequently travel. Replacement of vehicles in the current fleet would result in significant reductions in the emission of greenhouse gases and petroleum use, while also reducing fuel costs. The San Francisco Bay Area is a leader in the adoption of PEVs in the United States. PEV charging stations, or more appropriately identified as electric vehicle supply equipment, located on the GGNRA facility would be a benefit for both GGNRA fleets and general public use. Fleet drivers and park visitors operating privately owned PEVs benefit by using the charging infrastructure. ITSNA recommends location analysis of the GGNRA site to identify the optimal placement of the electric vehicle supply equipment station. ITSNA recognizes the support of Idaho National Laboratory and ICF International for their efforts to initiate communication with the National Parks Service and GGNRA for participation in the study. ITSNA is pleased to provide this report and is encouraged by the high interest and support from the National Park Service and GGNRA personnel.

NFPA 70 National Electrical Code (NEC) sets the foundation for electrical safety in residential, commercial, and industrial occupancies. The 2017 edition of this trusted Code presents the latest comprehensive regulations for electrical wiring, overcurrent protection, grounding, and installation of equipment.

Accelerated Testing and Validation Methods is a cross-disciplinary guide that describes testing and validation tools and techniques throughout the product development process. Alex Porter not only focuses on what information is needed but also on what tools can produce the information in a timely manner. From the information provided, engineers and managers can determine what data is needed from a test and validation program and then how to select the best, most effective methods for obtaining the data. This book integrates testing and validation methods with a business perspective so readers can understand when, where, and how such methods can be economically justified. Testing and validation is about generating key information at the correct time so that sound business and engineering decisions can be made. Rather than simply describing various testing and validation techniques, the author offers readers guidance on how to select the best tools for a particular need, explains the appropriateness of different techniques to various situations and shows how to deploy them to ensure the desired information is accurately gathered. Emphasizes developing a strategy for testing and validation Teaches how to design a testing and validation program that deliver information in a timely and cost-effective manner

Advances in Battery Technologies for Electric Vehicles provides an in-depth look into the research being conducted on the development of more efficient batteries capable of long distance travel. The text contains an introductory section on the market for battery and hybrid electric vehicles, then thoroughly presents the latest on lithium-ion battery technology. Readers will find sections on battery pack design and management, a discussion of the infrastructure required for the creation of a battery powered transport network, and coverage of the issues involved with end-of-life management for these types of batteries. Provides an in-depth look into new research on the development of more efficient, long distance travel batteries Contains an introductory section on the market for battery and hybrid electric vehicles Discusses battery pack design and management and the issues involved with end-of-life management for these types of batteries

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