



Protection Settings

Compliance, Coordination, Validation, and Support

Modern protection and control systems have become remarkably complex. Calculating T&D relay settings, complying with NERC reliability standards, designing and reviewing protection schemes, and updating and validating settings and databases are just a few of the many challenges requiring increasingly sophisticated modeling and study tools in order to simulate and analyze the dynamic behavior of today's power networks.

Service Offerings

Quanta Technology's Protection & Control experts provide support to utilities and other industry entities for a wide range of projects in such key areas as:

- Protection Settings Support
- Compliance Studies
- Wide-Area Protection Coordination Studies
- Support for CAPE, ASPEN, CYME, ETAP, Synergi, and others, including Primary and Protection Model Setup and Validation
- Advanced Protection Topics

T&D Protection Settings Support

Quanta Technology's team of experts and protection engineers have extensive experience working with T&D relay settings calculations, providing protection settings support to utility (and non-utility) customers by performing fault studies using industry-standard software (ASPEN, CAPE, CYME, etc.) to develop settings based on our clients' protection philosophies.

Quanta Technology also performs third-party peer review on settings work performed by other entities. This includes applications such as Distributed Energy Resources (DER), series compensated lines, and other technically challenging topics.

Compliance Studies

Quanta Technology has assisted numerous clients in meeting their compliance needs, including the many NERC reliability standards (e.g., PRC-023, PRC-025, PRC-026, PRC-027, and CIP v5). Having performed hundreds of compliance studies for industry clients, Quanta Technology performs thorough reviews of all protection functions and their associated settings, identifies compliance issues, and helps develop mitigating actions when needed.

Wide-Area Protection Coordination Studies

Over time, relay settings may be impacted by system changes. Quanta performs studies to review relay coordination across the transmission grid with testing for sensitivity analysis, evaluation of protection performance under numerous fault cases and contingencies, and generation of actionable reports for utility engineers to rank issues found based on pre-defined risk levels.

This study not only provides a detailed coordination review with numerous fault and contingency issues, but ensures that the system and relay data is configured in the short circuit and settings management databases. Our experience has helped utilities to review and address latent issues and provides a solid base case for future PRC-027 studies.



PRC-023, PRC-025, PRC-026,
PRC-027, and CIP v5



Protection

➤ Settings Support

Transmission and Distribution settings support for many utilities

➤ Compliance Studies

Experience in performing NERC compliance studies and providing summary reports.

➤ Wide-Area Protection Studies

Very experienced in performing wide-area protection coordination studies across the transmission grid or as part of capital projects.

➤ Advanced Support

Industry-leading experts to help on almost any topic requiring in depth protection knowledge.

CAPE, ASPEN, CYME, and Other Support

Today's complex and integrated protection and control systems require more sophisticated modeling and study tools to simulate and analyze the dynamic behavior of the power network. Our protection experts provide support to utilities and others in updating and validating their short-circuit databases, as well generating automated reports or summaries from Powerbase, CAPE, ASPEN or other tools for settings summaries and NERC compliance records.

Advanced Protection Topics

In addition, Quanta Technology offers comprehensive studies on advanced topics. Areas include:

- Development or review of protection philosophy
- Development or review of templates for protection settings
- Process to map PSS/E primary model to short circuit programs
- Provide independent assessment of the various compliance or short circuit tools on the market, based on the utility needs and provide assistance in tool evaluations and selection
- Development of processes for compliance studies such as PRC-027, or processes to adapt IEC 61850
- Independent assessment of relay performance
- Wide-area disturbances and event report review
- Working with utilities on the development, evaluation, and testing of Special Protection Schemes and Wide-Area Monitoring Protection and Control using PMUs.

For other advanced topics, please contact us.

About Quanta Technology

Quanta Technology is an independent technology, consulting, and testing company providing business and technical expertise, along with advanced methodologies and processes, to utilities and others in the power and energy industries. Our mission is to provide unparalleled value to our clients in every engagement across the value chain by using advanced software and hardware, laboratories, and custom tools for a holistic approach to practical service and the most insightful thought leadership in the industry.

For Additional Information Contact:

Northeast (USA) and Québec

Mike Longrie: MLongrie@Quanta-Technology.com

South/Southeast (USA) and Ontario

Diana Prkacin: DPrkacin@Quanta-Technology.com

Central (USA and Canada)

Evan Estes: EEstes@Quanta-Technology.com

West (USA and Canada)

Reza Nasri: RNasri@Quanta-Technology.com

International (outside USA and Canada)

David Elizondo: DElizondo@Quanta-Technology.com

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