IEEE Canada
Northern Canada Section

IEEE-NCS, IAS/PES Presents

Tuesday, May 16th, 2017, 6:00 to 8:30pm, doors open at 5:30pm

Technical Seminar:

"IEEE Recommended Practice for Motor Protection in Industrial and Commercial Power Systems Overview and What's New!"

Technical Seminar Abstract:

IEEE Std. 3004.8 covers the protection of motors used in industrial and commercial power systems. It is likely to be of greatest value to the power-oriented engineer with limited experience in the area of protection and control. It can also be an aid to all engineers responsible for the electrical design of industrial and commercial power systems. This recommended practice is an update to IEEE Std 242-2001 (Buff Book) chapter 10. A general update was made to the material from chapter 10 of the Buff Book. Material added or expanded includes details for reduced-voltage motor starting, recommended protection functions using multifunction motor protection relays for contactor controlled fused starters and breaker controlled starters along with single-line and three-line diagrams, adjustable speed drive applications, DC motor protection, motor bus transfer, partial discharge monitoring, and a detailed example of motor protection using a multifunction motor protection relay.

- A general overview will be presented highlighting the practical use of the recommended practice for selecting typical motor protection for low voltage and medium voltage motors.
- The use of multifunction motor protection relays is common place and the key setting differences will be highlighted for MV motors with contactor controlled fused starters vs. breaker controlled starters. Misapplication of protective settings can be detrimental to equipment and personnel.
- Protecting motors powered by Adjustable Speed Drives can be challenging. These challenges and recommended protection functions will be presented.
- Thought leaders in motor protection are identifying methods to detect motor problems prior to motor failure. These methods include vibration, winding temperature, on-line partial discharge, and others covered in the recommended practice.
- Information on reduced-voltage starting, motor bus transfer, applications in hazardous (classified) locations, and arc flash hazards for motors will be discussed.

Lorraine K. Padden, PE (IEEE- M'80–SM'94)

Lorraine is co-founder and President of Padden Engineering, LLC, Katy, TX. Ms. Padden has been providing electrical engineering services to the Petrochemical Industry for over 30 years, specializing in power system design and analysis, arc flash risk assessment, and coordination studies. Ms. Padden received a B.S. degree in electrical engineering from South Dakota School of Mines and Technology, Rapid City, SD, USA. After graduation, she worked for Shell Oil Company and Subsidiaries in Houston, TX and Bakersfield, CA.

Ms. Padden is a member of the IEEE Standards Association (SA), Industry Applications Society (IAS), and Power and Energy Society (PES) and is past Vice Chair of PCIC Standards Subcommittee, and past Chair of the PCIC Production Subcommittee. She actively serves on several Committees including Chair of IEEE Std. 1349 Working Group (Motors in Hazardous Locations) and Chair of IEEE Std. 3004.8 Working Group (Motor Protection) and is contributing to the Technical Book Coordinating Committee for re-writing the IEEE Color Books. She has chaired chapters of the IEEE Buff Book (Protection and Coordination) and IEEE Blue Book (Low Voltage Circuit Breakers), and contributes to several other IEEE standards including IEEE 841 (Severe Duty TEFC Motors). Ms. Padden is a voting member of the API Subcommittee on Electrical Equipment and a Task Group member for API RP 500/505/NEC (Electrical Area Classification) and API 14F/14FZ (Electrical Systems for Fixed and Floating Offshore Petroleum Facilities). She has published and presented papers and tutorials at the IEEE Petroleum and Chemical Industry Committee Conference (PCIC) and other IEEE conferences and has published papers in the IEEE IAS Transactions and IAS Magazine. Ms. Padden is also a member of the American Petroleum Institute, National Fire Protection Association, The International Society of Automation, and National Society of Professional Engineers and Lifetime member of the Society of Petroleum Engineers. Ms. Padden is a recipient of the IEEE Standards Medallion and IEEE PCIC David C. Azbill awards for IEEE standards work and is a Licensed Professional Engineer in Texas, California, and Washington.

John A. Kay, C.E.T. (IEEE- M93, SM98, F12)

In 1988, John began his career with the Allen-Bradley Canada (Rockwell Automation) as a Medium Voltage Marketing Representative, where he was responsible for the selection and globally quotation of medium voltage control products. He was held various roles within Rockwell Automation since then including: Application Engineering Manager for Medium Voltage Control Products, Engineering Manager for Low Voltage MCC and Medium Voltage Systems, Global Business Unit Manager for Medium Voltage Control Products and Senior Technologies Specialist. In his present role as Principal Engineer, he explores new technologies related to current and future product designs, product and operational safety and standards development. He was instrumental in the development of the first Allen Bradley Medium Voltage Adjustable Speed Drive and arc resistant motor control products. He is currently engaged in new technologies review and development including high performance protection devices, synchronous control and protection systems and more recently the development of preemptive arc detection and mitigation techniques. He actively promotes and provides training surrounding these new product technologies, safety standards and general electrical safety techniques.

John is a very active member of the IEEE Standards Association (SA) and IEEE Industry Applications Society (IAS), the IEEE Petroleum and Chemical Industry Committee (PCIC), the IEEE Industrial and Commercial Power Systems (I&CPS) and the IEEE Pulp and Paper Industry

Committee (PPIC). He has held various leadership roles on the executive boards for both the IEEE IAS and the IEEE PPIC. He is an active member developing and revising many standards including activities related to the development of the IEEE P3004 series of standards which are the update to the longstanding IEEE color book series. He is a member of the committee responsible for the development of the new IEEE 1566 Standard, “Performance of Adjustable Speed AC Drives Rated 375 kW and Larger”. He is a voting member responsible for the review and revision of many of the electrical and safety standards applied today.

He has authored or co-authored more than 60 award winning technical papers presented through various technical committees including the IEEE, the Pulp and Paper Association of Canada (PAPTAC), the Association for Iron & Steel Technology, NFPA along with several other well know North American standards organizations. Many of these papers have been re-published in several publications and magazines. He has authored several technical articles published through various trade and safety magazine focusing on electrical safety, arc flash detection, and preemptive fault detection and control techniques. He is typically seen presenting technology and safety topics at various technical product forums and safety workshops. John was elevated to IEEE Fellow in January of 2012, for contributions to arc resistant medium voltage control and protection technologies. John is a Certified Engineering Technologist in the province of Ontario, Canada.

IEEE YP Opening Talk: Introduction to Motor Circle Diagrams

Abstract: The Induction Motor Circle Diagram (also known as a Heyland, Behrend, or Ossanna diagram) is a graphical representation of the locus of induction motor stator current from zero speed to synchronous speed, and is used to graphically derive motor parameters. The concept of the Circle Diagram was conceived in the late 19th century, but is today no longer commonly utilized by engineers. With the advent of modern computational techniques utilizing the motor exact equivalent circuit, stator currents and torques can be calculated faster and with more accuracy than by graphical means. However, the Circle Diagram is invaluable in providing an intuitive understanding of motor characteristics throughout the entire range of operation.

Daniel Lang, P.Eng., M.IEEE

Daniel Lang holds a Bachelor of Science in Electrical Engineering from the University of Alberta (2010). He has worked as an engineering consultant in all areas of power systems design and analysis, from small commercial buildings to large scale heavy industrial installations.

His work has included power system analyses and design with an emphasis on protective relaying, unbalanced fault analysis, steady-state / load flow and transient analysis, arc flash analysis, and protection logic.

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When: Date: Tuesday 16th of May, 2017 Time: 5:30PM to 8:30PM All times are: Canada/Mountain	
Where: Four Points by Sheraton Edmonton South 7230 Argyll Rd, Edmonton AB T6C 4A6	
Agenda: 5.30pm: Doors open and light meal 6:00pm: OEA award presentation Mak Hakim 6:10pm: YP Opening Talk 6:20pm: PES/IAS Keynote Presentation with Q&A	

Online Registration (Open from March 20 – May 9)

https://events.vtools.ieee.org/m/44559

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If you require any help with event registration support or have any questions, please contact the event organizers:

Kelly Butz (kbutz@magnaiv.com)